



ADAPTATION FUND

REQUEST FOR PROJECT/PROGRAMME FUNDING FROM THE ADAPTATION FUND

The annexed form should be completed and transmitted to the Adaptation Fund Board Secretariat by email or fax.

Please type in the responses using the template provided. The instructions attached to the form provide guidance to filling out the template.

Please note that a project/programme must be fully prepared (i.e., fully appraised for feasibility) when the request is submitted. The final project/programme document resulting from the appraisal process should be attached to this request for funding.

Complete documentation should be sent to:

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ADAPTATION FUND

PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme Category:	Regular Project
Country/ies:	Peru
	Title of Project/Programme: AYNINACUY: Strengthening the livelihoods for vulnerable highland communities in the provinces of Arequipa, Caylloma, Condesuyos, Castilla and La Union in the Region of Arequipa, Peru
Type of Implementing Entity:	Regional Implementing Entity (RIE)
Implementing Entity:	Development Bank of Latin America (CAF)
Executing Entity/ies:	Special Project COPASA
Amount of Financing Requested:	\$ 2,941,446.00 (in U.S Dollars Equivalent)

Project / Programme Background and Context:

Introduction

South American camelids such as alpacas, llamas and vicuñas inhabit the Andean highlands above 3,000 meters, in Peru, Bolivia, Argentina and Chile. Peru, leading producer of alpaca fiber, is home to the greatest number of camelids, with a population of about 5 million of all kinds, predominantly alpacas (on the order of 3.7 million).

In Peru raising Andean camelids is the main livelihood among the highland communities, whose population engaged in this activity, is estimated to be approximately 1.5 million. Camelid producing areas in Peru include the provinces with the highest levels of poverty and

marginalization.¹ Moreover, this activity takes place mainly in highland *puna*² ecosystems (generally in Peru, above 3,800 meters), an ecosystem whose characteristics, although they allow for the raising of alpacas and llamas, hardly favor the development of agriculture.

Due to the impacts of climate change, whose peculiarities will be explained below, the activity of raising camelids by vulnerable Andean highlands communities in Peru has been being severely affected, with cyclical annual losses in thousands of heads of camels, which threatens the sustainability of these communities' principal livelihood.

In the highland communities of the Arequipa Region, in Peru, raising these camelids, in particular, alpacas, centers on the production and sale of alpaca fiber. As this project is an initiative of an entity under the Regional Government of Arequipa, the project is focused on the development of a comprehensive strategy to strengthen the activity of raising alpacas for fiber production in the vulnerable Andean highland communities of the Arequipa Region.

The problem the project seeks to address

The process of global climate change is determined by progressive changes in the global, national and local climates; these fluctuations cause changes in the frequency and intensity of extreme climate variability. Peru is one of the tropical countries that are more acutely affected by the retreat of glaciers in mountain ranges that were in previous years covered with snow. Within the Peruvian territory the effects of climate change also differ, by region and socioeconomic levels, and, in the distribution of negative climate impacts, the rural poor of highland mountain ecosystems will bear the brunt of these changes. In these areas, glacier retreat has reduced the availability of water and has led to the desertification and soil degradation.

On the other hand, while drought, cold spells, and frost are phenomena that have always been present in many regions, like the case of Arequipa, Peru, the effects of climate variability have resulted in these phenomena recently being more frequent and intense at these altitudes. Consequently, this intensification is causing severe damage to this region's fragile environment, affecting one of its most vulnerable population groups, located in the high Andean mountains. In particular, this has an impact on the health and survival of camelid herds, in the main, alpacas, which are essential for their subsistence.

The aforementioned effects of climate variability have an impact on overall alpaca fiber production in the highlands of the Arequipa Region: diminishing water availability increases desertification which leads to a decrease in the areas available for grazing; during droughts, the capacity for pastures to support grazing is significantly reduced. This absence of sufficient available areas leads to overgrazing; new wind patterns destroy traditionally built shelters for the protection of camelids; the exposure of the alpacas to more intense cold, coupled with the lack of pasture for

¹ E.C. Quispe, T.C. Rodríguez, L.R. Iniguez y J.P. Mueller. Producción de fibra de alpaca, llama, vicuña y guanaco en Sudamérica [*Alpaca, llama, vicuña and guanaco fiber production in South America*]. Animal Genetic Resources Information, 2009, 45, 1–14. © Food and Agriculture Organization of the United Nations, 2009-doi:10.1017/S1014233909990277. NOTE: More recent information is not available.

