

# PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

## PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme Category: Enhanced Direct Access Regular Project

Country/ies: Peru

Title of Project/Programme: **Fund for Innovative Adaptation in vulnerable ecosystems in North of Perú. (Ancash, Cajamarca La Libertad, & San Martin)**

Type of Implementing Entity: National

Implementing Entity: Profonampe

Executing Entity/ies: Profonampe

Amount of Financing Requested: USD 5 million (in U.S Dollars Equivalent)

### **Project / Programme Background and Context:**

*Provide brief information on the problem the proposed project/programme is aiming to solve. Outline the economic social, development and environmental context in which the project would operate.*

According to the National Climate Change Strategy (ENCC for its acronym in Spanish), Peru has seven of the nine characteristics recognized by the United Nations Framework Convention on Climate Change (UNFCCC) to qualify countries as particularly vulnerable to climate change: (i) low-lying coastal areas; (ii) arid and semi-arid areas; (iii) areas exposed to floods, droughts and desertification; (iv) fragile mountain ecosystems; (v) disaster-prone areas; (vi) areas with high urban air pollution; and, (vii) areas that present an economy dependent on income generated by the production and use of fossil fuels.

The multiple effects of climate change impact populations, economic activities and ecosystems and their services in the short and long term, generating a deterioration in the quality of life and well-being of the population and ecosystems. That is why the State, at its different levels of government, establishes policies and measures to reduce the impacts of these effects, avoiding or reducing the

damages and consequent current and future losses generated by the hazards associated with climate change. It also establishes measures to promote adaptation and take advantage of the opportunities that this offers (Ministry of Environment, MINAM, 2021).

In this context, Peru approved the Framework Law on Climate Change (Law N° 30754) in 2018 and its Regulation in 2019. Likewise, it elaborated the Nationally Determined Contributions that were submitted to the UNFCCC, which were developed through a participatory and multisectoral process, being the Final Report of the Multisectoral Working Group (GTM for its initials in Spanish) of a temporary nature in charge with generating technical information to guide the implementation of the Nationally Determined Contributions (NDC), the guiding document for the implementation of the Contributions in the country. Finally, in 2021 the National Adaptation Plan (NAP) was approved to guide climate change adaptation planning at the country level, with clear priorities focused on reducing exposure and vulnerability, as well as increasing adaptive capacity triggered by hazards associated with climate change, in addition to allowing the use of opportunities for improvement.

These guiding documents for climate change action in the country describe the enabling conditions for implementing the prioritised measures. Among these enabling conditions is the implementation of public and private financing schemes and/or mechanisms for the application of the proposed measures in the different subject areas prioritised at the national level.

Enhanced Direct Access (EDA) funds represents an accessible and dynamic financing mechanism to promote the implementation of adaptation measures at subnational level in the subject areas of ecosystems for the hydrological security, forests, forestry, agriculture and food security by non-governmental organisations, indigenous organizations, cooperatives, producer associations and the private sector.

In the context of the COVID-19 pandemic, the country's economic growth during the year 2020 was highly affected, which generated great social and health consequences for the population, increasing inequality, poverty and unemployment. For the year 2021, the Central Reserve Bank of Peru had projected the country's economic growth at 11.9%. However, for the year 2022 this growth would be only 3.4% due to the political context and the weakening of business expectations.

According to the latest population estimates and projections of the National Institute of Statistics and Informatics (INEI for its acronym in Spanish) in 2021, the Peruvian population reached 33,035,300 inhabitants, of which 50.4% are women and 49.6% are men. In terms of age, the population between 0 and 14 years of age represents 24.5%, those between 15 and 59 years of age 62.5% and adults over 60 years of age represent 13% of the total. According to the 2017 Population and Housing Census, 55 indigenous peoples in the country, 51 of them Amazonian and 4 Andean were identified.

Poor populations are more vulnerable to the effects of climate change, have less capacity to recuperate and, therefore, a lower level of resilience to the adverse effects of climate change. Poverty affects differently according to categories such as gender, age, ethnicity, disability, and others (MINAM, 2021). After seventeen years of progress in reducing poverty and extreme poverty, both increased again in 2020. Poverty affected 30.1% of the population, being 9.9 percentage points higher than in 2019 (20.2%). Extreme poverty rose from 2.9% to 5.1% (INEI, 2021).

### **Climatic condition for Peru's in 2030 and 2050**

According to the information provided in the National Adaptation Plan (NAP), Peru has climatic conditions due to different factors such as the Peruvian or Humboldt Current, the Andes and the dynamics of cyclones and anticyclones, which determine the great variety of climates in the territory. According to Warren Thornthwaite's classification of climates, Peru has 38 different climates; this climatic diversity can be grouped into three main categories: coast, highlands, and amazon. The coast, between the coastline and the foothills of the Andes, is a dry region with little precipitation, except in the north during El Niño events.

Likewise, El Niño and La Niña events and phases of the phenomenon known as ENSO, have an influence on Peru's climate. El Niño is related to an anomalous warming of the Eastern Tropical Pacific Ocean (OPTO for its acronym in Spanish). Depending on where it occurs, a distinction can be made between canonical El Niño (warming occurs from the eastern to the central Pacific), Modoki (warming occurs in the central Pacific) and coastal El Niño (warming occurs only in the eastern Pacific); for its part, La Niña is related to an anomalous cooling. (MINAM, 2021).

Historical records indicate that these past extraordinary events have directly affected productive sectors and natural and social infrastructure and have caused economic losses reaching more than 4.5% of Gross Domestic Product (GDP) (in the case of El Niño, between 1997 and 1998) (National Forest Service, SERFOR, 2018a). Continuing with extreme events, Peru is a country highly exposed to the occurrence of frosts, droughts, and floods, which affect the country economically and socially. In short, in Peru, between 1995 and 2008, an increase of more than six times in the occurrence of extreme events such as droughts, heavy rains, floods, frosts and hailstorms has been registered. (SERFOR, 2018a).

Projected temperatures for 2030 will increase between 1 and 2.5 °C in minimum temperature and between 0.5 and 2.5 °C in maximum temperature, with respect to the reference period (1981-2005). Increases in maximum temperature are higher in the Andes and the Amazon. On the other hand, the coast and northern Peru are more stable, due to the thermoregulatory effect of the sea. As for the minimum temperature, a greater increase is again observed in the highlands. On the other hand, moderate increases are observed in central Amazonia and the coastal zone.

Similarly, for 2050 is expected an increase in the minimum and maximum temperature with a spatial behaviour relatively similar to that observed for the 2030

projection. When analysing spatial variability within the national territory, both maximum and minimum temperatures show greater increases in the Andes and the Amazon, reaching values of up to 2 °C with respect to the reference period, while the coast shows moderate values of between 1.5 and 2.0 °C, with some hotspots in Loreto, north of Ucayali, the north and south of Cusco, and the highlands of Arequipa, Moquegua, Tacna y Puno, (National Service of Hydrology and Meteorology, SENAMHI, November, 2021)

### **Exposure and vulnerability analysis of the water ecosystemic services in vulnerable watersheds.**

Water resources are spatially distributed in three large hydrographic regions (Pacific, Amazon, and Titicaca), which make up 159 hydrographic units (river basins). There are great contrasts between these three regions: the Pacific slope, which has an area of 21.76% of the territory and concentrates the largest population (65.98%), has an acute water shortage in its basins (2.2% of water); the Amazon slope, with an area of 74.58% and occupied by 30.76% of the total population, has large volumes of water (97.25%); and the Titicaca slope, with an area of 3.66% and a population of 3.26%, has 0.56% of the water (Water National Authority, ANA, 2013).

According to MINAM, water supply is affected by climate variability and climate change. In recent decades, the increase in air temperature has triggered the retreat and loss of glaciers. As a result, Peru has lost 53.56% of its glacier surface in the last fifty years, altering, consequently, the water behaviour in basins such as the Santa River, which shows a negative trend of 30% in the level of glacier surface. Dangers of Glacial Lake Outburst Floods (GLOF) are generated in the Peruvian Andes, due to the formation of hanging ice masses and weakening of permafrost. Other slow-onset hazards, such as changes in precipitation averages and rapid-onset hazards, have an impact on activities associated with water ecosystem services and depending on glaciers, lagoons, rivers, springs, and aquifers.

Since June 2014, through Law on Retribution Mechanisms for Ecosystem Services (MERESE Law No. 30215), Perú have approved a set of “schemes, tools, instruments and incentives to generate, channel, transfer and invest economic, financial and non-financial resources, where an agreement is established between “contribuyentes” those who take care of ecosystems, especially in the upper part of the basins and the “retribuyentes” those who benefit and are ready to pay for the ecosystem service, aimed at the conservation, recovery and sustainable use of the sources of ecosystem services”.(Article 3c. Law No. 30215).

### **Exposure and vulnerability analysis of agriculture and food security**

According to the National Adaptation Plan, agriculture is the second largest economic sector and generates the most employment, contributing 5.5% of GDP. It employs a quarter of the country's total population, mainly for family farming, with landholdings of less than five hectares.

If the trends and projections regarding the dangers associated with climate change continue, they will have devastating effects on agricultural production, since the production of certain crops would decrease (corn, potatoes, barley, beans, bananas, carrots, grassland, fodder, among others) affecting the livelihoods of rural communities and, consequently, the price of food in urban areas.

Seventy-two percent (72%) of agricultural emergencies are related to droughts, heavy rains, floods and frosts, causing disruption of agricultural and livestock productivity, damage to irrigation canal systems, disruption of transportation services that limit the population's access to markets, loss of crops due to the appearance of pests, loss of vegetation cover due to desertification, alteration in the availability of water for agricultural use, among others.

The vulnerable populations exposed to climate change are women, children and adults involved in small-scale agriculture.

In 2020 through the AICAA<sup>1</sup> project, the International Research Center for the El Niño Phenomena (CIIFEN for its initials in Spanish) has carried out several vulnerability studies to identify, characterize and estimate the level of risks associated with climate change, including climate change scenarios for 2036-2050 with the Peruvian Interpolation data of the SENAMHI's Climatological and hydrological Observations (PISCO). The following table shows the risk level for the Piura, Chicama and Santa basins in the face of frosts, droughts, floods, and intense rains that could potentially impact agricultural activities).

More details on how the agricultural activity is vulnerable to multiple risks are shown in Annex 1.



<sup>1</sup> The Adaptation to the Impacts of Climate Change on the Water Resources Project of the Andes (AICCA, for its acronym in Spanish) <https://aicca.condesan.org/>

## **Exposure and vulnerability analysis of the Amazonian Forest and forestry**

56.9% of Peru's territory is covered by forests, with the Amazonian forests occupying the largest area. Forests contribute to climate change mitigation and adaptation by providing important ecosystem goods and services at the local and national levels.

The historical relationship of women and men with forest resources reinforces socially constructed gender roles. In the forest value chain, men tend to focus on the commercialization of mainly timber products, while women are engaged in the use and management of non-timber forest products for subsistence, food, and health activities (firewood, medicine, fodder, and natural fertilizer). This dynamic has generated women having a more specialised knowledge of forests, acquiring a better experience about conservation practices, according to a report by the Ministry of Women and Vulnerable Population (MIMP, 2015).

The Yunga forests protect the headwaters of the basin that provide water services to small cities in the Peruvian jungle and its home to indigenous population who are dedicated to the cultivation of coffee, cocoa and live from fishing and hunting. The Amazonian Forest is also home of 51 indigenous population.

According to the National Adaptation Plan, forests also can be exploited by a migrant population that lacks the knowledge, practices, and techniques to make a living from the forest. The emergence of this migrant population would lead to a change in land use in favour of livestock or agricultural activities, as opposed to indigenous peoples and the riparian population who live directly from forest resources. The lack of knowledge leads to a limited use of forest resources and, since they do not obtain direct benefits from this ecosystem, the incentive to conserve is reduced. In this context, indigenous peoples are forced to migrate to marginal lands, endangering their livelihoods. One of the main reasons for this is limited access to power and decision-making.

## **Project / Programme Objectives**

### **General Objective**

Increase the population's capacity to adapt to climate change through the financing of adaptation measures prioritised in the National Adaptation Plan in vulnerable watersheds

### **Specific Objectives**

- Foster local adaptation solutions to increase community resilience with replicability potential.
- Strengthen the capacities of local organizations in the process of accessing and implementing adaptation projects to reduce vulnerability to climate change.

- Promote stakeholder engagement in the decision-making process on proposed adaptation projects and their financing to increase their resilience to the effects of climate change.

The specific objectives are related to strengthening the capacities of local institutions and organizations to design robust projects that include climatic risks and design adaptation measures to reduce negative impacts and increase community resilience.

The project **will provide grants to** non-governmental organizations, producer associations, indigenous organizations, cooperatives, and **small businesses** to implement **climate change** measures in vulnerable **ecosystems** for water security, forest restoration and **food security**

<b>Table 1: Project's Results Framework</b>	
<b>Project Objective</b>	<b>Indicators</b>
Increase the population's capacity to adapt to climate change through the financing of adaptation measures prioritised in the National Adaptation Plan in vulnerable watersheds.	✓ Percentage of targeted population with sustained climate-resilient livelihoods
<b>Outcome 1: Strengthening capacities for the development of robust proposals on Adaptation and project management</b>	
Output 1.1 Local organizations and private sector strengthen their capacity to develop robust proposals and implement adaptation projects.	<ul style="list-style-type: none"> <li>✓ Subprojects that use climate information offered in a friendly way by SENAMHI's Climatological and hydrological Observations (PISCO), including women participation (at least, 30% of the people trained are women)</li> <li>✓ Number of institutional arrangements (agreements, contracts) for the development of agroclimatic information friendly to local level.</li> </ul>
Output 1.2 Project results and lessons learned on innovation and evidence about the community resilience are shared	✓ Number of reports with evidence on community resilience, including gender gap reduction.
<b>Outcome 2 : Supporting the resilience of selected ecosystems</b>	
Increased ecosystem resilience in response to climate change and variability-induced stress.	✓ Area (ha) of conserved and recovered ecosystems that provide water regulation and provision services, in basins vulnerable to climate change.
Output 2.1 Natural infrastructure initiatives implemented to preserve ecosystem services	✓ Number of communities identify their climate risks and implement adaptive measures to increase their response capacity.
Output 2.2 Hydraulic infrastructure reduces the risk of floods and extreme rains.	✓ Number of Interventions in hydraulic sectors for physical protection against hazards in basins vulnerable to climate change.
<b>Outcome 3: Supporting food security in vulnerable communities</b>	
Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted	✓ Number of households and communities having more secure (increased) access to livelihood assets (30% female lead households and % under 35 years old)

Table 1: Project's Results Framework	
Project Objective	Indicators
areas	
Output 3.1 Increase the resilience of crops to climate change through conservation of agrobiodiversity (ABD)	✓ No. of communities that implement technologies and good practices for sustainable production in areas vulnerable to dangers associated with climate change, <b>where at least 30% are led by women.</b>
Output 3.2 Increase the resilience of indigenous and local communities through non-agricultural or forestry activities and added value activities	<ul style="list-style-type: none"> <li>✓ No of women and young trained in small business management <b>(at least 40%)</b></li> <li>✓ Number of small businesses led by women that have access to the market <b>(at least 30%)</b></li> </ul>

