ADAPTATION FUND

PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

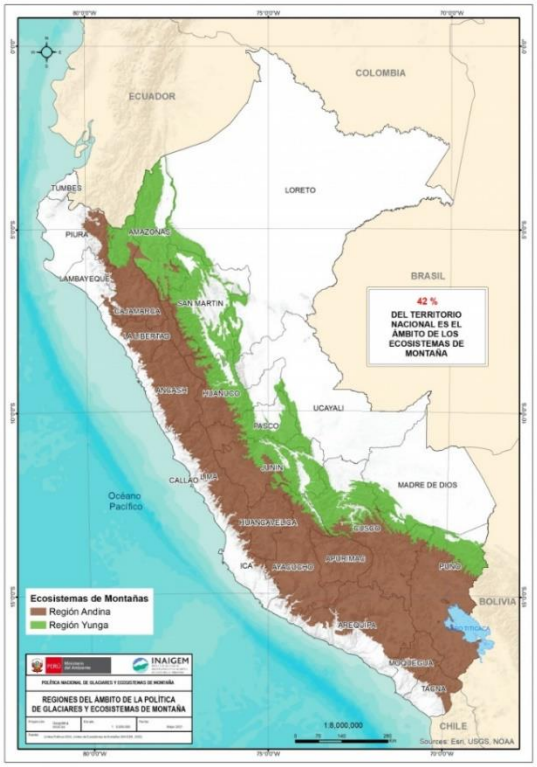
PART I: PROJECT/PROGRAMME INFORMATION

Project Category	:	Single Country Proposal
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 Implementing Entity	:	National
Implementing Entity	:	PROFONANPE
Executing Entity	:	HELVETAS Swiss intercooperation
Amount of Financing Requested	:	5,465,145.00 (in U.S Dollars Equivalent)

Project Background and Context

The mountain ecosystems in Peru are located in both sides of the Andes Mountains (Figure 1) covering 48 million hectares distributed in 19 departments[1], 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)[2]. 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[1] 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[3], considering the negative tendency of the net primary productivity or the change in the plant cover[4], 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.

Figure 1. Location of mountain ecosystem in Perú



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, Huascaran 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

[1] Ministry of Environment, 2018. Map of Ecosystems of Perú (Ministerial Resolution 440-2018-MINAM).
[2] Critical Ecosystem Parnertship Fund, 2021. Tropical Andes Biodiversity Hotspot: Ecosystem Profile Update 2021. https://www.cepf.net/sites/default/files/tropical-andes-ecosystem-profile-2021-english.pdf
[3] https://geoservidor.minam.gob.pe/monitoreo-y-evaluacion/restauracion-de-areas-degradadas/
[4] 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

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)[5].

Chart 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	• Agricultural expansion • Livestock overgrazing • Illegal extraction • Groundwater drainage (in wetlands) • Infrastructure • Mining • Fire
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	
High-Andean relict forest (Queñoal trees and others)	156,972.02	19,265.83	651.87	
Western slope montane relict forest	90,703.86	13,674.80	4,995.63	
Meso-Andean relict forest	24,964.55	18,838.72	54.63	
Inter-Andean seasonally dry forest (Marañón, Mantaro, Pampas y Apurímac)	535,867.36	8,906.79	39,276.63	
Periglacial and Glacial Landscape	2,959,578.37	676,985.37	19,072.44	
Total	**32,912,669.76**	**2,290,831.81**	**314,546.49**	

Source: National Map of Ecosystems (MINAM; 2018)[1]; MINAM Map Server (2021)[2]; SERNANP (2020); MINAM (2021)[6].

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)[7]. 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) [8]. 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 (productive chain) 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[9], of which 96.6% are

[5] International Potato Center. 2021. The Andean and the food for the future.
[6] 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
[7] 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/
[8] León, F. 2007. The Contribution of the Natural Protected Areas to the National Economy. National Institute of Natural Resources. Lima. Lima
[9] Government of Perú. 1992. Law Nº 24656. General Law of Rural Communities. Lima, Perú

in mountains ecosystems (INAIGEM, 2021)[4], and are in the medium and high levels of poverty, according to the National Institute of Statistics and Informatics (INEI) [10].

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) [11] 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) [12]. 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) [13], and the generation and strengthening of effective mechanisms of social participation and institutionalization of relevant local knowledge for adaptation (Dupuits, 2021)[14]. 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) [15], with more risk of extinction in higher latitudes and on tops of the mountains (Herzog, S.K. et al, 2010[16]; Martinez, Jørgensen, P. M., & Tiessen, 2012[17]), 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)[18].

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[19]; Planas-Clarke et al, 2020[20]; Cervantes et al, 2021[21]), (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[5]; López Gonzales et al, 2020[22]), and the generation of natural sources of polluting effluents such as the Acid Rock Drainage due to loss gaciers (INAIGEM, 2021)[6].

According to the National Plan of Adaptation to the Climate Change of Peru (MINAM, 2021)5, 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 percentual 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).

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[10] 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

[11] 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.

[12] 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

[13] 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

[14] 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.

[15] 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

[16] 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

[17] Martinez, R., Jørgensen, P. M., & Tiessen, H. (2012). Climate Change and biodiversity in the Tropical Andes. S. K. Herzog (Ed.). MacArthur Foundation.