² The *Puna* Ecoregion, or simply *Puna*, is a highland region, or high plains plateau, specific to the central zone of the Andes mountain range. It comprises a neo-tropical biome of the mountainous grassland type. It is found in regions stretching from northern Argentina, western Bolivia, northern Chile to the central and southern regions of Peru. Altitudinal parameters vary from country to country and per latitude. In Peru, the *puna* grasslands are found at 3,800 to 4000 masl.

adequate nourishment, has an impact on their health and induces seasonal mortalities in these herds; the reduction in the number of animals and the deterioration in their well-being significantly affects the production of alpaca fiber and threatens the sustainability of this way of life.

Moreover, the decreasing availability of water leads to the use for human consumption of unfit sources, which affects the population's health, while the new heightened cold conditions critically increase the frequency of respiratory diseases, particularly among children.

This project constitutes an initiative focused on the endeavor to strengthen the activity of obtaining and selling alpaca fiber, an activity that is the main and almost exclusive means of livelihood and source of income for the vulnerable Andean highland communities in the provinces of Arequipa, Caylloma, Condesuyos, Castilla and La Union in the Arequipa Region of Peru.³ To strengthen this way of life, the project seeks to strengthen the activity of raising alpacas to obtain fiber among the enumerated communities, while improving resilience at the local level through the development of basic infrastructure for access to water drinking and by implementing a pilot activity to strengthen the assets of housing communities covered by the project. In this way, the project will contribute to the sustainability of the economic activities of marketing, use and export of alpaca in Peru, as well as the livelihood and ancestral cultural values they represent.



Photo: The photograph illustrates the processes of overgrazing that occur in the project area, due to water scarcity as a consequence of climate change, in one of the Andean highland communities in the Arequipa Region. **Source:** COPASA Archives.

Climate change scenarios that weigh on the problem

Temperature patterns, soil desertification and water availability

The process of increasing global temperatures that affects the planet is made apparent in the Peruvian highlands through an accelerated rate of loss of water resources. The glaciers are disappearing and the rivers have dramatically decreased their flows, producing negative impacts on flora and fauna.

³ In Peru, the largest political administrative divisions are the departments, and their governments are called regional governments. Each region or department is then subdivided into provinces, and these into districts. This project is conceived for the Arequipa Region (Department), focusing on five (5) of the Region's eight (8) provinces: Arequipa, Caylloma, Condesuyos, Castilla and La Union. It can be noted that the name *Arequipa* is used to denominate both the Region and a province of the same. Additionally, the city of Arequipa is the capital of the Province of Arequipa and the Department/Region of Arequipa.

One particular manifestation of climate change affects Andean rural livelihoods is the acceleration of topsoil desertification. The process of topsoil desertification is caused in part by loss of vegetation cover from overgrazing, and the abandonment of traditional practices that allowed for soil recovery periods. Now, with climate change causing additional stresses on the soil due to rising temperatures and changing rainfall patterns, the loss of natural⁴ and cultivated pastures⁵ for livestock makes raising alpacas, highly precarious. Climate change is affecting the local economy of rural households in this direct way.

On the other hand, there is a high risk that rural poverty in the highlands of Peru will worsen due to climate change's negative effects, such as reduced availability of water volumes in area springs and increasingly irregular rainfall. Both of these sources are principal conditions for the sustainability of the livelihoods derived from raising alpacas for fiber production and marketing.

Climate change is also reflected in the widening gap between nighttime and daytime temperatures, ranging from minus 15 ° C to 25 ° C. Temperatures are lower at night and more notably so in the months when frost forms (May and June). Moreover, the highest temperatures occur in the months when it does not rain: there is sweltering heat during the day, punishing people, animals and plants (a sort of Indian summer).