### Project / Programme Components and Financing:

*Fill in the table presenting the relationships among project components, activities, expected concrete outputs, and the corresponding budgets. If necessary, please refer to the attached instructions for a detailed description of each term.*

*For the case of a programme, individual components are likely to refer to specific set of well-defined interventions / projects.*

Table 2: Project's components and budget			
Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
1. Strengthening capacities for the development of robust proposals on Adaptation and project management.	<p>Output 1.1 Local organizations and private sector strengthen their capacity to develop robust proposals and implement adaptation projects.</p> <p>Output 1.2 Project results and lessons learned on innovation and evidence based are shared</p>	Outcome 1. Strengthened national capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	1.241.309,20
2. Supporting the resilience of selected ecosystems	<p>Output 2.1 Natural infrastructure initiatives implemented to preserve ecosystem services.</p> <p>Output 2.2 Hydraulic infrastructure reduces the risk of floods and extreme rains.</p>	Outcome 2 Increased ecosystem resilience in response to climate change and variability-induced stress.	2.280.000,00



3. Supporting food security in vulnerable communities	<p>Output 3.1 Increase the resilience of crops to climate change through conservation of agrobiodiversity (ABD)</p> <p>Output 3.2 Increase the resilience of indigenous and local communities through non-agricultural or forestry activities and added value activities</p>	<p>Outcome 3:</p> <p>Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas</p>	1.080.000,00
4. Project/Programme Execution cost			69.369,47
7. Total Project/Programme Cost			4.670.678,67
8. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)			329.321,33
Amount of Financing Requested			5.000.000,00

## Projected Calendar:

*Indicate the dates of the following milestones for the proposed project/programme*

Milestones	Expected Dates
Start of Project/Programme Implementation	January 2023
Mid-term Review (if planned)	August 2025
Project/Programme Closing	Dec. 2027
Final Evaluation	March 2028

## PART II: PROJECT / PROGRAMME JUSTIFICATION

**A. Describe the project / programme components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience. For the case of a programme, show how the combination of individual projects will contribute to the overall increase in resilience.**

Given that the project has an Enhanced Direct Access approach it will be mainly based in Action, Innovation and Learning. The project will give priority to the implementation of adaptation measures that have already been approved in the National Adaptation Plan. To avoid business as usual, all subprojects must respond to climatic risks already identified by a competent authority using the climatic information generated by the Peruvian Interpolation data of the SENAMHI's Climatological and hydrological Observations (PISCO)<sup>2</sup>. In this regard, technical assistance and training will be provided to the institutions interested in acting as TA providers to community at local level.

The Innovation and Learning approach will focus on the search for evidence about its impact on climatic risks of specific ecosystems, since natural infrastructure based on pre-Columbian technologies are not new in Perú and had been part of rural development projects and not related to increase community resilience to frost, heavy rains, floods, drought and glaciers retreat very close related to climate change and climate variability.

The main strategy will be based on the delivery of grants through Calls for Proposals that will be executed by Profonanpe, due to its experience with this instrument. In addition, training and technical assistance activities will be developed to complement and guarantee subproject's respond to climate resilience.

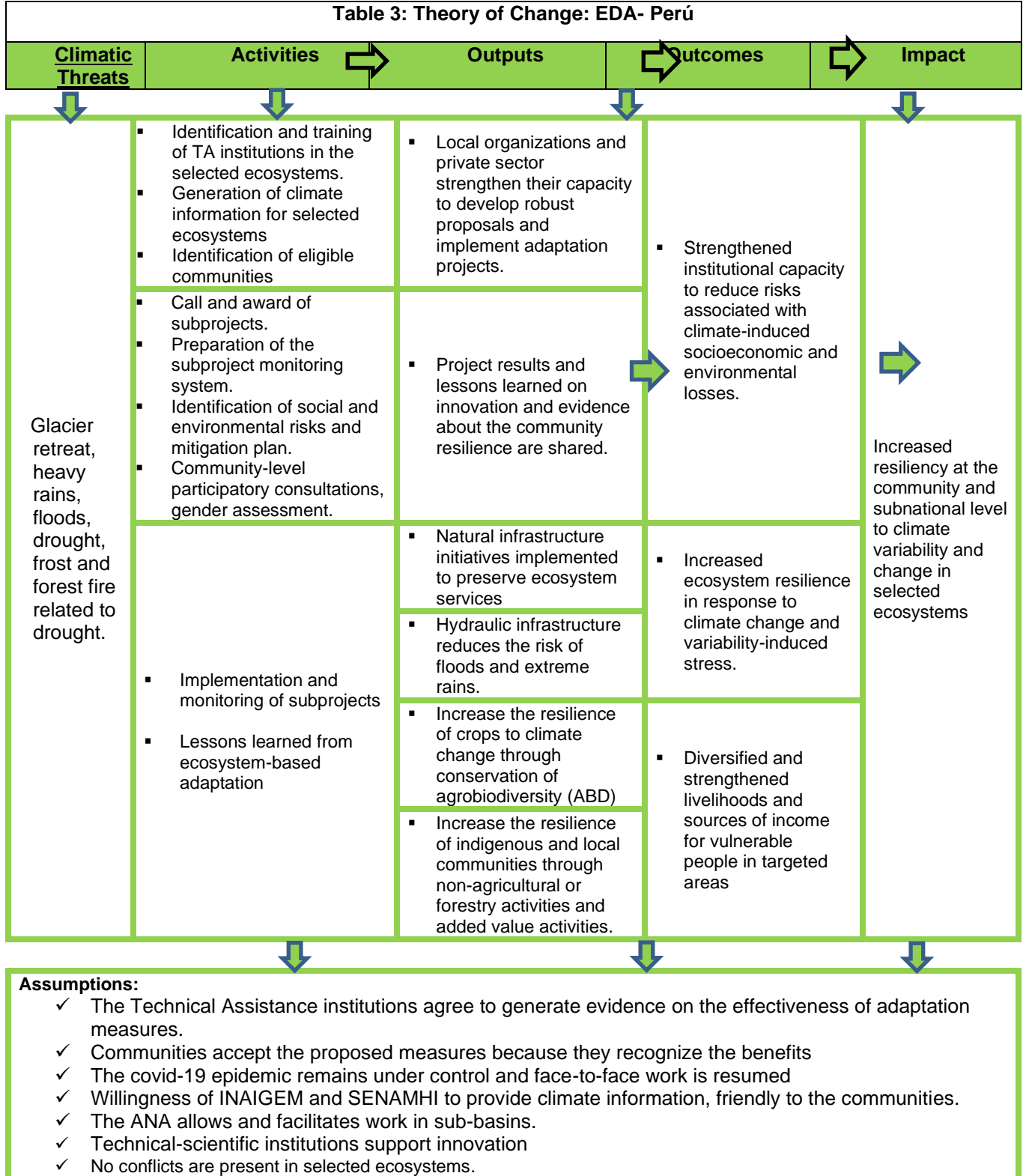
The grants will be delivered according to established criteria in prioritized ecosystems according to the Map of Ecosystem (MINAM, 2019) and considering the guidelines provided by the National Adaptation Plan (2021).

Table 3 summarizes the project's theory of change and how activities relate to outputs and outcomes. Outcome 1 is dedicated to strengthening capacities for the formulation of climate change adaptation projects, the use of climate information, monitoring of evidence and lessons learned from adaptation models applied to specific ecosystems. Outcome 2 is aimed at reducing climate risks related to water security in headwater basins and forest restoration. Outcome 3 is aimed to increased food security and non-agriculture activities.

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<sup>2</sup> Bases de datos IRI <http://iridl.ldeo.columbia.edu/SOURCES/.SEAMHI/.HSR/.PISCO/index.html?Set-Language=es>

**Table 3: Theory of Change: EDA- Perú**



The general objective is increasing the population's capacity to adapt to climate change through the financing of adaptation measures prioritised in the National Adaptation Plan in vulnerable watersheds.

Enhanced Direct Access (EDA) approach represents an accessible and dynamic financing mechanism to achieve i) as described in the background section, local solutions that are required to implement adaptation measures in the subject areas of ecosystems for hydrological security, forests, forestry, agriculture, and food security; and ii) deliver climate technical assistance and finance to the most vulnerable stakeholders of these ecosystems.

In a difference from a regular project, with this proposal, we expect that the EDA approach will allow local stakeholders to have the capacity of making informed decisions about climate change-driven hazards, affecting their specific locations.

The project includes the following components:

### **Component 1: 1. Strengthening capacities for the development of robust proposals on Adaptation and project management**

This component will include training and technical assistance for beneficiaries identified as local organisations, regional governments, local governments, private sector, and NGOs that will submit project proposals to the EDA through Calls for Proposals.

Component 1 will allow resources and technical assistance to communicate the risk analysis undertaken by the technical & scientific institutions (National Center for Disaster Risk Estimation, Prevention and Reduction - CENEPRED, by its acronym in Spanish and the International Research Center for The Niño Phenomenon – CIIFEN, by its acronym in Spanish) to stakeholders, most of them producers' association, non-governmental organization, cooperatives, and indigenous organizations. Technical Assistance will be provided during the first year of implementation to assist stakeholders to understand the impacts at community level and adjust the measures identified to the climate threats in the geographical area. It is expected that under this component the streamlining of decision-making across multiple levels will be facilitated.

#### **Output 1.1 Local organizations and private sector strengthen their capacity to develop robust proposals and implement adaptation projects**

Strengthening the capacities of local organisations at the national level will ensure that the proposals submitted within the framework of EDA are feasible and meet the Fund's requirements, which will shorten the time required for their review and approval. Likewise, the experience and lessons learned from this process will be documented and shared.

Technical assistance will be provided to strengthen the proposals to be submitted, and once selected, training will be provided for their implementation, providing guidance and advice on all aspects of financial management, environmental and social safeguards management, including reporting.

Five areas of technical assistance have been identified for project's

**implementation:**

- 1) Ecosystem hydrology and natural infrastructure.
- 2) Agrobiodiversity.
- 3) Gender Analysis and barriers to participation from vulnerable groups as women, girls and indigenous communities.
- 4) Forest Restoration
- 5) Project cycle management

Likewise, technical advice will be provided with the support of the General Directorate of Climate Change and Desertification of MINAM and the sectoral focal points according to the technical areas of the subproject proposals.

### 1.2 Generation of climatic information for selected ecosystems

The project will promote the official use of climate information generated by SENAMHI and the National Institute for Research on Glaciers and Mountain Ecosystems - INAIGEM in a friendly manner for both the beneficiary institutions and the communities. Regarding the definition of ecosystems and its geographic location, the project will use the ecosystem map approved by MINAM as a base. Likewise, basins and micro-basins that already have studies of risk and vulnerability to climate threats will be prioritized. There are several risk analyses carried out by CENEPRED, CIIFEN, and other institutions.

Training workshops will be organized with institutions specialized in climate information for their respective analysis with a focus on the impact of hazards, answering the questions What is going to happen? What will be damaged? It is expected that with this information, communities and institutions that provide technical assistance can identify adaptation measures and technological innovations to increase their resilience.

To ensure that these technicalities do not create barriers to the participation of women and indigenous populations, specific provision will be taken such as translation to local language and additional training. Table 4 provides a list of target ecosystems and their geographic location with specific vulnerabilities. This list is not exhaustive.

Table 4: Target Ecosystems and geographic location	
Target Ecosystems and Geographic Location	Specific vulnerabilities
Northern Zone: High Andean relict forest and Puna Húmeda scrubland, Chancay - Lambayeque, department of Lambayeque and Cajamarca.	This basin is highly vulnerable to the El Niño phenomenon (FEN) both due to intense rains in the upper part of the basin as well as droughts. Pastoral activity being the most affected by low temperatures, reaching up to 30% of the animals. It is organized in a basin

<b>Table 4: Target Ecosystems and geographic location</b>	
<b>Target Ecosystems and Geographic Location</b>	<b>Specific vulnerabilities</b>
	management committee and has a MERESE <sup>3</sup> mechanism and a "Green Basin" Fund. It has a risk analysis carried out by the IGP in 2005, which needs to be updated.
<b>Northern Zone: High Andean relict forest and Puna Húmeda Pajonal, Chicama Basin, Department of La Libertad and Cajamarca.</b>	The climatic risk study carried out by CIIFEN 2020 commissioned by the AICCA project for this micro-basin has identified extreme events in several climatic scenarios up to 2050, using information from the Peruvian Interpolation data of the SENAMHI's Climatological and hydrological Observations (PISCO), whose spatial resolution is 0.1° (approximately 11km). The results show the districts of very high and high vulnerability using CENEPRED and IPCC methodology for the dangers of frost, drought, intense rain and flooding. Several districts are vulnerable for three out of four risks using both methodologies, been La Libertad with more districts with very high and high vulnerability. See Anexo 1 for specific information.
<b>Northern Zone: Ecosystem Periglacial and Santa Basin glacier, department of Ancash.</b>	<p>The main hazards identified by CENEPRED in risk of disasters prevention plans (PPRDs) in over 20 districts and provinces connected to climate change, were:</p> <ul style="list-style-type: none"> <li>• Glacial Lake Outburst Floods (GLOF) which even if the risk cannot be reduced via ecosystem management, capacity building measures to develop early warning systems and even engineering measures to control lake outbursts are connected to improved ecosystem management of whole sub-basins.</li> <li>• Land mass movements and mudslides (huaycos) during heavy rains in multiple sites affecting communities, crops, livestock, roads and hydraulic infrastructure.</li> <li>• Forest fires affecting grasslands and native forests are increasingly affecting communities impacting on biodiversity and landscape values. This emerging hazard is perceived to be connected to climate change.</li> <li>• Frosts, occurring outside of normal season are increasing in frequency, affecting farmers and food security.</li> <li>• Acid Rock Drainage (ARD) is dramatically increasing in the region, and it is apparently connected to the recession of glaciers that expose mineralized rocks polluting waters downstream with metals.</li> </ul> <p>The climate risk study for the agricultural sector carried out by CIIFEN, in 2020, found that: 9 districts with very high vulnerability to droughts; 4 districts with very high vulnerability to frost; 5 districts with very high vulnerability to heavy rains; 4 districts have very high vulnerability to all three of the above hazards.</p> <p>The Santa Basin has a mechanism for retribution of water ecosystem services (MERESE).</p>
<b>Zona Nor Oriental: Ecosistema de Bosque Basimontano de Yunga. Sub basin of Cumbaza and Huallaga and Mayo, Basin, departamento de San Martin .</b>	<p>The processes of change in land use and rainfall variability, both also have impacts on the availability and access to water. There is a trend of annual flow reduction in the historical series (from 1971 to 2016) for the Cumbaza River.</p> <p>The water supply scenarios developed for the Cumbaza River and the Shilcayo, Cachiyacu and Ahuashiyacu tributaries show a positive interrelation between the increase in forest cover in the headwaters of the micro-basin and the regulation of water flows and erosion control. However, the total demand of the Cumbaza River may reach 151 million m<sup>3</sup>/year by 2050, twice the current consumption, which already corresponds to 90% of the total water demand in the micro-basin, which provides water services to 10 districts 39 population centers and 6 indigenous communities from the Quechua, Awajún and Chayavita ethnicity.</p> <p>There are 2 mechanisms for retribution of water ecosystem services (MERESE): at Cumbaza Basin and Gera Basin.</p> <p>The increase in temperature in the Mayo River basin for 2030 is forecast at -1.2 and -1.0 and a reduction in rainfall of -0.3%.</p>

<sup>3</sup> Retribution Mechanisms for Ecosystem Services (MERESE Law No. 30215)

### 1.3 Identification of eligible communities in selected ecosystems

For the identification of eligible districts and communities in vulnerable ecosystem, the official number of the district (ubigeo) and the Human Development Index (2019) will be used to ensure that the project is benefitting vulnerable communities and districts. Table 5 provides the eligible districts in vulnerable ecosystems. This list is not exhaustive.