[18] 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.

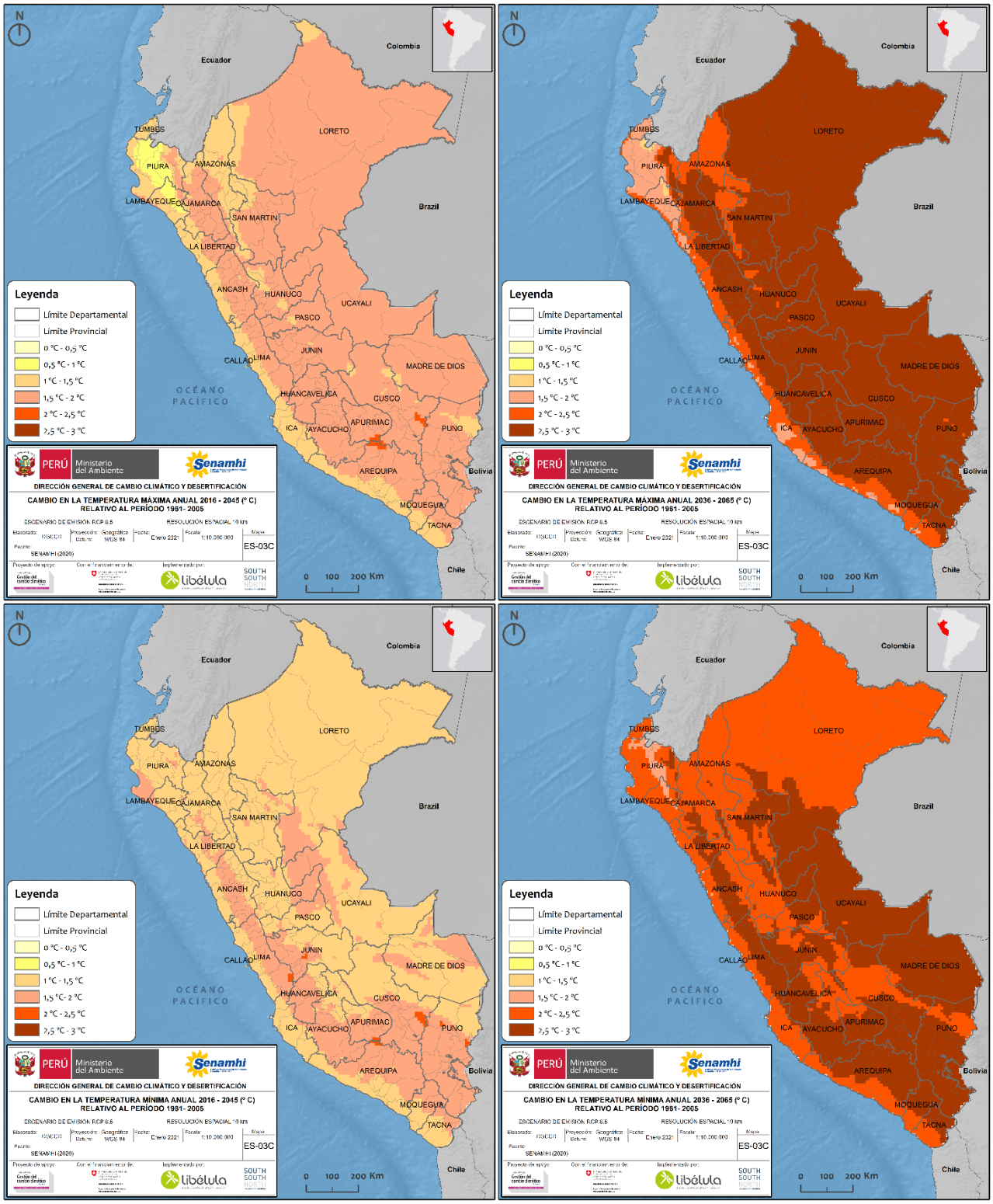
[19] Ochoa-Tocachi, B. F., Buytaert, W., De Bievre, B., Célleri, R., Crespo, P., Villacís, M., ... & Arias, S. (2016). Impacts of land use on the hydrological response of tropical Andean catchments. Hydrological Processes, 30(22), 4074-4089.

[20] 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

[21] 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).