The following table provides the changes in temperature and precipitation recorded in the area of interest for the project: Arequipa.

Table 1

<u>Region</u>	<u>Period</u>	<u>Variable</u>	<u>Trend</u>
Arequipa	1964-2006	<u>Low Temperatures</u>	Annual: from +0.12 to +0.57 C°/decade
			Summer: from -0.07 to +0.56 C°/decade
			Winter: from +0.26 to +0.5 C°/decade
	1964-2006	High Temperatures	Annual: from +0.06 to +0.42 C°/decade
			Summer: From -0.07 to +0.42 C°/decade
			Winter: From +0,02 to +0,44C°/decade
1964-2006	<u>Precipitation</u>	<u>From -2 to +1.5 mm/decade</u>	
		Annual: from +/-01 to +0.2mm/year	

Source: Inter-American Development Bank: The Economics of Climate Change in Peru/Inter-American Development, Economic Commission for Latin America and the Caribbean-2014

In addition to the changes recorded in temperature and precipitation, a significant reduction in the areas covered by glaciers in Peru has been observed. These glaciers regulate the water flow within hydrologic basins fed by snowmelt as irrigation systems (see Tables 1 and 2) (Majes River, Arequipa-Peru).

⁴ In the area, natural pastures are provided by local typical high altitude wetlands (*bofedales*).

⁵ The use of native varieties such as *ichu* and *chillihua*, which are not resistant to the cold, can be replaced by improved and more resistant varieties such as ryegrass and dactylis glomerata.

Glacier Retreat Trends in Peruvian Andes: The following table synthesizes the evidence of glacier retreat in the Peruvian Andes (ENSO). The ENSO⁶ cycle displays two phases: a warm and positive one (El Niño) and another cold or negative phase (La Niña).

Table 2⁷

REFERENCE/PERIOD	TRENDS AND IMPACTS
Mark and Seltzer (2003) (1965-2002)	22% reduction in the total area of glaciers; 12% reduction in the supply of drinking water in the coastal region (where 70% of the population lives). The estimated volume of water lost is approximately seven billion cubic meters.
Consejo Nacional del Ambiente (CONAM, 2001) (1970-2002)	Up to an 80% reduction in the extent of smaller glaciers (below 5200 masl) and the loss of 188 million cubic meters of water reserves during the past 50 years.
Mark et al. (2005) (1998-2004)	In the Cordillera Blanca mountains, the Yanamarey glacier retreat between 2001 and 2004 was 23% higher than between 1998 and 1999, and was responsible for increases of 58% of the annual average discharge in the Santa River.
Mark et al. (2005) (1977-2004)	Retreat of Yanamarey glacier, receding at a rate of 20 m/year (average 1977-2003), four times faster than the 5 m/year observed between 1948 and 1977.
Pouyaud et al. (2005) (1953-1997)	13% increase in discharge from the Llanganuco lagoon in the Cordillera Blanca mountains.
Pouyaud et al. (2005) (1985-1996)	In the last ten years the ice cap of the Pastoruri ⁸ glacier has shrunk by almost 40%.
Silverio (2004) (1950-2006)	Up to a 50% reduction in the extent of the Coropuna ⁹ glacier, creating problems in the irrigation of the Majes Pampas.

Based on the 2009 analysis of ten indices of extreme events conducted by the SENAMHI (for its acronym in Spanish) –National Meteorological and Hydrology Service of Peru - covering the period from 1965 to 2006, the following is reported:

- The minimum and maximum temperatures have increased as much as 0.2 °C per decade in almost the entire country.
- There is a greater recurrence of droughts as regards rainy seasons in the whole country, particularly in the central mountain region.

⁶ The ENSO cycle is part of complex set of interactions that connect the ocean's surface and the atmosphere in the tropics of the Pacific Ocean. Changes in the ocean affect the atmosphere and influence climate patterns on a global level.

⁷ The basis for the elaboration of this table was extracted from the document generated by the Inter-American Development Bank (IDB, for its acronym in Spanish) and the Economic Commission for Latin America and the Caribbean (CEPAL), within the framework of the Regional Study of the Economy of Climate Change (ERECC for its acronym in Spanish), in Latin America and the Caribbean, coordinated by CEPAL, with support from the Government of Peru and financing from the IDB (IDB).