UBIGEO	DEPARTAMENTO		Población	Esperanza de vida al nacer	Población (18 años) con Educ. secundaria completa	Años de educación (Poblac. 25 y más)	Ingreso familiar per cápita	Índice de desarrollo Humano (IDH)
	Provincia							
	Distrito							
000000	PERÚ		31.296.142	75,42	67,67	9,14	1.032,16	0,5858
020000	ANCASH		1.118.249	74,93	63,24	8,02	807,83	0,5159
020108		Olleros	1.871	74,50	52,39	5,66	299,79	0,3222
021701		Recuay	3.960	69,28	69,55	7,72	657,06	0,4646
021710		Ticapampa	2.189	70,02	69,67	7,84	625,34	0,4608
022002		Cascapara	2.021	71,31	40,31	2,84	388,10	0,2669
060000	CAJAMARCA		1.436.281	73,32	51,20	6,27	620,52	0,4251
060501		Contumaza	7.218	70,15	29,12	5,91	529,76	0,3526
060504		Guzmango	2.981	73,98	41,38	3,78	249,45	0,2573
060611		Santa Cruz	2.343	78,42	45,66	4,67	332,22	0,3196
060702		Chugur	3.124	74,47	59,08	5,61	434,93	0,3762
061104		Catilluc	2.930	78,25	34,09	4,62	169,89	0,2329
061305		La Esperanza	2.098	70,90	54,83	4,86	207,75	0,2642
061307		Pulan	3.623	73,40	52,25	5,34	336,79	0,3291
130000	LA LIBERTAD		1.908.023	76,89	60,84	8,32	923,85	0,5482
131001		Santiago De Chuco	18.795	75,21	45,34	5,32	324,77	0,3207
131002		Angamarca	6.369	80,94	31,90	5,26	434,54	0,3480
131006		Quiruvilca	13.168	76,72	43,00	6,27	662,08	0,4321
131007		Santa Cruz De Chuco	2.838	76,46	45,71	4,87	239,44	0,2817
131008		Sitabamba	2.798	80,24	35,50	3,80	159,21	0,2181
220000	SAN MARTÍN		839.772	71,04	52,72	7,25	841,03	0,4832
220508		San Roque De Cumb	1.313	72,66	36,06	4,53	492,45	0,3386
220104		Jepelacio	16.121	73,88	47,36	4,58	457,97	0,3493
<b>Total Distritos</b>		<b>18</b>	<b>95.759</b>					

### 1.4 Call and award of subprojects.

The project team will develop the design of the call for proposals process, including the elaboration of the bases, the definition of the technical criteria (referred to vulnerability to climate change, whether of populations, livelihoods, ecosystems, etc.) for the evaluation, the definition of the beneficiaries, the dissemination, the definition of the grants to be delivered, among others.

Beneficiaries' institutions at the subnational level including civil society organisations, producer associations, private sector will be invited to submit. The selected subprojects must meet the following criteria



- ✓ Sub-projects focussed on adaptative response to specific climatic risks according to the NAP in the areas of forests, water and agriculture and food security in selected ecosystems.
- ✓ Subprojects with identification of climatic risks that affect the livelihoods at community level due to intense rains, frosts, droughts and floods. Forest fires associated with periods of drought can also be included.
- ✓ Subprojects that use climate information offered in a friendly way by SENAMHI (PISCO) or other technical-scientific institution.
- ✓ Subprojects with logical frameworks and SMART indicators
- ✓ Subprojects with systematic and periodic monitoring systems
- ✓ Subprojects with environmental and social safeguards and Social and Environment Management plans.
- ✓ Subprojects that clearly show how men and women will benefit and if there are barriers identified, how they will be reduced.
- ✓ Comply with minimum resource management requirements.

A preliminary list of eligible organizations is listed in Table 6.

<b>Table 6: Potential eligible Institutions and Organizations</b>	
<b>Ecosystems and Geographic Location</b>	
Northern Zone: High Andean relict forest and Puna Húmeda Pajonal. Chancay- Lambayeque Basin Districts of Cajamarca	Peruvian Agroecological Consortium (RAAA-ANPE-RAE-RAE- ASPEC). Taxpayers and Contributors (Water User Boards, private companies, etc.) of MERESE <sup>4</sup>
Northern Zone: High Andean relict forest and Puna Húmeda Pajonal. Chicama Basin. Districts of Cajamarca and La Libertad	Peruvian Agroecological Consortium (RAAA-ANPE-RAE-RAE- ASPEC). Taxpayers and Contributors (Water User Boards, private companies, etc.) of MERESE
Northern Zone: Periglacial and glacier ecosystem of the Santa basin, department of Ancash, Districts of Recuay, Ticapampa, Olleros, Huaraz and Cascápara.	NGOs working in the area Huascarán National Park MERESE taxpayers and contributors (Water User Boards, private companies, etc.).
Northeastern Zone: Basimontane Yunga Forest Ecosystem. Sub-basins of the Cumbaza River in the basin of the Huallaga and Mayo rivers. District of San Roque	NGOs working in the area Organizations representing indigenous peoples. Peruvian Agroecological Consortium (RAAA-ANPE-RAE-RAE- ASPEC). MERESE Cumbaza and Gera taxpayers and contributors

### **1.5 Preparation of the subproject´s monitoring system.**

The preparation of the monitoring and learning system will have a special emphasis on the evidence regarding the effectiveness of the intervention to increase community resilience and the lessons that can be learned from intervened ecosystems. Time technical assistance and resources are being allocated to this activity.

### **1.6 Identification of social and environmental risks and mitigation plan.**

<sup>4</sup> Retribution Mechanisms for Ecosystem Services (MERESE Law No. 30215)

To Comply with Profonanpe and Adaptation Fund Social and Environmental Safeguards all subprojects will start the implementation on the second year. During the first-year training and consultations and gender assessment, and risk environment and social analysis will be carried out according to the EDA policies.

### **1.7 Community-level participatory consultations & gender assessment.**

Gender assessment and the public consultation will be carried out the first year of the project according to EDA policies.

It has been included in the selection criteria (1.4 Call and award of subprojects page 16) that subgrants will be allocated to subprojects that clearly show how men and women will benefit and if there are barriers identified, how they will be address.

It has been considered under component 1 that a gender expert will provide technical assistance in the design of the subprojects, in the establishment of goals and also in the monitoring and reporting. It is expected that a gender expert will provide the guidelines and technical assistance to fulfill the EDA gender requirement (pag.30).

### **Output 1.2 Project results and lessons learned on innovation and evidence based are shared.**

The results and lessons learned from the EDA approach will be compiled and disseminated at the national level. The objective is to promote learning among national and local participants and other stakeholders.

Learning from experience gained during EDA implementation and new knowledge will be shared with other stakeholders as a reference for future projects. Lessons learned, as well as knowledge gained, will serve as the basis for the project reports, the final report and external evaluation reports. The project is designed to strengthen the capacity of local adaptation funding streams, and the project is expected to make a lasting contribution to the sustainability of adaptation programmes in the country. Therefore, it will be important to learn lessons from the EDA to improve the flow of local adaptation finance and implementation.

Additionally, information on the performance of safeguards management will be collected. These lessons will be incorporated into Profonanpe's operational processes to improve the management of the EDA approach in the future and assist in the scaling up of this modality.

### **COMPONENT 2. Supporting the resilience of selected ecosystems**

This component is dedicated to increasing the resilience of hydrological services that includes combined interventions to stabilize watersheds through infiltration ditches, construction of reservoirs, management of lakes, and water harvesting. Includes the improvement of pre-Columbian technologies such as “andenes” and “amunas”. These interventions include the management of wetlands, grasslands, revegetation, and reforestation in degraded areas.

### **COMPONENT 3: Supporting food security in vulnerable communities**

This component includes interventions related to food security through agrobiodiversity and the diversification of non-agricultural activities. These interventions are aimed at improving family farming through the promotion of crops resistant to climate variability and improved agricultural practices. Non-agricultural activities such as ecotourism, handicrafts, allow vulnerable families to face the threats of their crops in the face of climatic variability.

Both components refer to the specific interventions to be implemented at the community level and are synergistic and complementary. Evidence from other adaptation projects suggests that coordinated and comprehensive actions have greater potential for community resilience.

A call for proposals is expected to be made at the Concept Note level and then after the technical assessment, the selected projects will be invited to present the full proposal. The calls for proposals at the full proposal level will be complemented with training for developers to comply with the Adaptation Fund criteria. A dissemination strategy will be developed to publicise the calls for proposals at the national level with an intercultural and gender focus.

The eligibility criteria for the technical assessment are the following:

- ✓ Paradigm Shift Potential: Replicability potential of the adaptative response to climate change in other contexts.
- ✓ Cost-effectiveness: Cost-benefit analysis including the evidence to increase ecosystem resilience.
- ✓ Socio economic impact potential: number of green jobs, gender and youth and indigenous people empowerment.
- ✓ Alignment with subnational and local plans.
- ✓ Financial viability and sustainability strategy.

<b>Table 7: Eligible interventions&amp; Expected Benefits .</b>		
<b>Outocome 1</b>	<b>Eligible Interventions</b>	<b>Expected Benefits</b>
Output 1.1 Local organizations and private sector strengthen their capacity to develop robust proposals and implement adaptation projects.	<ul style="list-style-type: none"> <li>✓ Subprojects with identification of climatic risks that affect the livelihoods at community level due to intense rains, frosts, droughts and floods. Forest fires associated with periods of drought can also be included.</li> <li>✓ Subprojects that use climate information offered in a friendly way by SENAMHI (PISCO).</li> </ul>	Access and use of climate information in a friendly way for decision-making on adaptation measures.
Output 1.2 Project results and lessons learned on innovation and evidence about the community resilience are shared	<ul style="list-style-type: none"> <li>✓ Subprojects with logical frameworks and SMART indicators</li> <li>✓ Subprojects with systematic and periodic monitoring systems</li> <li>✓ Subprojects with environmental and social safeguards and Social and Environmental Management plans.</li> <li>✓ Subprojects that clearly show how men and</li> </ul>	Institutional learning about monitoring systems & practices in adaptation based in specific ecosystems.

Table 7: Eligible interventions & Expected Benefits .		
Outcome 1	Eligible Interventions	Expected Benefits
	<p>women and girls will benefit and if there are barriers identified, how they will be reduced.</p> <ul style="list-style-type: none"> <li>✓ Comply with minimum resource management requirements</li> </ul>	
Outcome 2		
Output 2.1a Water ecosystem services in vulnerable watersheds are resilient to climate change and climate variability	<ul style="list-style-type: none"> <li>✓ Promote the management at level of sub-basins</li> <li>✓ Protection and sustainable management of water sources, bofedales, including planting and harvesting water, considering the reuse of ancestral techniques and innovative techniques such as the revegetation of species and the closure or protection of meadows and natural pastures.</li> <li>✓ Construction of infiltration ditches and other light infrastructure to retain water.</li> <li>✓ Soil treatment through the incorporation of organic matter and nitrogen regenerating crops.</li> <li>✓ Management of lagoons and lakes in periglacial ecosystems.</li> <li>✓ Mitigate Acid Rock Drainage (ARD) through bioremediation or other means.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Improvement of the water regulation capacity of the sub-basin.</li> <li>✓ According to ANA, harvesting water includes many benefits such as stabilizing the basin through ditches, storing water in the rainy season and using it during the dry season. Indirectly, it allows the recharge of aquifers.</li> </ul>
Output 2.1b Amazon Forest & Forestry increase its resilience to extreme events and climate change variability	<ul style="list-style-type: none"> <li>✓ Restoration of native forest ecosystems</li> <li>✓ Afforestation and reforestation</li> <li>✓ Management of traditional burning systems</li> <li>✓ Promote agroforestry systems in value chains</li> <li>✓ Generation of ecological corridors between isolated forests, via afforestation, reforestation, revegetation, or natural regeneration management</li> <li>✓ Conservation and recovery of degraded areas with native species for the protection of the landscape</li> <li>✓ Implementation of phytosanitary systems in natural forests and forest plantations.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Improvement of soils and vegetation.</li> <li>✓ Productivity improvement.</li> <li>✓ Access to green markets</li> <li>✓ Microclimates with greater shade and humidity.</li> <li>✓ Improvement of plant cover and increase of plant biomass.</li> </ul>
Output 2.2 Hydraulic infrastructure reduces the risk of floods and extreme rains..	<ul style="list-style-type: none"> <li>✓ Afforestation and reforestation with special emphasis on gallery forests (floods).</li> <li>✓ Riverside defenses: protection and retention dikes, channeling, groynes, protection riprap, diversion structures, sediment retention and desilting of the channel.</li> <li>✓ Meshing and covering of canals.</li> <li>✓ Sistemas de Alerta Temprana con redes de monitoreo participativo</li> </ul>	<ul style="list-style-type: none"> <li>✓ Optimization of water use, improvement of irrigation efficiency.</li> <li>✓ Protection of slopes, riverbanks, crops and assets</li> <li>✓ Anticipatory response to reduce risk.</li> </ul>
Outcome 3		
Output 3.1 Increase the resilience of crops to climate change through conservation in situ y ex situ of agrobiodiversity (ABD)	<ul style="list-style-type: none"> <li>✓ Certification of products or denomination of origin, for access to green markets</li> <li>✓ Promote Sustainable agriculture (improvements in crop rotation systems; recovery of terrace systems; organic agriculture; vegetable gardens; integrated pest management)</li> <li>✓ Management and/or conservation of</li> </ul>	<ul style="list-style-type: none"> <li>✓ Improvement of family production and food security.</li> <li>✓ Soil improvement for protection</li> </ul>