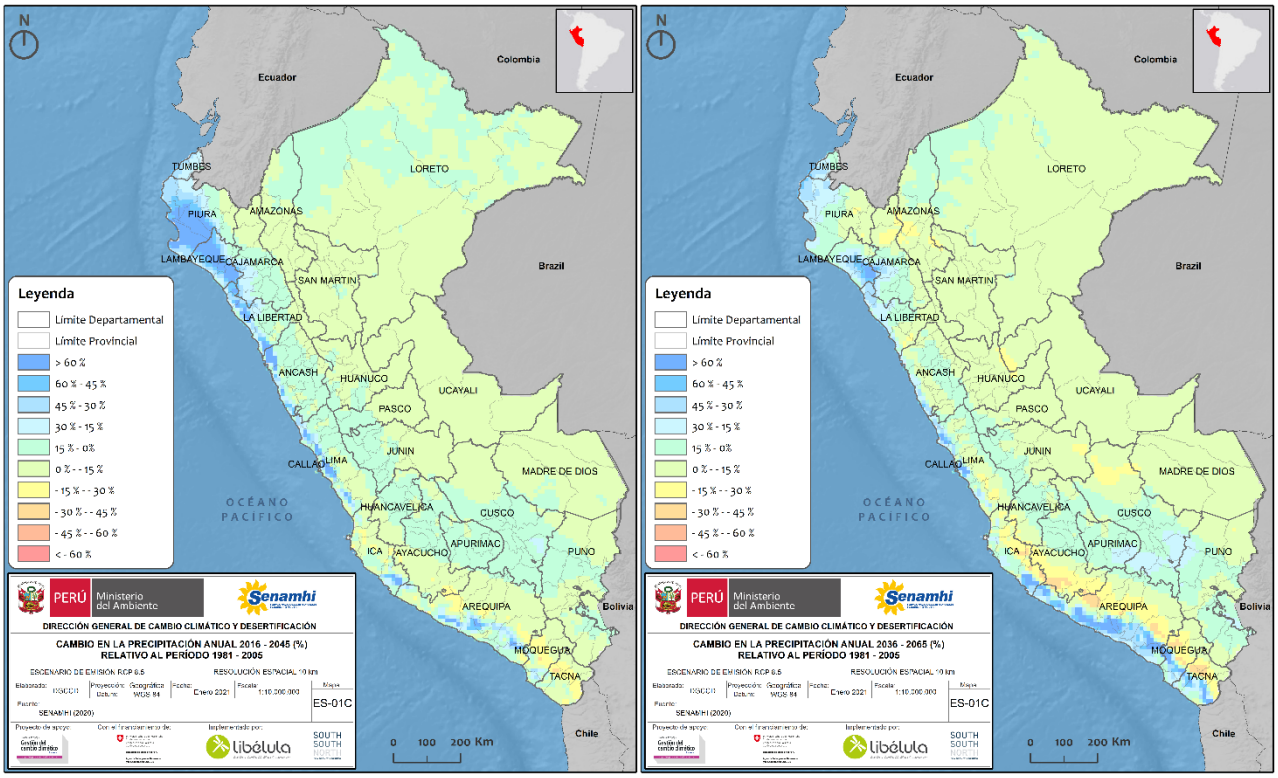
[22] López Gonzales M, Hergoualc'h K, Angulo Núñez Ó, Baker T, Chimner R, del Águila Pasquel J, del Castillo Torres D, Freitas Alvarado L, Fuentealba Durand B, García Gonzales E et al. 2020. What do we know about Peruvian peatlands? Occasional Paper 210. Bogor, Indonesia: CIFOR

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.



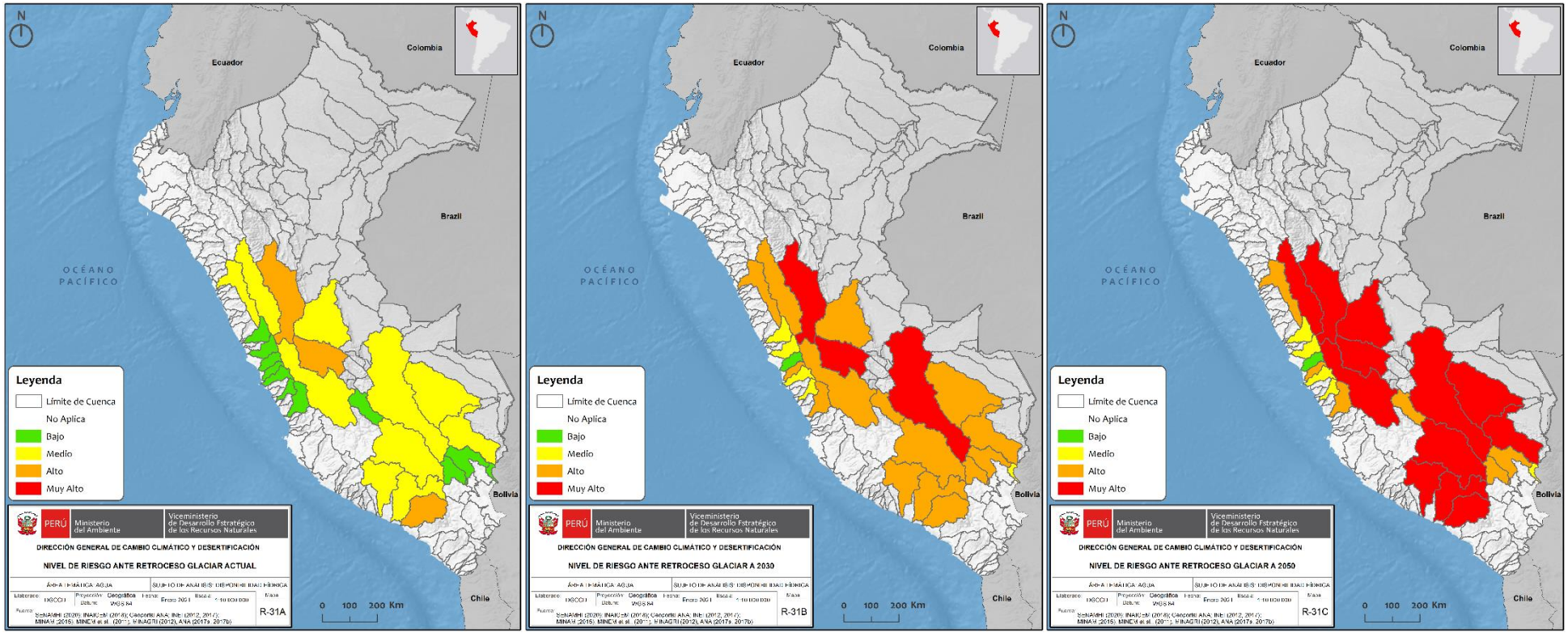
Source: National Plan of Climate Change Adaptation of Peru (MINAM; 2021)