⁸ A snow-capped peak located in the department of Ancash, Peru.

⁹ Snow-capped peak in the Arequipa region.

- The southern mountain region has seen a greater frequency of mild and severe droughts in the preceding decades.
- The annual variations in Peru's climate are in large measure determined by the presence of the climate phenomenon known as "El Niño" Southern Oscillation.

Climate Changes Scenarios Anticipated for the Arequipa Region

Below are the description of some climate change scenarios for the provinces of Castilla Media and Condesuyos in the Arequipa Region. Given that the environmental characteristics of these provinces are representative of the project's target area, it can be reasonably expected that their outcomes, that is, those scenarios identified for these provinces, are applicable to the other highland areas of the Arequipa Region.

If the Castilla Media and Condesuyos provinces can be used as representative of the climate's compartment in the inter-Andean provinces in the Arequipa Region, then the studies realized by Climate Change Adaptation Pilot Measure point to the likelihood that significant disturbances in the climate will occur over the next twenty (20) years in the Region.¹⁰

Temperature Changes

The projections for temperatures changes to 2030 indicate that the variations of minimum and maximum temperatures will expand by almost 4⁰ centigrades, both upward and downward. Both the winters and summers will tend to be atypical, with a predominance of heat waves and a reduction in the number of cold days and nights. In accordance with an initial study realized by the Brazilian entity Center for Weather Forecasting and Climate Study (CPETEC, for its acronym in Spanish) for the Arequipa Region, by the end of the twenty-first century in a best case scenario, air temperatures will vary upward between 2 and 3⁰ C, and from 3 to 5⁰ C in a worst case scenario, with the most intense increases occurring "the altitude band ranging from 3000 to 4000 masl.". For the period from 2017 to 2100, two scenarios have been identified, one best case (related to low emission) and another worst case (related to high emission).

For the aforementioned worst case scenario, the study concluded that, for summers, all the models show a warming trend, with gradually increasing temperatures until the end of the twenty-first century, in which the temperature could see increases on the order of almost 4 to 5⁰ C greater than the current climate. The observed temperatures trends, although with few weather stations, suggest that during the past 40 years the air temperature has increased in the Arequipa Region, with the trend revealing itself more in the lower temperatures than the highs. This warming has been greater since the middle of the 1970s, with higher numbers, both in the maximum as well as the minimum temperatures during the years in which El Niño was active.

Rainfall

The trends in temperatures, as well as the eventual concurrent El Niño phenomenon, indicate that the favorables periods (Pro periods when water supply is expected by rain) disponibilidad in the past would last between 6 and 9 years are tending to last only 4 to 6 years. At the same time, the frequency of the return of critical periods (water supply decreased by rain) will likely be reduced from every 6 to 9 years to every 4 to 6 years. With this, there will be a reduction in precipitation, especially in the highlands, which will affect not only the water recharge cycles, but also the retention capacity of the snowpack at the highest elevations. As a result, the surface area of the glacier will continue to shrink a rhythm that could exceed by 50% the current rhythm,

¹⁰ Climate Change Adaptation Pilot Measure. Study developed for COPASA (2007). José Marengo.

leading to their disappearance in a brief period of time. This, at the same time, will feedback into climate change factors further reducing the region's capacity to retain and store water. The areas of greatest social impact will likely be the lower and middle parts of the inter-Andean valleys, however, the ecological impact will be felt in the entire zone. In summary, the trends in temperature and in precipitation indicate that climate change in the region will tend to become more acute in the coming years both in rhythm as in intensity, principally manifesting itself in an increase in median temperatures between 2 and 4 centigrades in the areas immediately surrounding the Region's snow capped peaks. This will be accompanied by the reduction of rainfall and an increase in the return cycle and duration of critical periods. These scenarios are clearly subject to some uncertainty due to the confluence of unpredictable variables (variations in the emission of CO₂, natural climate variations, unpredictable geodynamic events, etc.). These all do, however, raise an alert as to a high probability trend that makes the task of taking preventive measures essential.