Table 7: Eligible interventions & Expected Benefits .		
Outcome 1	Eligible Interventions	Expected Benefits
	<p>representative or fragile Wildlife</p> <ul style="list-style-type: none"> <li>✓ Promotion of the conservation of the germplasm of biodiversity and native agrobiodiversity (fauna and flora).</li> <li>✓ Recovery of ancestral knowledge and practices in the sustainable use of ecosystem goods and services.</li> <li>✓ Conservation and recovery of degraded areas with native species for the protection of the landscape.</li> </ul>	
Output 3.2 Increase the resilience of indigenous and local communities through non-agricultural or forestry activities and added value activities	<ul style="list-style-type: none"> <li>✓ Added Value products in forestry initiatives</li> <li>✓ Generation of community ecotourism (eg experiential tourism, agritourism, beekeeping) considering and improving traditional knowledge</li> <li>✓ Promotion of fairs, internships, and knowledge exchange to improve landscape sustainability and governance.</li> <li>✓ Development of capacities and use of technology for commercialization</li> <li>✓ Promotion of strategic alliances with private sector partners to access sustainable markets (i.e. restaurants, hotels, local merchants, fairs, etc.)</li> <li>✓ Promotion of productive enterprises led by women</li> </ul>	<ul style="list-style-type: none"> <li>✓ Better prices in green markets for agroecology production.</li> <li>✓ Community tourism allows the use of unoccupied facilities of the house.</li> <li>✓ Availability of cash from - non-agricultural activities.</li> </ul>

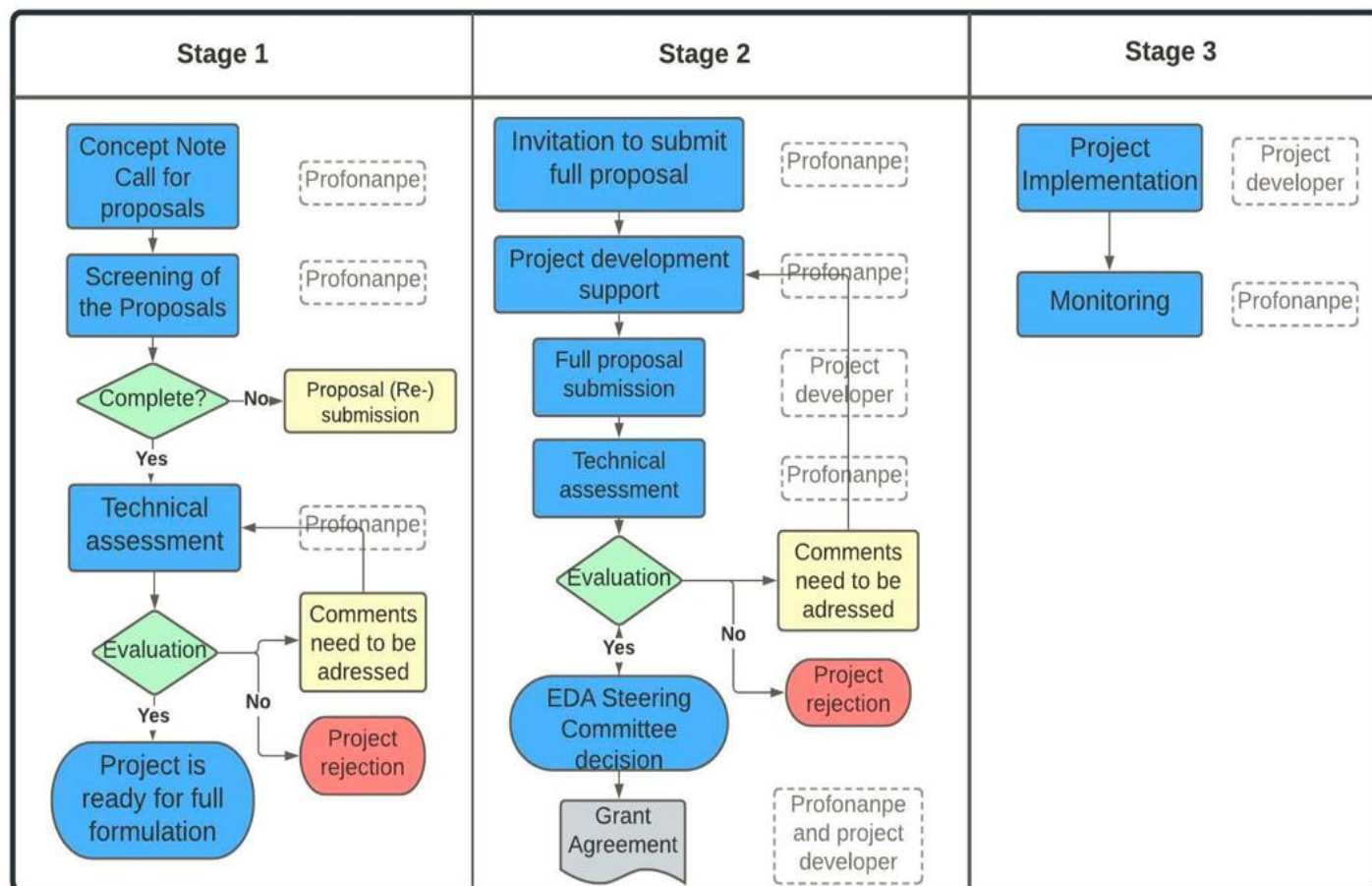
### EDA Grant Appraisal Procedure:

The project will publicly advertise “call for proposals” once in a year starting a year after the project launch. This will be done through print media, MINAM’s and Profonampe’s websites and social media account and will run for at least 60 days. Profonampe will process all applications received as follows:

- Issue acknowledgments of receipt to applicants and record all applications onto the prescribed register.
- Perform administrative and technical pre-screening of applications (for completeness and eligibility).
- Conduct the Environmental and Social Safeguards and Gender Assessments on screened applications.
- Communicate with applicants as necessary on queries or shortcomings.
- Prepare and present Project Technical Document to EDA approval structures
- Implement decisions of the said approval structures (approvals, declines and refer backs) as prescribed in the Operations Manual. This will also involve communicating and corresponding with applicant as necessary.
- Negotiating contracting terms and performance measures with successful applicants.
- Prepare grant agreements for signature.

Profonanpe will review the Project Technical Documents. After reviewing the proposals, Profonanpe is entitled to make one of the following decisions: a) decline, b) refer back for improvement, or c) accept for further processing. The final list will be presented to the Steering Committee for the approval. The eligibility and prioritization criteria are outlined in Figure 1 and Figure 2.

Figure 1 Grant Appraisal Procedure



Once the call for proposals has been issued at the Concept Note level that meet the minimum criteria described in the previous point, training and technical advice will be provided so that applicants have the necessary skills to develop a full proposal within the framework of the Adaptation Fund's requirements, such as alignment with its results framework, environmental, social and gender requirements, among others.

The training and technical advice provided will help to provide high quality proposals oriented to address adaptation needs and also support capacity building for local organisations.

It is expected that as a result of these training courses the understanding in the design of adaptation projects as well as in their management and execution following the guidelines of the Adaptation Fund will be increased.



The activities to be financed with EDA resources are listed in Table 7.

Within the framework of Profonanpe's experience as an environmental fund in the administration of resources from different sources, training will be provided to local organisations in aspects of project financial management, accountability, reporting, management of environmental and social safeguards, among others.

This activity will ensure the correct execution of the projects to guarantee compliance with the proposed objectives that will contribute to reducing the population's vulnerability.

To this end, an EDA Operating Manual will be prepared that includes detailed procedures for both the application and evaluation of projects. There will be an Evaluation Committee that will be made up of representatives of the public institutions that are responsible for supervising the implementation of the prioritised measures for adaptation in the thematic areas of water, forests and agriculture. The criteria for the evaluation of proposals and the decision-making process by the EDA Steering Committee will be developed. The Due Diligence procedure used by Profonanpe for the technical and financial evaluation of the potential beneficiary will also be applied in order to mitigate the risks of bad management practices or corruption. Finally, the minimum stipulations and conditions will be established in the Grant Agreements that will be signed between Profonanpe and the beneficiaries.

Profonanpe has extensive experience in managing grant agreements with both public and private beneficiaries at the national level that comply with its administrative guidelines as well as donor requirements. In its 29 years of work, Profonanpe has experience in the development of Calls for Proposals, and has an online platform specially designed for this purpose.

### **Management of EDA grants**

Once the projects have been approved, this component will include the technical and financial management of the financing (grants) that will be awarded to the beneficiaries.

Profonanpe will be responsible for the monitoring and technical and financial evaluation of the execution of the beneficiary projects, in accordance with its existing procedures and processes. This will also include the management and reporting of environmental and social safeguards.

For the adequate compliance of grant management by the grantees, Profonanpe will develop training courses in the first month after signing the grant agreement.

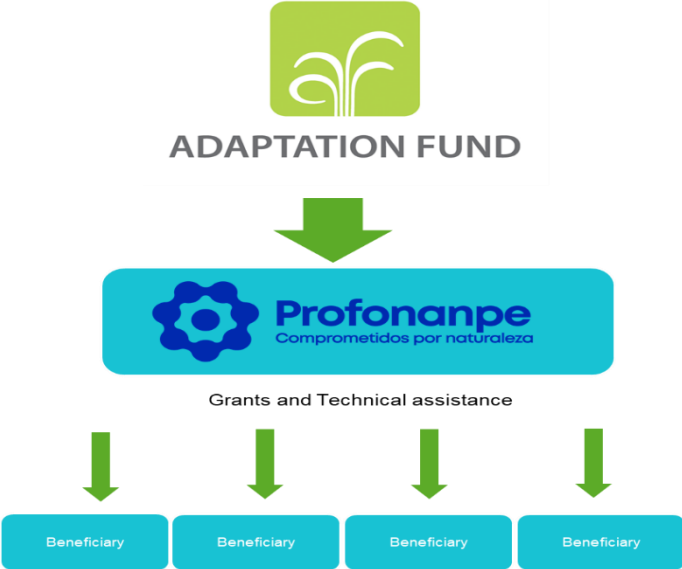
These training courses will include aspects of financial management of resources, elaboration of financial reports according to Profonanpe's administrative guidelines, elaboration of technical reports according to the criteria and guidelines of the Adaptation Fund, elaboration of reports on social, environmental safeguards, evaluation of assumptions and risks, etc.

For adequate monitoring and evaluation of the subprojects, training will be provided so that each subproject has a monitoring and evaluation plan that will be supervised by Profonanpe's monitoring specialist. These plans will be aligned with the project's results framework and indicators. This plan will specify the schedule

for the delivery of reports, field monitoring visits, evaluations and audits. The subprojects will report quarterly on both technical and financial execution, and Profonanpe will report quarterly for the entire EDA. Two external evaluation reports will be prepared, 2.5 years after the start of the project and at the end of the period. Monitoring of the activities financed will be reported to the competent authorities in charge of supervising the implementation of the NDCs in the country to record progress.

Profonanpe will be responsible for preparing the financial statements annually and they will be audited by an external auditor.

**Flow of Funds**



Profonanpe, as Implementing Entity will receive the funds from Adaptation Fund and will oversee the project administration, monitor the project implementation and ensure project compliance with PROFONANPE’s own policies and Adaptation Fund’s policies. Profonanpe will deliver the funds to the beneficiaries, once they are selected.

Below, is described the project alignment with the AF Strategic Results Framework:

Table 8: Project Alignment with AF Strategic Results Framework			
Project Objective(s)	Project Objective Indicator(s)	Adaptation Fund Outcome	Adaptation Fund Outcome Indicator



Increase the population's capacity to adapt to climate change through the financing of adaptation measures prioritised in the National Adaptation Plan in vulnerable watersheds	No. of people with benefitting from the enhanced direct access modality	<b>Outcome 2:</b> Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	2.1. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased
<b>Outcome 1.</b> Strengthened national capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	Number of people who strengthen their capacities to reduce their risks associated with climate-induced socioeconomic and environmental losses.	<b>Outcome 2:</b> Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	2.1. No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks.  2.2. Number of people with reduced risk to extreme weather events
<b>Outcome 2.</b> Increased ecosystem resilience in response to climate change and variability-induced stress.	Area (ha) of conserved and recovered ecosystems that provide water regulation and provision services, in basins vulnerable to climate change.	<b>Output 5:</b> Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	5.1. No. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type of assets)
<b>Outcome 3.</b> Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas	Number of households and communities having more secure (increased) access to livelihood assets (% female lead households and % under 35 years old.	<b>Output 6:</b> Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	6.1.1.No. and type of adaptation assets (physical as well as knowledge) created in support of individual or community-livelihood strategies  6.1.2. Type of income sources for households generated under climate change scenario

**B. Describe how the project / programme provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project / programme will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.**

Interventions in natural infrastructure buffer the effects of climate variability and of its extremes that cause, above all, droughts and floods. In addition, they improve the performance of grey infrastructure, reducing the number of suspended solids in the water, its consequent sedimentation, and offer additional benefits such as food security, opportunities of recreation and climate change mitigation. The ancient techniques of water regulation, in special in Peru, have always played a key role in effective infrastructure management natural and constitute an enormous potential—even without leverage—to address risks modern of water in Peru (Forest Trend, 2021).

Based on evidence from the PACC project (Cusco,2016), these combined interventions describe in components 2 and 3 have Benefits<sup>5</sup> and a great impact on the well-being of families.

*“One area that could benefit from more gender focus is that of women’s roles in agriculture. As in many other areas of the world, women remain at or near home generally focused on child rearing, food provisioning, and household maintenance while men may seek wage labor at some distance from the home. It was obvious from fieldwork that women are at the nexus of several productive technologies around the family homestead: irrigation of crops and improved pasturage in small fields near the house, cultivation of vegetables in the improved gardens and small greenhouses in the courtyard or near the house, the collection and use of organic fertilizers on gardens and nearby cash crops, and the raising of small animals, particularly chickens and guinea pigs, are likely to be undertaken by women and girls of the household. This is also true for small herds of cows at lower elevations. Travel to far-flung fields and herding of alpaca over natural pasturage usually involves men and boys. With a focus on core productive activities undertaken in and around the family homestead, women’s productive roles become key to longer term capacity building. This could be recognized more fully by FONCODES and its future partners going forward. (Boyle, Rojas, PACC Evaluation, 2016).”*

Regarding agroforestry, its effect is recognized in the creation of microclimates, protecting crops against frost and wind, and providing shade for animals. They control erosion and improve soil fertility. It also improves humidity and increases biodiversity (flora and fauna) and increases crop yields (PACC, 2014)

The management of natural pastures and rotational grazing improves the vegetation cover, reducing erosion and increasing the infiltration and retention of water into the soil. The “sponge effect” improves water regulation services and complements interventions in “harvesting water” in micro-basins, mitigating the effects of dry periods. (IDMA s/f). This intervention interacts positively with infiltration ditches, rustic micro-dams and reforestation. (PACC, 2014).

The EDA Mechanism will allow the organizations participating in the MERESE mechanism to have the capacity to know their risks at the local level and make decisions and manage the most appropriate measures according to their needs. Likewise, the MERESE mechanisms are the institutions that will channel investments for the conservation of ecosystem services in the basins and sub-basins in Perú. The subprojects to be funded under the EDA mechanism will leverage adaptation measures in the basin and sub-basin with MERESE mechanism.