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 glaciar retreat. This prioritization reflects the conceptual framework of the National Adaptation Plan (NAP)5, 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.

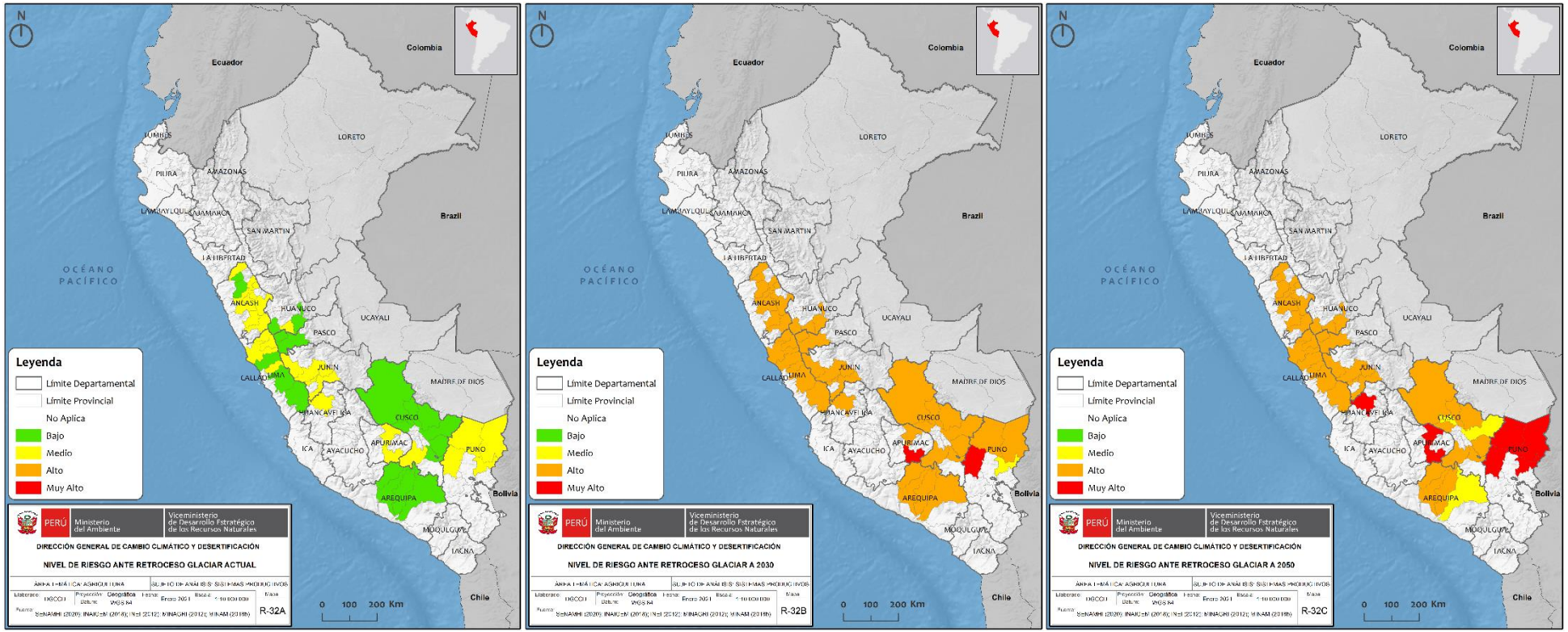
The results of this climate risk analysis for the thematic areas prioritized by the project (water, forests, and agriculture) and for the major hazards for the Andean ecosystems (mass movements, change in aridity conditions or glacial retreat) are shown in the Figures 4 to 7.