AEDES¹¹ Experience

AEDES, in partnership with GWP Global Water Partner, produced a document titled 'Cambio Climático, Retroceso Glaciar y Gestión Integrada de los Recursos Hídricos' (Climate Change, Glacier Retreat and Comprehensive Management of Water Resources), in which it is noted that in the face of glacier retreat:

- "Climate Change is undeniable and evident. The principal cause is the burning of ever increasing amounts of petroleum, gasoline and coal, the felling of forests and some methods of agricultural production. These human activities have increased the volume of 'greenhouse gases' (GHG) in the atmosphere"
- The entirety of andean tropical glaciers is suffering visible processes of retreat.¹²
- The different studies point out that in the last 30 years Peru has lost 22% of its glacial area. Between 1980 and 2006, the *Cordillera Blanca* lost 33% of its area (annual loss, 9.3 km²). The Pastoruri peak has lost 40% of its surface area between 1995 and 2007 (1.1 km² in 2007)¹⁷. The *Coropuna* peak retreats approximately 2.4 km² per year¹⁸. Between 2003 and 2007, the area on the *Salkantay* peak has diminished by 4.11 km², which means a retreat of 1.02 km²/year.
- This glacier retreat in the coming years will be catastrophic for various ecosystems and sectors, with the following consequences:
 - Reduction in the availability of water.

¹¹ AEDES: Asociación Especializada para el Desarrollo Sostenible (Specialized Sustainable Development Association) is an NGO located in Arequipa.

¹² In 2007, the Andean Community (CAN, for its acronym in Spanish) was noting that all the glaciers in Peru, Bolivia, Ecuador, Colombia y Venezuela were suffering visible recoil processes (Peruvian glaciers represent 71% of all the world's tropical glaciers, those in Bolivia 20%, in Ecuador 4%, in Colombia 4% and in Venezuela 1%) (Jordán 1991). Different studies show that in the last 30 years Peru has lost 22% of its glacier surface (Bernex, Nicole y Tejada, Manuel. Cambio Climático, Retroceso Glaciar y Gestión Integrada de los Recursos Hídricos - Climate Change, Glacial Retreat and Integrated Management of Water Resources-. Available, in Spanish in http://www.gwp.org/global/gwp-sam_files/publicaciones/varios/2011-cambio-climatico.pdf

- Increase in desertification and arid areas.
- Pest infestations and blights will increase in harvests.
- The distribution of some human diseases will be modified and others will arise.

Socioeconomic Context

Peru accounts for 80% of supply of alpaca fiber in the world market. In 2014, the exports of this product totaled almost USD 60 million, which corresponded to 0.16% of the total Peruvian exports for the same period. Moreover, exports of garments made of alpaca fiber were valued at a similar amount for the same period, while they accounted for 3% of total Peruvian exports. Despite not occupying a dominant position, the manufacture of alpaca forms part of an important sector in the Peruvian economy (25% of Peruvian companies is dedicated to textiles and clothing, a sector that accounts for 11% of manufacturing GDP and 2 % of national GDP). In the production of alpaca fiber in Peru, the contributions by small breeders (small-scale production) are the majority, contributing 85%.

As regards breeding and raising alpacas in Peru, in the most recent census of the animal population¹³, 12% of that population corresponds to the Arequipa Region. There are approximately 120,000 alpaca breeders in Peru and around 5,400 are in the region of Arequipa. The average farmer in the region of Arequipa has averaged 102 camelids. A breeder's average herd size in the Arequipa Region is 102 alpacas.

As regards producers' organizations, there are at least 50 camelid fiber producer organizations in Peru, of which nine are in the Arequipa Region. The camelid breeders' groups traditionally take the form of Civil Nonprofit Association (ACSFL, for its acronym in Spanish), although, in recent years, and particularly in Arequipa, they are tending to form Special Producers' Cooperatives.

The project focuses its attention on the highland Andean communities in the provinces of Arequipa, Caylloma, Castilla, Condesuyos and La Union. They are located in the Arequipa region of Peru, whose only feasible economic activity is raising alpacas, an activity originating in the Andean region, where the headwaters of the largest water resources in the region are located (lakes, snowcapped mountains, springs, etc.), and where few highland crops can be grown.