The MERESE funds established in 2013 as part of the water supply and sanitation policy of Peru It is considered as a mechanism that allows collaboration between stakeholders to maintain ecosystem services in watersheds. The OCDE reports that the mechanism must continue to expand. The local communities that live in

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<sup>5</sup> PACC Perú: Explorando respuestas adaptativas a la variabilidad y cambio climático con familias y comunidades alto- Andinos de Cusco y Apurímac.

the Peruvian highlands have high expectations of the MERESE instrument, which also has social benefits (avoid migration of these populations to the cities) and tourism (preservation of cultural landscapes). (OCDE, Report 2021).

### **Economic benefit:**

The main benefit of the nature infrastructure (reservoirs, micro-reservoirs for agricultural purposes) consists of supplying the water resource in times of greatest drought and/or drought prolonged, reducing the uncertainty in relation to the delay or advance of the period of rainfall that serves as an input in agricultural production processes. It will also allow store surface water runoff from heavy rains and the melting of glaciers, among other phenomena associated with climate change. In both cases will allow agricultural production to be sustainable, families to have food and economic security in the face of climate variability.

Other co-benefits are economic savings generated by not having to opt for other technologies to access the water and the reduction of productivity losses in crops and breeding and increased food security. It extends the period for agricultural production and recharge of aquifers that serve as a water reserve.

Water harvest & lake management have also economic benefits if they are implemented within the MERESE mechanism, allowing those who benefit to pay for the ecosystem services received. These interventions Increases the availability of water for agricultural use in the dry season and improves water quality by acting as a natural filter. They produce better soil and ecosystem conservation, protecting it from erosion, reduce runoff by avoiding landslides or landslides,

Forests are important providers of ecosystem services at various scales spanning from the local (eg non-timber forest products, pollination and scenic beauty) to the regional (eg hydrological services) and global (eg carbon sequestration).

Protection measures against floods and heavy rains on the banks of rivers, contribute to less loss of crops and soil that will have a positive effect on the family economy. The establishment of agroforestry systems in coffee and cocoa crops can become future carbon credits

### **Social benefit:**

Climate change poses a risk not only to the composition, health, and vitality of the ecosystems, but also to social systems linked to them.

The decrease ecosystem services, in particular the regulation of water cycle, soil protection and biodiversity conservation, can imply greater social vulnerability.

Many people in rural areas use ecosystems to meet their needs of subsistence, including food, fuel, wood, medicine, and income. For many indigenous peoples, forests, and water (qochas and lakes) are also essential for cultural identity and spiritual beliefs.

Many urban areas also depend on ecosystem services such as those related to water supply and recreation. The change climate change will affect many of the services provided by forests, with impacts that can affect the increase in poverty and reduction in livelihoods.

Through the implementation of natural infrastructure interventions, communities and local organisations will be able to reduce the risks associated to climate variability and increase their resilience. Many technologies and ancestral knowledge can be improved and strengthening of the community work. Also, gender approach will be considered in order to reduce gender gap in the sectors of intervention.

**Environmental benefit:** The development of best practices promoted by the financed subprojects will improve the ecosystem services of the area involved, in addition to working on landscape-level management. Practices that identify soil management solutions, erosion control, landscape management, water conservation practices, restoration, water storage and efficient water use will help reduce unsustainable water use and reduce costs associated with water supply in rural communities.

Ecosystem services related to adaptation to climate change are made up of two types of services: a) supporting services that contribute to the adaptive capacity of an ecosystem, since the nutrient recycling and primary production are important components of functioning, resilience and flexibility of the ecosystem; b) regulatory services can decrease the sensitivity of a human-environmental system; for example, the water regulation services offered by a forest determine the response of a basin to changes in rainfall associated with climate change.

Healthy ecosystems have a positive impact on the maintenance of nutrients due to the water cycle, the conservation of biodiversity and habitat of wild fauna and flora, the generation of soils, the fixation of carbon through the recapture of CO<sub>2</sub> and the removal of pollutants of the air. They also play an important role in the regulation of local and global climate and the conservation of the landscape used by recreation and tourism.

The promotion of agrobiodiversity and agroecology will allow a better response to diverse climatic events such as droughts and frosts. Local varieties of quinoa and potato are more resistant to water scarcity and frost.

Subprojects implemented with support of EDA will reduce the risks and negative effects in the food production systems, water availability, forest conservation and soil degradation in face of climate variability.

### **Initial gender analysis**

An initial gender analysis is presented considering de thematic areas prioritized

for the EDA. This information is provided by the National Adaptation Plan.

### **Water resource security**

The impacts of climate change are experienced differently by men and women as a consequence of historically assigned gender roles, which, in turn, generates inequality in access to resources.

Currently and traditionally, women and girls are the ones who manage water resources within the household, while men are the ones who make decisions regarding the management of water for agricultural, industrial and hydro-energy use. In the case of women and girls, access to water allows them to carry out subsistence tasks, domestic tasks and unpaid care work among the child and elderly population.

The potential indirect effects on women against climate change in the thematic area of water<sup>6</sup> are:

- Increase in time, distance, and cost overruns for access to drinking water.
- Unpaid domestic and care work is on the rise.
- Decrease in time spent on productive activities.
- The risk of gender-based violence increases when women and girls are responsible for collecting water for households, usually in places far from the home.
- Gender roles are reinforced when the practical needs of households depend on women and girls continuing to perform domestic and care work.
- Family health is affected by water stress, placing a greater burden of care and unpaid work on women and girls; household sanitation activities are affected, in turn affecting the time women spend on family care.
- Less ability to get out of poverty conditions.
- Affectation of subsistence crops due to hydrometeorological impacts.
- Increase and/or maintenance of economic, social and political gaps.
- Unequal, scant and limited participation of women in most decision-making bodies.
- Diseases and health problems due to hazards of hydrometeorological origin.

### **Agricultural and food security**

According to the NAP, the participation of women in the sector has doubled between 1994 and 2012, while that of men has only increased by 14.2% according to the National Agricultural Census (Cenagro). The increase in the population dedicated to agriculture brought improvements in general; however, women and certain age groups continue to suffer from shortages. The level of education by age presents marked differences; for example, farmers between 24 and 35 years of age have more years of study than those between 45 and 54 years of age and many more than those over 65 years of age; The difference between the educational level of men and women is evident: 28% of of women working in the agricultural sector are illiterate, while men are only 9%.

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<sup>6</sup> National Adaptation Plan

The distribution of gender roles in agriculture is distributed in such a way that it is women who are in charge of housework and providing food and also assume part of the agricultural work, while, due to the low flow of economic income in certain months of the year in their agricultural calendar, men carry out other commercial tasks, often away from home, leaving women in charge of everything for a period of time. Despite this, women do not have equal and/or sufficient representation at the economic level of the country in agricultural activities (MIMP, 2015). This problem is increased by the fact that 27.3% of women agricultural producers are illiterate, while in the case of men the percentage decreases to 8.7% (MIMP, 2015).

Women in agricultural activity have an important role; however, a gender gap still exists. In the last agricultural census of 2012, an increase in the participation of women as producers was found. However, the gap continues, as it only represents 30%, compared to 69% of men. By region, on the coast, the difference is significant: 25% are women and 75% are men; in the sierra, 33% are women and 67% are men's; finally, in the amazon, women represent 19% and men 81%.

In addition, only 21% of women have access to land, which is usually less than two hectares, through social and kinship relationships (by marriage or widowhood). The number is low, compared to 79% of men who have access to land. In economic activity, 70.6% of rural women carry out subsistence agricultural activities, without labor rights or benefits. 20.3% of agricultural units are run by women, but only 4.7% of rural producers have land titles (PACGG, 2019).

Women face different barriers in this sector; for example, they have less access to productive resources and credits, they lack the technical assistance and training necessary to improve their productivity, and they have smaller extensions of land. Improving the economic situation of women agricultural producers through access to financial resources will allow them to improve the quality of their production, increase productivity, reduce poverty levels and access basic services such as water, health, etc.

## **Forests and Forestry**

According to the Gender Action Plan (PAGCC, 2016) and some studies carried out from international cooperation (USAID, 2013; FAO, 2013a; Salas, 2011), it can be pointed out that women experience the following limitations: access to productive economic resources, dependency on natural resources (water, firewood, crops) to provide for their families, the possibility of accessing credit, capital and well-paid work, the high level of illiteracy, the lower rates of schooling, information and training; as well as one low autonomy and low access to decision-making in communal life.

The historical relationship of women and men with forest resources reinforces socially constructed gender roles. In the forestry value chain, men tend to focus on the commercialization of mainly timber products, while women are dedicated to the use and management of non-timber forest products for subsistence, food and

health activities (firewood, medicine, fodder and natural fertilizer). This dynamic has generated that women have a more specialized knowledge of forests, acquiring a better experience about conservation practices (MIMP, 2015).

Women living in rural areas have limited access to education and public services, since it is the men who leave the home to carry out hunting and supply tasks, among others, and thus have more possibilities of accessing these services. Limited access to education means that the illiteracy rate is higher among women than among men, whose gap increases significantly in older generations (MIMP, 2015).

During the first-year training and consultations and gender assessment, and risk environment and social analysis will be carried out All subgrants will required to undertake a gender analysis and a process of consultation which will be carry out during the first year during the phase of planning and design out according to the EDA policies. All these activities are budgeted in the component 1, including a gender expert who will provide the guidelines and technical assistance.

**C. Describe or provide an analysis of the cost-effectiveness of the proposed project / programme.**

The cost-effectiveness analysis is based on the total project budget and its benefits, which will be mainly translated into the number of beneficiaries. In this regard, the project plans to support measures prioritised in The National Adaptation Plan that will have an approximate impact on 95,759 people in 18 districts in selected vulnerable basin in the Northern of Perú.

Training and technical assistance will be provided to 100 staff from local organizations to identify climate threats and reduce their risks associated with climate-induced socioeconomic and environmental losses; of this target, 30% are women. In addition, 30 local organisations will receive technical assistance for the preparation and execution of subprojects aiming to increased community resilience.

Directly, 500 small producers 30% women will benefit with the increase production value and avoid losses due to dangers associated with climate variability. Women and young people who decide to start small businesses based on tourism and crafts, will be also direct beneficiaries from the project.

The MERESE mechanisms will also directly benefit through projects that will be implemented in the basins, improving the availability of water for users. Both payers and care takers can benefit from the project.

Indirect beneficiaries are all the families that are in the basin and will benefit from the improved ecosystem services. This calculation can be done with the beneficiaries registered at the EPS the water and sanitation service companies that are part of the MERESE mechanism.

The installation of agroforestry systems and reforestation will reduce the amount of Green House Gases (GHG) emissions into the atmosphere and can

be accounted for in carbon bonds.

Table 9, present the expected cost and benefits expected from the project.

Table 9: Expected Cost / Effectiveness				
Inputs	Activities	Outputs	Outcomes	Impact
US\$ 1.241.309,20	<ul style="list-style-type: none"> <li>Training Workshops</li> <li>Technical Assistance: Hydrology, agrobiodiversity, gender, project management.</li> <li>Social and Environmental Risk analysis and Social and Environment Management plans.</li> </ul>	<ul style="list-style-type: none"> <li>30 local organizations preparing 36 subprojects</li> <li>Staff from 5 technical institutions providing technical assistance who benefit to 30 NGOs, indigenous organizations and small producers</li> <li>36 subprojects with robust climate information and monitoring plans and adaptation model in 16 districts</li> </ul>	<ul style="list-style-type: none"> <li>Vulnerable organizations and communities share lessons learned about the effectiveness of adaptation measures.</li> <li>Subprojects implemented with support of EDA will reduce the risks and negative effects in the food production systems, water availability, forest conservation and soil degradation in face of climate variability</li> </ul>	Population of 95,759 in 18 districts are aware of climatic risk and benefit from adaptation measures.
	<ul style="list-style-type: none"> <li>Site visits, interviews</li> <li>Focus Groups.</li> <li>Workshops</li> <li>Communication strategy</li> </ul>	<ul style="list-style-type: none"> <li>36 subprojects with PGAS and gender assessment and community consultation.</li> <li>36 subprojects with M&amp;E systems.</li> </ul>		
US \$ 2.280.000,00	<ul style="list-style-type: none"> <li>10 Natural infrastructure initiatives</li> <li>8 Hydraulic infrastructures</li> </ul>	<ul style="list-style-type: none"> <li>4 resilient ecosystems with natural infrastructure projects for water security</li> <li>4 MERESE mechanisms a its constituencies will improve their management capacities.</li> <li>Healthy ecosystems have a positive impact on the maintenance of soil, conservation of biodiversity and habitat of wild fauna and flora, the fixation of carbon.</li> <li>They also play an important role in the regulation of local and global climate and the conservation of the landscape used by recreation and tourism.</li> </ul>	<ul style="list-style-type: none"> <li>Small producers and local businesses increase their income due to greater availability of water</li> <li>Companies providing water and sanitation services (EPS) improve access to water in quantity and quality.</li> <li>Payers compensate for economic services in US\$ to caretakers of the natural infrastructure in the headwaters of the basin.</li> <li>Small producers, 30% women improve the value of their production by installing agroforestry systems</li> </ul>	



**Table 9: Expected Cost / Effectiveness**

Inputs	Activities	Outputs	Outcomes	Impact
<p>US\$ 1.080.000,00</p>	<ul style="list-style-type: none"> <li>▪ 18 subprojects in agrobiodiversity, and tourism and handicraft in implementation.</li> </ul>	<ul style="list-style-type: none"> <li>▪ 500 small producers implementing best agriculture practices.</li> <li>▪ 10 agrobiodiversity related projects</li> <li>▪ 500 has of crops had reduced their risks to climate change variability.</li> <li>▪ 8 non agriculture related sub projects</li> <li>▪ women leading small businesses</li> <li>▪ 100 people with less tan 30 years old are implementing adaptation measures,</li> </ul>	<ul style="list-style-type: none"> <li>• Volume of carbon emissions from avoided deforestation generate carbon bonds per US\$.</li> <li>▪ 30% of women and young people improve their economic income in activities others than agriculture</li> <li>▪ 500 families are implementing best practices in agrobiodiversity and improving their livelihoods</li> </ul>	

**Assumptions:**

- ✓ The Technical Assistance institutions agree to generate evidence on the effectiveness of adaptation measures.
- ✓ Communities accept the proposed measures because they recognize the benefits
- ✓ The covid-19 epidemic remains under control and face-to-face work is resumed
- ✓ Willingness of INAIGEM and SENAMHI to provide climate information, friendly to the communities.
- ✓ The ANA allows and facilitates work in sub-basins.
- ✓ Technical-scientific institutions support innovation
- ✓ No conflicts are present in selected ecosystems.
- ✓ MERESE mechanism are fully in place and working.

For the cost/benefit analysis of alternatives, the project will be compared with activities in basins where there are no MERESE mechanisms. This exercise will be carried out in the next step in the full proposal.