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



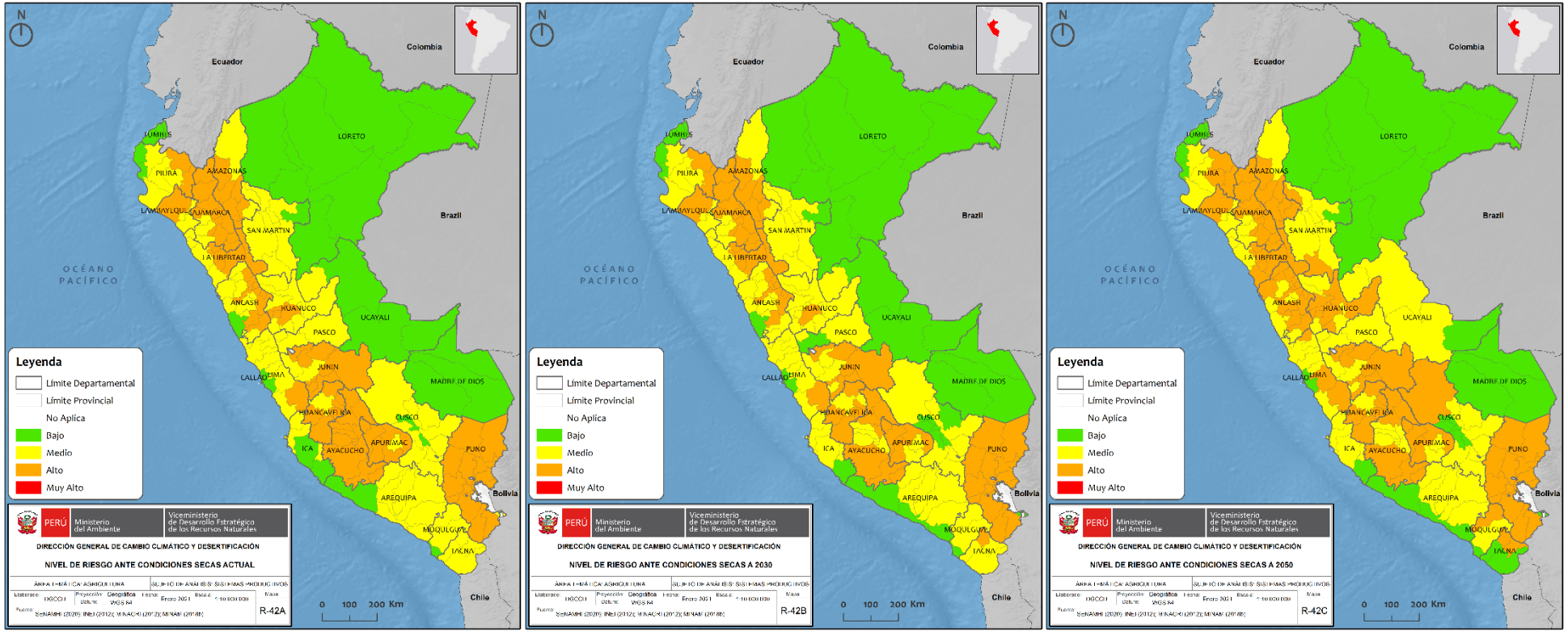
Source: National Plan of Climate Change Adaptation of Peru (MINAM; 2021)

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



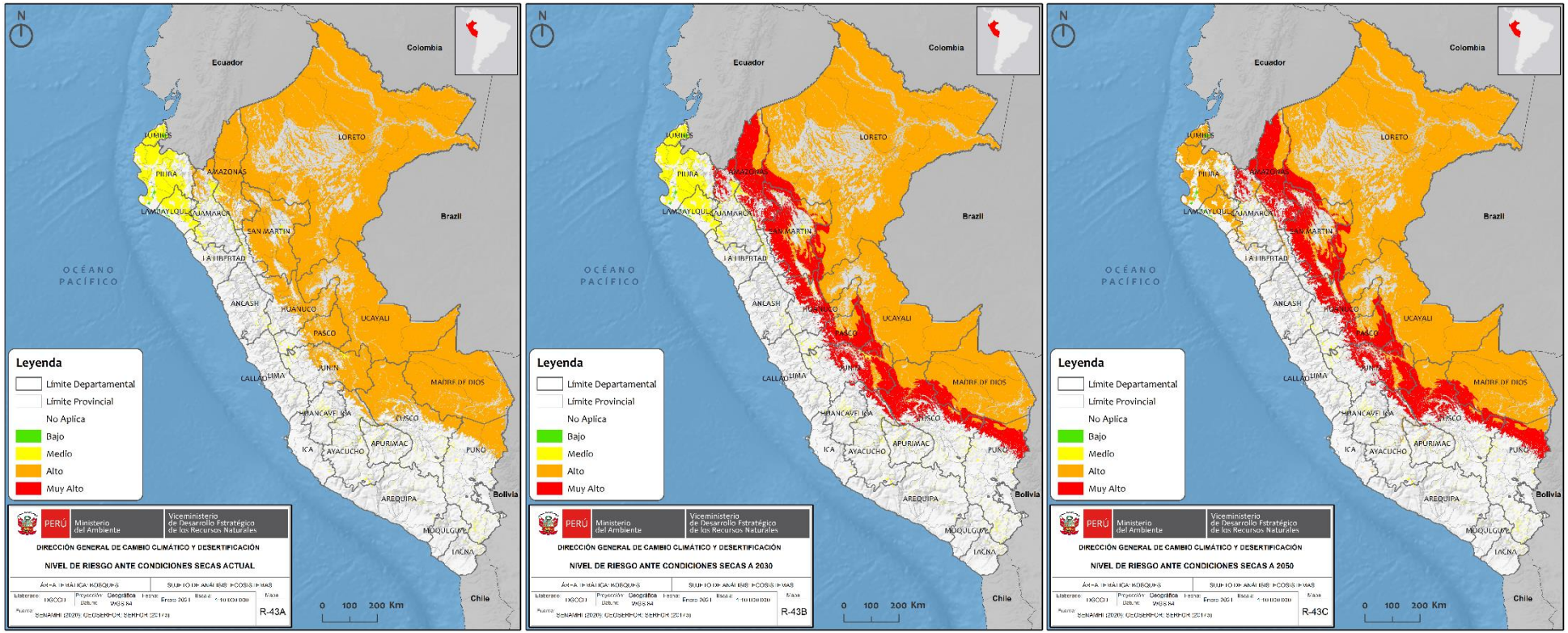
Source: National Plan of Climate Change Adaptation of Peru (MINAM; 2021)

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, 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) [23] . 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)[24]. 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[5], 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 Objetives

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 rural communities of three conservation mosaics.

[23] 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

[24] 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 Cost

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
6. Project Execution cost (up 9.5% of Total Project Cost)			437,000.00
7. Total Project Cost			5,037,000.00
8. Project Cycle Management Fee charged by the Implementing Entity (up 8,5% of Project Execution Cost + Total Project Cost)			428,145.00
Amount of Financing Requested			**5,465,145.00**

Projected Duration: 4 years (48 months)

Project Calendar

Milestones	Expected Dates
Start of Project/Programme Implementation	August 2023
Mid-term Review (if planned)	September 2025
Project/Programme Closing	July 2027
Terminal Evaluation	October 2027

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)[25]. 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[26] level in the departments where the conservation mosaics of the proposed project are located.

The three conservation mosaics are: The first one is located in the north of Peru 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). The second one is located in the central Andes of the country 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). 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 detail the project's contributions to the national targets set by the NDCs.

Chart 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. (AGU.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

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

[26] Regional Governments with regional strategies updated or in process of updating according to the Regulation of the Framework Law on Climate Change

Thematic Area	Adaptation measures	Indicator	National Target to 2030	Project
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 (BOS.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
	Restauration 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 (BOS.2)	Number of hectares of Sinanpe's PNAs with forest under restoration process reduce the impacts of extreme climate events.	19,630	3,038
	Implementation of a national forest dynamics monitoring program to measure the impact of climate change and adapt to its effects (BOS.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 (BOS.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. (BOS.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 risk management processes with a landscape approach in a context of climate change. (BOS:7)	% Decrease in the area of vegetation cover impacted by forest fires in the context of climate change	50%	To be defined in the full project document
Agriculture	Management of natural grasslands to ensure livestock feed and reduce their vulnerability to climate change (AGRI.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. (AGRI.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. (AGRI.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)[27]. Both monitoring systems will be linked to the early warning systems for forest fires (SERFOR and MINAM) and drought (SENAMHI).

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 (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) 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; and (c) extension of the Natural Heritage Initiative of Peru[28] to natural protected areas in Andean ecosystems (nationally, regionally and privately administrated), currently being implemented for the Amazon biome, and seeksing 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.

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.

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

Project Objective(s)	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator
Development and implementation of monitoring tools for Andean ecosystems	No. of monitoring systems in operation	Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	2.1.2 No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)
Implementation of best practices for landscape protection and restoration of Andean ecosystems in conservation mosaics.	No. of hectares conserved and/or restored	Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress	5.1. No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)
Increasing resilience and sustainability of local productive systems in rural communities in Andean ecosystem landscapes.	No. of people receiving technical assistant No. of producers with businesses in implementation	Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	6.2. Percentage of targeted population with sustained climate-resilient alternative livelihoods

[27] 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.

[28] https://profonanpe.org.pe/proyectos/fondo-de-transicion-de-la-iniciativa-patrimonio-del-peru-para-las-areas-naturales-protegidas-del-bioma-amazonico-2/

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

Based on consultations carried out by HELVETAS Swiss Intercooperation in July 2022 with stakeholders involved in the management of protected areas in the prioritized conservation mosaics (see Annex 1 for a list of interviewed persons), 48 rural villages and 23 peasants 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). The population directly involved in the project will be specified in the full proposal and will serve as a reference for the project's baseline. Annex 3 presents the initial characterization of the three prioritized conservation mosaics, covering livelihoods, vulnerability, gender and youth aspects, forms of organization, ecosystem management history, preferences, and history of conservation initiatives taking a climate change approach. This information will serve as the basis for the design of the activities of components 2 and 3 in the full proposal.

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.

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

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.

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. 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 ecosystem, promoting restauration and ecological recovery actions, which will result in an increase of the adaptative capacity of the ecosystems. On 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.

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. 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: MINAM's National Forest Conservation Program, SERFOR and SERNANP, the three together in outcome 1, and SERNANP leading outcome 2 and 3.

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, (ii) will contribute to monitoring the impact of climate change and deforestation on the slightly more than 270,000 hectares of Andean relict forests, (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.

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[29].
- *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*[30].
- *Action Plan in Gender and Climate Change* – PAGCC Peru[31].
- *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*[32] 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*[33] .