This would be a direct implementation through a private contractor to deliver the services in a centralized manner. This means, that no subgrants will be delivered, therefore these interventions would not involve the active participation of stakeholders, nor would they improve their management capacities for future adaptation activities. The cost-effectiveness of this alternative without sub grants and no linking to the MERESE mechanism can be more costly in the long run.

The implementation of the proposal described in this concept note will provide the means for their sustainability and greater replicability in near future. Moreover, communities up in the valley would be able to receive economic incentives to implement more adaptative measures increasing the ecosystems resilience. Finally, the stakeholders have the possibility of making decisions to

function optimally to maintain the resilience of the ecosystem in the watershed in the long term.

**D. Describe how the project / programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national adaptation plan (NAP), national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programmes of action, or other relevant instruments, where they exist.**

The project seeks to be a financial mechanism to boost the implementation of adaptation solutions in specific vulnerable watersheds through interventions in water, forests, forestry, agriculture and food security, aligned with the measures identified in the National Adaptation Plan approved in 2021. The latter has a territorial scope that covers all of Peru and is based on the five thematic areas prioritised: Agriculture, Water, Forests, Fishing and Aquaculture and Health.

Likewise, the project is in line with local and regional development plans since most of the selected watershed are prioritize at the Regional Climate Change Strategies and the Water Local Authorities (ALA).

All these instruments are recognised in the Framework Law on Climate Change and its Regulations. Likewise, Article 23 of this law states the following:

*23.1 Public or private organizations of a different nature accredited before climate funds may be recipients and administrators of public or private contributions destined to the implementation of mitigation and adaptation measures to climate change.*

*(...)*

*23.4 In the procedures for managing, negotiating and obtaining financial resources, as well as public, private and international cooperation funds, priority shall be given to those destined for vulnerable populations, particularly women and indigenous or native peoples.*

The project is also aligned with the MERESE mechanism providing institutional and financial sustainability for the interventions proposed in component 2 and of 3.

The project is also aligned with the procedures and orientations from scientific or technical institutions such as SENAMHI, INAIGEM, CENEPRED who will participate in the project through their local offices. The project is also aligned to policies regarding water regulation and administration such as SUNASS the water and the EPS (mixed public-private company that manages the water and sanitation systems in the MERESE mechanism at local level).

Profonampe participation as the only national entity implementing the Adaptation Fund in the country plays a fundamental role in channelling resources for the implementation of national adaptation policies.

**E. Describe how the project / programme meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and complies with the Environmental and Social Policy of the Adaptation Fund.**

The subprojects activities to be financed under the EDA are aligned to the measures prioritised in the NAP and therefore meet the necessary technical and legal standards. The subprojects will comply with the unrestricted respect for the existing environmental, social and labour regulations in the country, as well as the specific regulations related to their intervention activities. Likewise, they will respect human rights, with special attention to the rights of children and adolescents.

None of the sub-projects managed by the EDA can violate the environmental, social, labour, human rights requirements, or the regulations binding on the specificity of the activity.

Likewise they will be selected according to established criteria so that they meet minimum environmental, technical and social standards that will be aligned to the Social and Environmental Safeguards Policy of Profonampe and the Environmental and Social Policy of the Adaptation Fund.

All the interventions proposed in the project are aligned with the natural infrastructure initiatives promoted by MINAM. However, each subproject will adequately identify and evaluate the possible risks and negative environmental and social impacts on the environment, cultural heritage, people's health, lifestyles and the rights of indigenous or native peoples and local populations, in accordance with the environmental protection criteria, established in the Law of the National Environmental Impact Assessment System. Likewise, the potentially affected actors (men and women) in the implementation of the activities must be identified.

To Comply with Profonampe and Adaptation Fund Social and Environmental Safeguards all subprojects will start the implementation on the second year. During the first-year training and consultations and gender assessment, and risk environment and social analysis will be carried out according to the EDA policies.

Profonampe will guarantee that the subprojects carry out the following actions:

- ✓ Establish an efficient and effective plan for the management of previously identified environmental and social impacts and risks in order to avoid and/or mitigate them.
- ✓ Establish the responsibilities for managing, monitoring and evaluating the environmental and social impacts and risks of the activities.
- ✓ Guarantee that the community affected by the activities has adequate access to information throughout the duration of the activities.
- ✓ Guarantee that complaints and suggestions from the population affected by the activities are addressed.

- ✓ Ensure that the gender approach is taken into account during the activities.

Likewise, the activities of the subprojects will promote the participation of women in all aspects that entail their implementation, generating equal opportunities and equitable power relations that shorten social gender gaps.

Below is detailed the activities to be carried out by the project in line with the Environmental and Social Policy Delivery Process of the Environmental and Social Policy of the Adaptation Fund.

Process	Project's activities
<b>Screening of Environmental and Social Risks by the Implementing Entity</b>	An screening of environmental and social risks will be developed for each of subprojects evaluated and approved under the EDA, according to the criteria and technical assessment implemented by Profonanpe.
<b>Environmental and Social Assessment</b>	An environmental and social assessment will be developed at EDA level considering the identification of any environmental or social risks, including any potential risks of the thematic areas prioritized for the EDA and its activities.  At the sub projects level, each of them will developed an environmental and social assessment of its specific activities and will be evaluated under the technical assessment phase described in Figure 1.
<b>Environmental and Social Management Plan</b>	In line with the environmental and social assessment, an environmental and social management plan will be developed for each project that will be evaluated under the technical assessment phase – stage 2 described in Figure 1. Profonanpe will provide guidance for the beneficiaries to develop its Plans according to the Fund's environmental and social principles.
<b>Monitoring, Reporting, and Evaluation</b>	The activities of monitoring, reporting and evaluation of the EDA will include the sub projects performance with respect to environmental and social risks. The monitoring specialist in coordination with the environmental and social specialist will ensure that the reports and evaluations includes the environmental and social measures.
<b>Public Disclosure and Consultation</b>	Profonanpe will involve key stakeholders in the development of the full proposal, the environmental and social screening and a draft environmental and social assessment of the EDA will be available for public consultations.
<b>Grievance Mechanism</b>	Profonanpe will develop specific guidelines of the EDA grievance mechanism that will be aligned with Profonanpe's current grievance mechanism ( <a href="https://profonanpe.org.pe/en/quejas/">https://profonanpe.org.pe/en/quejas/</a> )

**F. Describe if there is duplication of project / programme with other funding sources, if any.**

At the moment there is no duplication of project as a Facility itself, however there is a project under development to be presented to the GCF led by GIZ International which aims to support MIDAGRI in promoting a paradigm shift in the management of puna ecosystems (wetlands, peatlands and grasslands) and productive practices to increase climate resilience of some of the most vulnerable groups in the country: rural farming and herding communities depending on these ecosystems for their livelihoods. However, the present proposal aims to support adaptation solutions in the water, forest and agricultural thematic areas, with pre-established measures prioritised in the NDC and NAP.

**G. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.**

Knowledge management within the proposal is defined as the set of activities and processes that strengthen the exchange of information and experiences among the actors involved, to improve the performance of local organisations and the results of the proposed projects.

Components 1 will address all the demands of knowledge management and lessons learned from adaptation models in each ecosystem and the interaction and synergies among intervention that are key to support community resiliency. The interventions and the report and monitoring systems are mainly knowledge generators. Learning workshops will be held during the last year of the project, integrating the community monitors with the technical team. This is the main component of the project and is considered the axis for recording and disseminating knowledge in different forms and at different levels.

The lessons to be learned from the project are relevant beyond the national, sub-national and sector-specific levels, as the project will identify and address in a participatory manner, the development and implementation of Peru's National Adaptation Plan creating an enabling environment for scaling up proposals and seeking further funding.

**H. Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy and Gender Policy of the Adaptation Fund.**

To develop this concept, note, official consultation has been made with the Ministry of Environment (MINAM) as a National Authority in Climate Change. The General Directorate of Climate Change and Desertification has provided recommendations and suggestions to the document referring to improving the relationship of the activities with the NAP and the participation of public organizations that generate scientific information. These recommendations have been included in this proposal.

Further consultation about adaptation measurement has been carry out informally with non-governmental organization and one indigenous organization that are already working in the project selected areas. Further stakeholder consultation process will be carried out for the development of the Full Proposal considering its future involvement in the project, like the Ministry of Agriculture and Irrigation (MIDAGRI); the Local Water Authorities and Indigenous organizations, producer associations, unions, academia, and the private sector in the area of implementation.

The following individuals working in the selected geographical area were consulted and they provide background information and the relevance of the

measures proposed in this project.

- a) Rosa Velasquez, from the Adaptation to the Impacts of Climate Change on the Water Resources of the Andes Project – AICCA had confirmed that local municipalities from Cajamarca and La Libertad in the selected area has been informed about the risks analysis carried out by CIIFEN.
- b) The Regional Government of Cajamarca has request Profonanpe to manage the Green Basin Water Fund from the MERESE Chancay-Lambayeque and has sent to Profonanpe their technical proposal including a list of possible subprojects for consideration. This information has been included in this proposal.
- c) Jorge Recharte; from The Mountain Institute (MI) , had provided insight regarding risks and vulnerabilities from communities around The Santa Basin. The MI has been working in the last years with local adaptation plans in this Santa basin and with the MERESE – Santa mechanism.
- d) Regarding MERESE CUMBAZA, Teddy Peñaherrera a local consultant from CEDISA (El Centro de Desarrollo e Investigación de la Selva Alta) was interviewed regarding the results of the analysis of adaptation needs carried out by this institution.
- e) Javier Angulo from CODEPISAM (Coordinator for the Development of the Indigenous Peoples of the San Martín region), an organization which seeks to work under its own indigenous agenda that considers initiatives for local development, the strengthening of skills, advocacy for development and territorial management. It represents 79 native communities and 5 federations, has also been interviewed and has expressed his organization's interest in participating in the subprojects.
- f) Other individuals from outside the geographical area also were consulting regarding lessons learned from the adaptation measures considered in the EDA project. Cecilia Sueiro, from the Centro Bartolomé de las Casas (Cusco) share its experience about agroecology initiatives related to climate change adaptation. Manuel Avila from Small Grants Project GEF-PNUD was consulted regarding Learning & Knowledge models in subgrants management related to conservation and climate change adaptation in the Peruvian south and Flavio Valer, former specialist from COSUDE – PACC (Swiss Development Cooperation- Adaptation Project) was consulted regarding Qocha and Water Harvesting, operational costs and management.

**I. Provide justification for funding requested, focussing on the full cost of adaptation reasoning.**

EDA funding is key to financing natural infrastructure to reduce climate risks and increase the resilience of ecosystems that provide water security services at community level.

The budget requested for this project is US\$ 5,000,000 to fund subprojects that will not be financed by public investment. According to a study carried in 2021, public financing of natural infrastructure for water security by regional governments and ministries in Peru take an average of 4.5 years to go from a viable project profile to physical execution.

Although there is an exponential growth of financing in natural infrastructure, there is a gap between what was planned and what was executed. This gap closed somewhat in 2020, the year in which 91% of the planned financing was executed, but it could be because the amount total planned for that year was lower compared to previous years (Forest Trend, 2021).

Regarding interventions related to harvesting water and Cochas & Lakes management, communities are excluded to apply for funding to Sierra Azul Government Program since its conditions required the existence of a large irrigation infrastructure.

The activities set out in the 3 components of the proposal will be executed and completed with the budget assigned by the Adaptation Fund, which is USD 5,000,000. Component 1 will allow resources and technical assistance to communicate the risk analysis undertaken by the technical & scientific institutions to stakeholders to understand the impacts at community level and adjust the measures identified to the climate threats in the geographical area. Under this component decision-making capacities will be enhanced to local stakeholders. To achieve outcome 2 and 3, the project will be implemented in areas where multi-hazard risk analyses have already been carried out, therefore the project will allow to link them with the National Adaptation Plan at the community level. The measures selected for the EDA project are already approved in the National Adaptation Plan and those related to water, forest, food security and agriculture represent almost 60% of the country's adaptation measures.

Working in areas with MERESE mechanism are in place will provide the means to develop robust and feasible adaptation and a long-term institutional sustainability of the adaptation process itself. EDA project outcomes are close related to MERESE's objective to provide ecosystem services to those communities.

To achieve outcome 3, the project will be articulated to the organic market networks, community tourism, present in the selected areas.

The EDA funds will make it possible for these communities to access funds for more comprehensive projects that contribute to community resilience.

- ✓ Generate experience and lessons learned in the management of resources for adaptation through a private scheme of multi-stakeholder participation and fully oriented to the fulfilment of the NDCs.
- ✓ Strengthen key actors in climate change management, promoting their autonomy in decision-making on climate investments.
- ✓ Generate baseline information for some prioritised adaptation measures that will allow adequate monitoring of their implementation in the medium



- and long term by other local organisations.
- ✓ EDA resources seek to leverage public resources for NDC implementation as well as to promote and attract private investment through the MERESE mechanism.
  - ✓ Implement a first management model and private financial mechanism for adaptation in the country, involving the participation of Profonampe as Peru's Environmental Fund.

Without this financing, adaptation measures would take time to be implemented because there would be no private mechanism for fast and efficient financing of these measures.

**J. Describe how the sustainability of the project/programme outcomes has been taken into account when designing the project / programme.**

At the current stage of development of the concept note, the proposed project approaches the notion of sustainability in two distinct dimensions:

**Environmental sustainability** is addressed through the environmental impacts resulting from the implementation of solutions for the agricultural, forestry and water sector under the context of climate adaptation. The intervention is characterised by an initial investment, a long service life of the suggested intervention of the grants and their basic maintenance. This will achieve continuous benefits for the environment, such as improved water quality, assisted oriented agricultural production, among others that are aligned to the funded subproject.

**Socio-economic sustainability** is addressed through the social benefits that the solution will bring due to its nature, such as a decrease in conflicts over scarce resources along with benefits for health and financial sustainability, specifically in the local communities of the intervention area, thus promoting a positive impact on livelihoods, the overall economy and food security at the national and subnational level.

**Institutional and financial sustainability** is guaranteed at the local level by the participation of the local organizations and communities, owners of their territories and the main interested parties in maintaining their livelihoods and productive chains.

Most important institutional sustainability is guarantee with the participation of the MERESE funds in the selected basin. It is expected that this mechanism of payment for environmental services (PSA) can maintain and expand the project's interventions.

Through the Peruvian Law on Retribution Mechanisms for Ecosystem Services (MERESE Law No. 30215), approved in June 2014, the terminology of Remuneration for Ecosystem Services (RSE) is adopted instead of Payment for Environmental Services (PSA), while it is defined as:



“Schemes, tools, instruments and incentives to generate, channel, transfer and invest economic, financial and non-financial resources, where an agreement is established between “contribuyentes” those who take care of ecosystems, especially in the upper part of the basins and the “retribuyentes” those who benefit and are ready to pay for the ecosystem service, aimed at the conservation, recovery and sustainable use of the sources of ecosystem services”.(Article 3c. Law No. 30215

The **overall sustainability** of the project outcomes is seen not only in the way the project intervention is built through a participatory process, but also that participatory and inclusive processes are a dimension for the identification, design and implementation of climate adaptation and resilience of the proposed solutions. The combination of roles of government, communities, vulnerable populations, youth and women will be initiated in the full project development phase, as a participatory process will be put in place that will continuously increase during the implementation phases of the project and its outputs, thus increasing the sustainability of the project outcomes.