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

[29] https://www.gob.pe/institucion/minam/campa%C3%B1as/3453-estrategia-nacional-ante-el-cambio-climatico-al-2050
[30] https://inaigem.gob.pe/web2/politicas/
[31] https://cdn.www.gob.pe/uploads/document/file/374076/PLAN-G%C3%A9nero-y-CC-16-de-JunioMINAM_MIMP.pdf
[32] 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/
[33] 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/

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 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.

Project	Geographical Overlap	Status	Implications
Project "Patrimonio Natural del Perú – Amazonía"[34]	Tabaconas Namballe National Sanctuary	In execution: finances the update of the Tabaconas Namballe SN Master Plan. Does not contribute to the goals of NAP Peru	No thematic overlap
Project "Improvement of the Biodiversity Conservation Service of Huascarán National Park" (Unique code N° 2323856 - Public Investment Project)[35]	Huascarán National Park	No technical dossier (complete project)	During the formulation of the technical dossier, communication and exchange of information will be ensured to promote complementarity of activities.
Project "Strengthening landscape management to reduce vulnerability to climate effects in natural protected areas and other conservation modalities"	Huascarán National Park	Concept note developed and in process of submission to Green Climate Fund (2022)	Once the concept note is approved by the GCF, communication and exchange of information will be ensured to avoid duplication and promote complementarity.
Project "Resilient Puna: Ecosystem-based Adaptation for Sustainable High Andean Communities and Landscapes in Peru"[36]	Mosaico Sur: Ampay National Sanctuary, Historic Sanctuary Machupicchu and Choquequirao Regional Conservation Area	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. During the development of the full proposal, communication and information exchange will be ensured to avoid duplication and promote complementarity of activities in the south area of the project.

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:

[34] https://profonanpe.org.pe/proyectos/fondo-de-transicion-de-la-iniciativa-patrimonio-del-peru-para-las-areas-naturales-protegidas-del-bioma-amazonico-2/
[35] https://ofi5.mef.gob.pe/invierte/consultapublica/consultainversiones
[36] https://www.greenclimate.fund/document/resilient-puna-nature-based-climate-solutions-sustainable-high-andean-communities-and

- 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 Parnertship, 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.

H. Consultative process and compliance with environmental and social standards, policies and safeguards

For the formulation of this concept note, HELVETAS Swiss Intercooperation in coordination with PROFONANPE and SERNANP conducted 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 (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. The following criteria were established for the preliminary characterization: (i) livelihood vulnerability, (ii) absence of other interventions that address their vulnerability, and (iii) direct relationship with the area's resources.

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 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.

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 BOS.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 (AGU.24, BOS.2, BOS.4), the institutional articulation for the sustainable management of Andean ecosystem landscapes with a risk management approach to climate change (BOS.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 (BOS.5, BOS.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 (AGRI.7, AGRI.15 and AGRI.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[37].

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 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

[37] https://profonanpe.org.pe/wp-content/uploads/2020/11/Mecanismo-de-Atencion-de-Quejas.pdf

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. Overview of the environmental and social impacts and risks identified as being relevant to the project

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Compliance with the Law	X	
Access and Equity	X	
Marginalized and Vulnerable Groups	X	
Human Rights	X	
Gender Equality and Women's Empowerment	X	
Core Labour Rights	X	
Indigenous Peoples	N/A	
Involuntary Resettlement	X	
Protection of Natural Habitats	X	
Conservation of Biological Diversity	X	
Climate Change	X	
Pollution Prevention and Resource Efficiency	X	
Public Health	X	
Physical and Cultural Heritage	X	
Lands and Soil Conservation	X	

In the full project proposal, the possible risk and impact of the implementation of the project and the mechanisms of mitigation expected for each of the fifteen environmental and social principles shown in the table will be explained in detail.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Describe the arrangements for project implementation

The institutional arrangements for the project management consider the following:

1. **PROFONANPE will be the National Implementing Entity (NIE)**, responsible for the supervision of the project. With this role, it will contribute to the preparation, implementation and monitoring of the project, and will offer assessment to the Executing Entity about fiduciary aspects and of acquisition related to the execution of the project, according to its policies and directives.
2. **HELVETAS Swiss Intercooperation will be the Executing Entity**, responsible for the implementation and monitoring of the project at a technical and administrative level. To do so, this entity will create a technical team, led by a project coordinator. In the same way, the entity will be responsible for coordinating the design and implementation of the annual operative plans with MINAM, SERNANP, PNCB-MINAM, INAIGEM, SERFOR, subnational governments and communities. HELVETAS Swiss Intercooperation is a Swiss development organization with a country programme in Peru. It has been working for more than 30 years on Andean ecosystems, especially in the south of the country in projects on natural resource management and climate change with vulnerable populations. In this context and through the regional "Andean Forests Programme" (that ended in December 2021) and the regional project "Resilient Andes" (under implementation), HELVETAS Swiss Intercooperation has longstanding relationships with MIDAGRI (including SERFOR) and MINAM (including SERNANP, PNCB and INAIGEM), subnational governments and with rural communities in different parts of the Peruvian Andes.
3. Local partners will be identified at the sub-national level and will be defined in the following phases, especially in the consultation process for project formulation, and include NGOs, Natural Protected Area Management Committees and Peasant Communities, as well as Regional Governments. The following is a tentative list of potential local partners who will be contacted to explore collaboration opportunities:
    - In the conservation mosaic in the northern Andes: Nature and Culture International Peru and the Regional Governments of Piura and Cajamarca,
    - In the conservation mosaic in the central Andes: Instituto de Montaña Perú, and Regional Governments of La Libertad, Ancash, Huanuco and Lima.
    - In the conservation mosaic in the Southern Andes: CEDES Apurimac and Regional Governments of Apurimac and Cusco.
4. A Project Steering Committee will be formed formed by PROFONANPE, MINAM, SERNANP, PNCB, INAIGEM and HELVETAS Swiss Intercooperation (as Technical Secretary). Chaired by MINAM, this Committee will provide strategic guidance for project implementation.
5. The project also plans to establish a coordination network with other projects on Andean ecosystems financed by the Swiss Agency for Development and Cooperation (SDC) and other donors and being implemented in Peru and other Andean countries.