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

The risk category of the project is B because the sub projects can have potential limited adverse environmental or social risks and/or impacts that are few in number, generally site-specific, largely reversible, and readily addressed through a Social and Environment Management plans.

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
<i>Compliance with the Law</i>	X	The development of the final project document and the execution of activities under the proposed subprojects will ensure compliance with all relevant national legislation and international laws, therefore it will not imply a risk.
<i>Access and Equity</i>	X	The financed subprojects will in no way compromise the communities' access to basic health, drinking water and sanitation, energy, education, housing, safe and decent working conditions, and land rights.
<i>Marginalized and Vulnerable Groups</i>	X	The proposed subprojects are expected to improve the ability of all, including marginalized and vulnerable groups, to adapt to the adverse effects of climate change.
<i>Human Rights</i>	X	All proposed subprojects will respect and adhere to national legislation and international conventions on human rights, including access to basic needs such as water and electricity.
<i>Gender Equality and Women's Empowerment</i>	X	Through targeted consultation, project design and implementation will ensure that gender considerations are integrated into every activity. The project implementation strategy will also promote women's leadership and decision-making.
<i>Core Labour Rights</i>	X	The proposed project will adhere to core labor laws and the rights of all parties.
<i>Indigenous Peoples</i>	X	The design of all the Components and the proposed subprojects will ensure that the local communities and indigenous peoples

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
		involved are consulted and benefit from the interventions according to their needs.
<i>Involuntary Resettlement</i>	X	The Components for the proposed project do not include involuntary resettlement.
<i>Protection of Natural Habitats</i>		<b>Low risk</b> The project is not expected to have a negative impact on natural habitats, including those that are legally protected or recognized as protected natural areas. However, a final evaluation of the areas involved in the project will be carried out in accordance with the AF's environmental and social policy to observe the minimum negative impact that will be inherent to the activities carried out.
<i>Conservation of Biological Diversity</i>	X	The interventions of the subprojects will promote the conservation of biological diversity and natural habitats, through the restoration and protection of the forest, therefore it does not imply any risk.
<i>Climate Change</i>	X	The proposed project will contribute to climate change adaptation actions at the country level. Furthermore, the proposed project is in no way intended to increase greenhouse gas emissions or contribute to drivers of climate change.
<i>Pollution Prevention and Resource Efficiency</i>		<b>Low risk</b> The proposed project will ensure that the efficient use of energy is maximized, it will also avoid any potential pollution and the production of design materials directly, however there is the possibility that certain contaminating particles inherent to the scheduled activities will be produced.
<i>Public Health</i>	X	No risks are anticipated in terms of public health concerns, rather it is intended to improve livelihoods through climate-resilient practices and alternative income-generating activities.
<i>Physical and Cultural Heritage</i>	X	The proposed project will not harm the physical and cultural heritage in the intervention areas.
<i>Lands and Soil Conservation</i>	X	The proposed project is intended to conserve natural lands and soil through the protection of key ecosystems that are threatened by unsustainable practices.

At level of interventions Table 10 provides information of potential negative impacts.

Table 10 : Eligible Interventions and potential negative impacts			
COMPONENTE 1: Strengthening capacities for the development of robust proposals on Adaptation and project management.		Potential Unexpected Negative Impacts	Recommendations
Output 1.1 Local organizations and private sector strengthen their capacity to develop robust proposals and implement adaptation projects.	<ul style="list-style-type: none"> <li>✓ Subprojects with identification of climatic risks that affect the livelihoods at community level due to intense rains, frosts, droughts and floods. Forest fires associated with periods of drought can also be included.</li> <li>✓ Subprojects that use climate information offered in a friendly way by SENAMHI (PISCO).</li> </ul>	<ul style="list-style-type: none"> <li>✓ Women and indigenous organizations excluded due to technicalities in climate information, hydrology indicators.</li> </ul>	<ul style="list-style-type: none"> <li>✓ The monitoring system must provide for the proper training of the monitors and the report must be friendly and understandable for the communities. Is necessary in local languages.</li> </ul>
Output 1.2 Project results and lessons learned on innovation and	<ul style="list-style-type: none"> <li>✓ Subprojects with logical frameworks and SMART indicators</li> <li>✓ Subprojects with systematic and</li> </ul>		

**Table 10 : Eligible Interventions and potential negative impacts**

<b>COMPONENTE 1: Strengthening capacities for the development of robust proposals on Adaptation and project management.</b>		<b>Potential Unexpected Negative Impacts</b>	<b>Recommendations</b>
evidence about the community resilience are shared	<ul style="list-style-type: none"> <li>✓ periodic monitoring systems</li> <li>✓ Subprojects with environmental and social safeguards and mitigation plans.</li> <li>✓ Subprojects that clearly show how men and women and girls will benefit and if there are barriers identified, how they will be reduced</li> <li>✓ Comply with minimum resource management requirements</li> </ul>		
<b>COMPONENTE 2. Supporting the resilience of selected ecosystems.</b>		<b>Potential Unexpected Negative Impacts</b>	<b>Recommendations</b>
Output 2.1a Water ecosystem services in vulnerable watersheds are resilient to climate change and climate variability	<ul style="list-style-type: none"> <li>✓ Promote the management at level of sub-basins</li> <li>✓ Protection and sustainable management of water sources, bofedales, including planting and harvesting water, considering the reuse of ancestral techniques and innovative techniques such as the revegetation of species and the closure or protection of meadows and natural pastures.</li> <li>✓ Construction of infiltration ditches and other light infrastructure to retain water.</li> <li>✓ Soil treatment through the incorporation of organic matter and nitrogen regenerating crops.</li> <li>✓ Management of lagoons and lakes in periglacial ecosystems.</li> <li>✓ Mitigate Acid Rock Drainage (ARD) through bioremediation or other means.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Hiring of informal workers with low wages could link to a lack of community involvement</li> <li>✓ Conflicts with third parties due to district or community boundaries.</li> <li>✓ Construction site accidents</li> <li>✓ Overload due to the demand placed by community works, especially on women</li> </ul>	<ul style="list-style-type: none"> <li>✓ The subprojects must have agreements on how the interventions will be implemented. If decided to hire workers, this must be included in the budget. In such a case, it should be clarified how the community is going to participate.</li> <li>✓ Prior consultation should identify possible conflicts before interventions</li> <li>✓ Monitoring visits should include women´s focus groups of women to review overwork.</li> </ul>
Output 2.1b Amazon Forest & Forestry increase its resilience to extreme events and climate change variability	<ul style="list-style-type: none"> <li>✓ Restoration of native forest ecosystems</li> <li>✓ Afforestation and reforestation</li> <li>✓ Management of traditional burning systems</li> <li>✓ Promote agroforestry systems in value chains</li> <li>✓ Generation of ecological corridors between isolated forests, via afforestation, reforestation, revegetation, or natural regeneration management</li> <li>✓ Conservation and recovery of degraded areas with native species for the protection of the landscape</li> <li>✓ Implementation of phytosanitary systems in natural forests and forest plantations.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Conflicts between indigenous communities due to lack of delimitation and rights over their territories.</li> <li>✓ Conflicts with administrators of Natural Protection Areas</li> <li>✓ Conflicts with urban developers</li> <li>✓ Snake bites</li> </ul>	<ul style="list-style-type: none"> <li>✓ Prior consultation should identify possible conflicts before interventions.</li> <li>✓ Subprojects must include information regarding archaeological sites, Protected Areas, urban planning, etc.</li> </ul>
Output 2.2 Hydraulic infrastructure reduces the risk of floods and extreme rains.	<ul style="list-style-type: none"> <li>✓ Afforestation and reforestation with special emphasis on gallery forests (floods).</li> <li>✓ Riverside defenses: protection and retention dikes, channeling, groynes, protection riprap,</li> </ul>	<ul style="list-style-type: none"> <li>✓ Women and indigenous organizations excluded due to technicalities in climate</li> </ul>	<ul style="list-style-type: none"> <li>✓ The monitoring system must provide for the proper training of the monitors and the report must be friendly and understandable for the communities. Is necessary</li> </ul>

**Table 10 : Eligible Interventions and potential negative impacts**

<b>COMPONENTE 1: Strengthening capacities for the development of robust proposals on Adaptation and project management.</b>		<b>Potential Unexpected Negative Impacts</b>	<b>Recommendations</b>
	<ul style="list-style-type: none"> <li>diversion structures, sediment retention and desilting of the channel.</li> <li>✓ Meshing and covering of canals.</li> <li>✓ Sistemas de Alerta Temprana con redes de monitoreo participativo</li> </ul>	<ul style="list-style-type: none"> <li>information, hydrology indicators and the physical work of the interventions.</li> <li>✓ Paid labor versus community work could lead to a lack of commitment in future maintenance.</li> </ul>	<ul style="list-style-type: none"> <li>in local languages.</li> <li>✓ The subprojects must have agreements on how the interventions will be implemented. If decided to hire workers, this must be included in the budget. In such a case, it should be clarified how the community is going to participate.</li> </ul>
<b>COMPONENTE 3: Supporting food security in vulnerable communities</b>			
<p>Output 3.1 Increase the resilience of crops to climate change through conservation in situ y ex situ of agrobiodiversity (ABD)</p>	<ul style="list-style-type: none"> <li>✓ Certification of products or denomination of origin, for access to green markets</li> <li>✓ Promote Sustainable agriculture (improvements in crop rotation systems; recovery of terrace systems; organic agriculture; vegetable gardens; integrated pest management)</li> <li>✓ Management and/or conservation of representative or fragile Wildlife</li> <li>✓ Promotion of the conservation of the germplasm of biodiversity and native agrobiodiversity (fauna and flora).</li> <li>✓ Recovery of ancestral knowledge and practices in the sustainable use of ecosystem goods and services.</li> <li>✓ Conservation and recovery of degraded areas with native species for the protection of the landscape.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Access to genetic resources for commercial purposes from third parties.</li> <li>✓ Use of pesticides by neighbours.</li> <li>✓ Informality of agricultural workers, low wages, lack of communal commitment.</li> <li>✓ Increase of prices in local markets affects poor families.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Subprojects will work with INDECOPI to ensure that genetic resources and rights are registered.</li> <li>✓ Communities have access of list of permitted pesticides.</li> <li>✓ Budgets must reflect formal workers.</li> </ul>
<p>Output 3.2 Increase the resilience of indigenous and local communities through non-agricultural or forestry activities and added value activities</p>	<ul style="list-style-type: none"> <li>✓ Added Value products in forestry initiatives</li> <li>✓ Generation of community ecotourism (eg experiential tourism, agritourism, beekeeping) considering and improving traditional knowledge</li> <li>✓ Promotion of fairs, internships, and knowledge exchange to improve landscape sustainability and governance.</li> <li>✓ Development of capacities and use of technology for commercialization</li> <li>✓ Promotion of strategic alliances with private sector partners to access sustainable markets (i.e. restaurants, hotels, local merchants, fairs, etc.)</li> <li>✓ Promotion of productive enterprises led by women.</li> <li>✓ Animal husbandry.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Increase in tourism initiatives destroy habitats.</li> <li>✓ Informal workers not included in the project.</li> <li>✓ Private business sector does not fulfil its commitments to the community</li> <li>✓ Migration due to success</li> <li>✓ Extinction of species of flora and fauna</li> <li>✓ Women excluded due to technicalities in training</li> </ul>	<ul style="list-style-type: none"> <li>✓ Subprojects must specify the local tourism model and its expectations and thresholds.</li> <li>✓ Subprojects must provide the information related to private sector involvement.</li> <li>✓ Monitoring visits should include economic expectations.</li> <li>✓ Field work and monitoring visits should alert on species affected.</li> <li>✓ All training and technical assistance must considered friendly materials and if necessary in the local language.</li> </ul>

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

### A. Record of endorsement on behalf of the government<sup>7</sup>

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

<i>Name: Milagros Sandoval Diaz Position: General Director of Climate Change and Desertification Ministry: Ministry of the Environment of Peru</i>	<i>Date: 08,08,2022</i>
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**B. Implementing Entity Certification:** *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address.*

<sup>7</sup> Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

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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) 218 1097  
*awillems@profonanpe.org.pe*

Project Contact Person: Claudia Godfrey Ruiz

Tel. And Email: (511) 218 1097

*cgodfrey@profonanpe.org.pe*

## References

- Autoridad Nacional del Agua ANA (2013). National Water Resources Plan of Peru. Annual Memory. Accessed virtually on 2022, July,17
- Autoridad Nacional del Agua (2015). Plan de Gestión de los Recursos Hídricos de la Cuenca Chancay- Lambayeque. Ministerio de Desarrollo Agrario y Riego MIDAGRI. Accessed virtually on 2022, July,17.
- Benites, L. & Gammie, G. (2021). Abriendo el caño: estado del financiamiento en la infraestructura natural para la seguridad hídrica en el Perú. Forest Trend. Accessed virtually on 2022, July,17. [https://www.forest-trends.org/wp-content/uploads/2021/12/Estado-del-financiamiento-en-infraestructura-natural-para-la-SIPeru\\_2021.pdf](https://www.forest-trends.org/wp-content/uploads/2021/12/Estado-del-financiamiento-en-infraestructura-natural-para-la-SIPeru_2021.pdf)
- CEDISA. CDKN IRCD (2021) Servicios ecosistémicos en el rio Cumbaza. Accessed virtually on 2022, July, 27. <https://cdkn.org/sites/default/files/2021-12/IDRC%20Cumbaza%20watershed%20cuenca%20Cumbaza.pdf>.
- Centro de investigación Internacional para el Fenómeno del Niño CIIFEN (2020). Actualización de la información climática en el sector agrario en subcuencas seleccionadas de las regiones de Ancash, Cajamarca y Piura. Estimación del riesgo ante los efectos del cambio climático. Resumen Técnico. Comisionado por el Proyecto AICCA para el Ministerio del Ambiente y el Ministerio de Agricultura y Riego. Accessed virtually on 2022, July,17.
- Consorcio para Infraestructura Natural para la Seguridad Hídrica, Forest Trend, SPDA, CONDESAN (2022). El rol de la Infraestructura Natural en las recomendaciones de la OCDE para la Gobernanza del Agua en el Perú. Accessed virtually on 2022, July,17. <https://www.forest-trends.org/wp-content/uploads/2022/03/El-rol-de-la-Infraestructura-Natural-en-las-recomendaciones-de-la-OCDE-para-la-Gobernanza-del-Agua-en-el-Peru.pdf>
- Llacza, A., Acuña, D., Jácome, G., De la Cruz, G., Paredes, J., Bruno, J., Alvarez, E., Flores, W., Urdanivia F., Sulca B. (2021). Escenarios climáticos al 2050 en el Perú: Cambios en el clima promedio. Lima: Servicio Nacional de Meteorología e Hidrología del Perú. Recuperado de <https://hdl.handle.net/20.500.12542/1470>
- Ministry of Environment, MINAM (2021). Peru's National Climate Change Adaptation Plan: an input for updating the National Climate Change Strategy. Accessed virtually on 2022, July,17. <https://cdn.www.gob.pe/uploads/document/file/1936379/RM.%20096-2021-MINAM%20con%20anexo%20Plan%20Nacional%20de%20Adaptaci%C3%B3n%20al%20Cambio%20Clim%C3%A1tico%20del%20Per%C3%BA.pdf.pdf>
- .MINAM (2022) CIAT, CGIAR Mecanismos de Retribución por Servicios