Additional sections of this part will be completed in the full project document.

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

A. Record of endorsement on behalf of the government[38]

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*: 08,08,2022*

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.

Name & Signature: Anton Willems Delanoy

Implementing Entity Coordinator

Date: *(08, 08, 2022)*	Tel. and email: (511) 2181097 *awillems@profonanpe.org.pe*
Project Contact Person: Claudia Godfrey Ruiz	
Tel. And Email: (511) 218 1097 *cgodfrey@profonanpe.org.pe*	

[38] 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.

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 colletions tools
Northern mosaic	Carolina Guevara Molina	Female	SERNANP Chief of Santuario Nacional Tabaconas Namballe	● on-line format ● interview
	Auner Medina Rafael	Male	Naturaleza y Cultura Internacional (NCI) Perú Chief of North Andes Mosaic	● on-line format ● interview
	Katty Carrillo Távara Elio Ivan Nuñez Cortez Adán Campos Flores	Female Male Male	Local managers of Piura and Cajamarca conservation areas supported by NCI Peru: ▪Regional Conservation Area (ACR) "Bosques El Chaupe, Bosques El Chaupe, Cunía y Chinchiquilla" ▪ Regional Conservation Area (ACR) "Páramos y Bosques Montanos de Jaén y Tabaconas" ▪ Private Conservation Area (ACP) "Bosques Montanos y Páramo Huaricancha" ▪ Private Conservation Area (ACP) "Páramos y Bosques Montanos San Miguel de Tabaconas" ▪ Private Conservation Area (ACP) "Bosques Montanos y Páramos Chicuate - Chingelas"	
Center mosaic	William Martínez	Male	SERNANP Chief of Parque Nacional Huascarán and Zona Reservada Cordillera Huayhuash	● interview
	Laura Lucía Huamán Negreiros	Female	SERNANP Specialist of Parque Nacional Huascarán	● on-line format ● interview
	Edson Ramírez	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	
	Vidal Rondan Ramirez	Male	Instituto de Montañas Led, Alliance with mountain organizations of Ancash	● on-line format ● interview
Southern mosaic	Jaime José Valenzuela Trujillo	Male	SERNANP Chief of Santuario Nacional Ampay	● on-line format ● interview
	Cirilo Zevallos	Male	Santuario Nacional Ampay Peasant Community Huayllabamba	● interview with community leaders
	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	● on-line format ● interview
	Freddy Espinoza	Male	Santuario Histórico Machupicchu Peasant Community Piscacucho	● interview with community leaders
	Juan Achahuanco	Male	Santuario Histórico Machupicchu Peasant Community Piscacucho	
	Edwin Mansilla	Male	Gobierno Regional de Cusco Chief of Regional Conservation Area "Choquequirao"	● interview

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	**Santuario Nacional Tabaconas Namballe**	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
	ACR "Bosques El Chaupe, Cunía y Chinchiquilla"	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
	ACR "Páramos y Bosques Montanos de Jaén y Tabaconas"	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
	ACP "Bosques Montanos y Páramos Chicuate - Chingelas"	Departamento de Piura, Provincia de Huancabamba, Distrito del Carmen de la Frontrea	Peasant Community Segunda y Cajas	3935
	ACP "Páramos y Bosques Montanos San Miguel de Tabaconas"	Departamento de Cajamarca, Provincia de San Ignacio, Distrito de Tabaconas	Peasant Community San Miguel de Tabaconas	2688
	ACP "Bosques Montanos y Páramo Huaricancha"	Departamento de Piura, Provincia de Huancabamba, Distrito de Sondor	Peasant Community Huaricancha	4604
Center	**Santuario Nacional Calipuy** **Reserva Nacional Calipuy**	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)	1700
	Parque Nacional Huascarán	Departamento de Áncash, Provincias de Yungay, Bolognesi, Huari y Huaraz, Distritos de Mancos, Aquia, Chavín de Huantar, Huari y Huaraz	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)**
	Zona Reservada Cordillera Huayhuash	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
Southern	**Santuario Nacional Ampay**	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
	Santuario Histórico de Machupicchu	Departamento de Cusco, Provincia de Urumbamba, Distritos de Ollantaytambo y Machupicchu	Rural towns: Torontoy (7) y Piscacucho (150)	157
	ACP Choquequirao	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.

<u>Southern Mosaic</u>

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.

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 Profonanpe.

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**

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