Ecosistémicos Hidrológicos: estado de avance, cuellos de botella y aprendizajes de las iniciativas en el Perú. Dirección General de Economía y Financiamiento Ambiental. Documento de Trabajo N°2. Accessed virtually on 2022, July, 17. <https://cdn.www.gob.pe/uploads/document/file/3124901/Documento%20de%20trabajo%20-%20MERESE%20hidrologicos.pdf.pdf>

- (MINAM 2021) Mapa de Ecosistemas del Perú. Accessed virtually on 2022, July,17.
- MINAM, COSUDE (2014). Explorando Respuestas Adaptativas a la variabilidad y cambio climático con familias en comunidades altoandinas de Cusco y Apurímac. Proyecto de Adaptación frente al Cambio Climático PACC Perú. Accessed virtually on 2022, July, 27.
- MINAM, COSUDE (2014). Yachaykusun. Enseñanzas andinas frente al cambio climático. Proyecto de Adaptación frente al Cambio Climático PACC Perú. Accessed virtually on 2022, July, 27.
- Multisectoral Working Group of a temporary nature in charge of generating technical information to guide the implementation of the Nationally Determined Contributions (GTM-NDC) (2018). Final Report. Accessed virtually on 2022, July,17
- National Institute of Statistics and Informatics INEI (2021). Peru: State of the Population in the Bicentennial Year. Accessed virtually on 2022, July,17
- Servicio Nacional Forestal SERFOR (2018). Tentative programming for adaptation measures in the thematic area of forests. Accessed virtually on 2022, July,17.
- Quintero, M.& Pareja P. (2015). Estado de Avance y Cuellos de Botella de los Mecanismos de Retribución por Servicios Ecosistémicos Hidrológicos en Perú. CIAT, CGIAR. Informe realizado a solicitud del MINAM y SUNASS. Accessed virtually on 2022, July,17.



## ANNEX 1: Model of risk results for 4 hazards with climate change scenarios, updated for the Chicama Basin.

Summary of risk results of the agricultural sector for the basins analyzed under the IPCC approach<sup>8</sup>

Basins	Risk level	Agricultural Sector Risk (IPCC Approach)											
		Droughts			Frosts			Heavy rains			Floods		
		Actual	Future CPR 4.5	Futuro RCP 8.5	Actual	Future RCP 4.5	Future RCP 8.5	Actual	Future RCP 4.5	Future RCP 8.5	Actual	Future RCP 4.5	Future RCP 8.5
Piura Dept. Piura	Very high risk	Districts San Miguel de El Faique, La Unión, La Arena, Huarmaca, Canchaque, La Matanza, Chalaco, Castilla, Santo Domingo, Chulucanas, Frías, Tambo Grande	Districts San Miguel de El Faique, La Unión, La Arena, Huarmaca, Canchaque, La Matanza, Chalaco, Santo Domingo, Chulucanas, Frías, Tambo Grande	Districts San Miguel de El Faique, La Unión, La Arena, Huarmaca, Canchaque, La Matanza, Chalaco, Santo Domingo, Chulucanas, Frías, Tambo Grande	No districts are identified at this risk level.			Districts San Miguel de El Faique, Huarmaca, Canchaque, Chalaco, Santo Domingo, Frías, Tambo Grande	Districts Huarmaca, Canchaque, Tambo Grande	Districts Huarmaca, Canchaque, Tambo Grande, Frías	Districts San Miguel de El Faique, La Unión, Huarmaca, Canchaque, Santo Domingo, Chulucanas, Frías, Tambo Grande	Districts San Miguel de El Faique, La Unión, Huarmaca, Canchaque, Santo Domingo, Chulucanas, Frías, Tambo Grande	Districts San Miguel de El Faique, La Unión, Huarmaca, Canchaque, Santo Domingo, Chulucanas, Frías, Tambo Grande
	High risk	Districts Vice, Salitral, San Juan De Bigote, Buenos Aires, Lalaquiz, Catacaos, Lalaquiz, Yamango, Morropón, Huancabamba, Piura	Districts Vice, Salitral, San Juan De Bigote, Buenos Aires, Lalaquiz, Yamango, Morropón, Huancabamba, Castilla	Districts Vice, Salitral, San Juan De Bigote, Buenos Aires, Lalaquiz, Yamango, Morropón, Huancabamba, Castilla	No districts are identified at this risk level.			Districts La Unión, La Arena, La Matanza, Lalaquiz, Santa Catalina de Mossa, Huancabamba, Chulucanas	Districts San Miguel de El Faique, La Arena, La Matanza, Lalaquiz, Huancabamba, Chalaco, Santo Domingo, Chulucanas, Frías	Districts San Miguel de El Faique, La Unión, La Arena, La Matanza, Santa Catalina de Mossa, Yamango, Castilla	Districts Salitral, La Arena, La Matanza, Santa Catalina de Mossa, Yamango, Castilla	Districts Salitral, La Arena, La Matanza, Santa Catalina de Mossa, Castilla	Districts Salitral, La Arena, La Matanza, Santa Catalina de Mossa, Castilla
Chicama Dept. Cajamarca Dpto. La Libertad	Very high risk	Dept. La Libertad: Districts Otuzco, Usquil Dpto. Cajamarca: Distritos Cospan, Contumazá Dpto. Cajamarca: Distritos	Dept. La Libertad: Districts Otuzco, Usquil Dpto. Cajamarca: Distritos	Dept. La Libertad: Districts Otuzco, Usquil	Dept. La Libertad: Districts Otuzco, Usquil	Dept. La Libertad: Districts Otuzco	Dept. La Libertad: Districts Otuzco, Usquil	Dept. La Libertad: Districts Otuzco, Usquil	Dept. La Libertad: Districts Otuzco, Usquil	Dept. La Libertad: Districts Otuzco, Usquil	No districts are identified at this risk level.		

<sup>8</sup> Carried out by CIIFEN on behalf of the AICCA project. 2020.

		Cospan, Contumazá		Cospan, Contumazá				Cospan					
<b>Chicama Dept. Cajamarca Dpto. La Libertad</b>	<b>High risk</b>	<b>Dept. La Libertad:</b> Districts Charat, Sinsicap, Lucma, Sayapullo <b>Dept. Cajamarca:</b> District Guzmango	<b>Dept. La Libertad:</b> Districts Charat, Sinsicap, Lucma, Sayapullo <b>Dept. Cajamarca:</b> District Guzmango	<b>Dept. La Libertad:</b> Districts Charat, Sinsicap, Lucma, Sayapullo <b>Dept. Cajamarca:</b> District Guzmango	<b>Dept. La Libertad:</b> Districts Charat, Usquil <b>Dept. Cajamarca:</b> District Cospan	<b>Dept. La Libertad:</b> Districts Charat, Usquil	<b>Dept. La Libertad:</b> Districts Charat, Sinsicap, Huaranchal, Sayapullo <b>Dept. Cajamarca:</b> Contumazá	<b>Dept. La Libertad:</b> Districts Charat, Sinsicap, Huaranchal, Sayapullo <b>Dept. Cajamarca:</b> Contumazá	<b>Dept. La Libertad:</b> Districts Charat, Sinsicap, Huaranchal, Sayapullo <b>Dept. Cajamarca:</b> Contumazá	<b>Dept. La Libertad:</b> Districts Compin, Lucma, Casca <b>Dept. Cajamarca:</b> District San Benito	<b>Dept. La Libertad:</b> District Lucma	<b>Dept. La Libertad:</b> District Lucma	
<b>Santa Dept. Ancash Dpto. La Libertad</b>	<b>Very high risk</b>	<b>Dept. Ancash:</b> Distritos Recuay, Olleros, Huaraz, Jangas, Independencia, Cascápara, Cusca, Ragash <b>Dept. La Libertad:</b> Distritos Santiago De Chuco, Santa Cruz De Chuca, Angasmarca, Sitabamba, Quiruvilca	<b>Dept. Ancash:</b> Districts <b>Recuay,</b> <b>Olleros,</b> Huaraz, Jangas, Independencia, Anta, <b>Cascápara,</b> Cusca, Ragash <b>Dept. La Libertad:</b> Districts Santiago De Chuco, Santa Cruz De Chuca, Angasmarca, Sitabamba, Quiruvilca	<b>Dept. Ancash:</b> Districts <b>Recuay,</b> <b>Olleros,</b> <b>Ticapa</b> <b>mpa,</b> <b>Olleros,</b> <b>Huaraz,</b> Jangas, Independencia, Anta, <b>Cascápara</b> , Cusca, Ragash <b>Dept. La Libertad:</b> Districts <b>Santiago</b> <b>De Chuco,</b> <b>Santa Cruz</b> <b>De Chuca,</b> <b>Angasmar</b> <b>ca,</b> <b>Sitabamba</b> , <b>Quiruvilca</b>	<b>Dept. Ancash:</b> Districts <b>Recuay,</b> <b>Ticapampa,</b> <b>Olleros,</b> Huaraz, Jangas, Independencia, Tarica, Anta, Marcara, Cascápara , Carhuaz, Amashca, Shupluy, Mancos, Shilla, Yungay, Cusca, Ragash <b>Dept. La Libertad:</b> Districts Santiago De Chuco, Sitabamba	<b>Dept. Ancash:</b> Districts <b>Recuay,</b> <b>Ticapampa,</b> <b>Olleros,</b> Huaraz, Jangas, Independencia, Tarica, Anta, Marcara, Cascápara , Carhuaz, Amashca, Shupluy, Mancos, Shilla, Yungay, Cusca, Ragash <b>Dept. La Libertad:</b> Districts <b>Santiago</b> <b>De Chuco,</b> <b>Sitabamba,</b> <b>Quiruvilca</b>	<b>Dept. Ancash:</b> Districts <b>Recuay,</b> <b>Olleros,</b> Huaraz, Independencia, Tarica, Marcara, <b>Cascápara,</b> Mancos, Shilla, Yungay, Cusca, Ragash <b>Dept. La Libertad:</b> Districts <b>Santiago De</b> <b>Chuco, Santa</b> <b>Cruz De</b> <b>Chuca,</b> <b>Angasmarca,</b> <b>Sitabamba,</b> <b>Quiruvilca</b>	<b>Dept. Ancash:</b> Districts <b>Recuay,</b> <b>Olleros,</b> Huaraz, Independencia, Tarica, Marcara, <b>Cascápara,</b> Mancos, Shilla, Yungay, Cusca, Ragash <b>Dept. La Libertad:</b> Districts Santiago De Chuco, Santa Cruz De Chuca, Angasmarca, Sitabamba, Quiruvilca	<b>Dept. Ancash:</b> Districts Anta, Marcara, Carhuaz, Mancos, Yungay	<b>Dept. Ancash:</b> Districts Anta, Marcara, Carhuaz, Shupluy, Mancos, Yungay	<b>Dept. Ancash:</b> Districts Anta, Marcara, Carhuaz, Shupluy, Mancos, Yungay		

Basins	Risk level	Agricultural Sector risk (IPCC Approach)											
		Droughts			Heladas			Lluvias intensas			Inundaciones		
		Actual	Futuro RCP 4.5	Futuro RCP 8.5	Actual	Futuro RCP 4.5	Futuro RCP 8.5	Actual	Futuro RCP 4.5	Futuro RCP 8.5	Actual	Futuro RCP 4.5	Futuro RCP 8.5
Santa Dept. Ancash Dept. La Libertad	High risk	Dept. Ancash: Districts Ticapampa, Tarica, Anta, Marcara, Carhuaz, Amashca, Shupluy, Mancos, Shilla, Pueblo Libre, Yungay, Mato, Conchucos Dept. La Libertad: Distrito Cachicadan	Dept. Ancash: Districts Ticapampa, Tarica, Marcara, Carhuaz, Amashca, Shupluy, Mancos, Shilla, Pueblo Libre, Yungay, Mato, Conchucos Dept. La Libertad: Distrito Cachicadan	Dept. Ancash: Districts Ticapampa, Tarica, Marcara, Carhuaz, Amashca, Shupluy, Mancos, Shilla, Pueblo Libre, Yungay, Mato, Conchucos Dept. La Libertad: Distrito Cachicadan	Dept. Ancash: Districts Chiquian, Catac, Anta, San Miguel De Aco, Acopampa, Carhuaz, Amashca, Ranrahirca, Caraz, Mato, Santa Cruz, Conchucos Dept. La Libertad: Districts Santa Cruz De Chuca, Angasmarca, Cachicadan	Dept. Ancash: Districts Chiquian, Catac, San Miguel De Aco, Acopampa, Ranrahirca, Pueblo Libre, Caraz, Santa Cruz, Pampas Dept. La Libertad: Districts Santa Cruz De Chuca, Cachicadan	Dept. Ancash: Districts Chiquian, Catac, San Miguel De Aco, Acopampa, Ranrahirca, Pueblo Libre, Caraz, Mato, Santa Cruz, Conchucos Dept. La Libertad: Districts Santa Cruz De Chuca, Cachicadan	Dept. Ancash: Districts Catac, Ticapampa, Jangas, Anta, San Miguel De Aco, Acopampa, Carhuaz, Amashca, Shupluy, Ranrahirca, Caraz, Mato, Santa Cruz, Conchucos Dept. La Libertad: Distrito Cachicadan	Dept. Ancash: Districts Catac, Ticapampa, Jangas, Anta, San Miguel De Aco, Acopampa, Carhuaz, Amashca, Shupluy, Ranrahirca, Caraz, Mato, Santa Cruz, Conchucos Dept. La Libertad: Distrito Cachicadan	Dept. Ancash: Districts Catac, Ticapampa, Jangas, Anta, San Miguel De Aco, Acopampa, Carhuaz, Amashca, Shupluy, Ranrahirca, Caraz, Mato, Santa Cruz, Conchucos Dept. La Libertad: Distrito Cachicadan	Dept. Ancash: Districts Chiquian, Catac, Acopampa, Shupluy, Caraz Dept. La Libertad: Distrito Cachicadan	Dept. Ancash: Districts Catac, Acopampa, Ranrahirca, Pueblo Libre, Caraz Dept. La Libertad: Distrito Cachicadan	Dept. Ancash: Districts Catac, Acopampa, Ranrahirca, Pueblo Libre, Caraz Dept. La Libertad: Distrito Cachicadan