The water resources on which development in the high Andean zones is based originate with water flows at 3800-4000 meters above sea level. These headwaters are very fragile and vulnerable to climate change and to environmental and social impacts, all of which are leading to the gradual abandonment of camelid raising in the Andean highlands. A consequence of the abandonment of this activity is to push internal male migration, further towards the pull of employment expectations generated by mining.

The populations residing in highland climates, who are financially dependent on high Andean flocks (mainly camelids: alpacas, llamas and vicuñas), are subject to profound climatic vulnerability and deep poverty, due to the fact that they make their livelihood solely through the shearing of their alpacas for fiber, and of vicuñas on a smaller scale. These herds represent the only capital these household groups have to ensure their survival (on average a household possesses 102 alpacas). In spite of these precarious circumstances, Peru continues to be the world leader in the production of alpaca fiber, notwithstanding the limited shearing technology

¹³ Censo Nacional Agropecuario 2012 [National Livestock Census 2012]. <http://censos.inei.gob.pe/cenagro/tabulados/>

which is done manually in the main as well as the high mortality rate among the herds during cold spells and droughts as a consequence of lack of adequate forage.

The alpaca raising communities occupy a very low position on the HDI list (Human Development Index); life expectancy and education within these communities show a great disparity in comparison to other cohorts with similar current average national income levels. In the near future climate change will be more pronounced, representing risk in terms of both life expectancy (high mortality of children and seniors due to respiratory diseases) and household income (higher mortality and decreased fiber production alpaca).

Below is a table illustrating the demographic composition of the population of the project's target area. The registered camelid population is also included.

Table Nº 3¹⁴

POPULATION DATA ¹⁵ - 2012						
Nº		PROVINCE	DISTRICT	ALTITUDE (masl) ¹⁶	POPULATION (inhabitants)	CAMELIDS POPULATION
	D					
1	1	Arequipa	San Juan de Tarucani	4210 to 5400	2,195	40,000
	2		Chiguata	2960	2,896	3,000
	3		Pocsi	3047	565	1,500
	4		Quequeña	2550	1,344	1,500
	5		Polobaya	3091	1,481	2,500
TOTAL					8,481	48,500
2	1	Caylloma	San Antonio de Chuca	4800	1,522	43,000
	2		Sibayo	4200	710	16,000
	3		Tuti	4200	794	14,000
	4		Callalli	4300	2,138	84,000
TOTAL					5,164	157,000
3	1	Castilla	Chachas	4200	1,791	34,000
	2		Andagua	3587	1,201	5,000
	3		Orcopampa	4200	9,381	14,000
TOTAL					12,373	53,000
4	1	Condesuyos	Chuquibamba	3500	3,447	3,000
	2		Andaray	3500	689	15,000
	3		Yanaquihua	3500	5,633	2,000
TOTAL					9,769	20,000
5	1	La Union	Pampamarca	3200	1,315	6,000
	2		Huaynacotas	3200	2,321	14,000
	3		Puika	3658	2,848	24,000
TOTAL					6,484	44,000
GRAND TOTAL					42,271	322,500

Source: National Institute of Statistics and Computing-INEI Peru (2012) **Chart:** Provided by COPASA-Arequipa

¹⁴ IV National Agriculture and Livestock Census, 2012

¹⁵ Source: Population and Housing Census

¹⁶ Meters above sea level

Next, a table is included which describes the human development indices in the target area.

Table Nº 4

Human Development Index for the Departmental, Provincial and District Levels 2012.
Recalculated according to the new methodology, PNUD (2010)

Location Code 2010	DEPARTMENT		Population		Human Development Index		Life Expectancy at birth		Population w/ HS Educ		# Years in school (Pop. 25 and more)		Family Income per capita	
	Province		Inhabitants	ranking	HDI	ranking	years	ranking	%	ranking	years	ranking	N.S. month	ranking
	District													
000000	PERÚ a/		30,135,875		0.5058		74.31		67.87		9.00		696.9	
040000	AREQUIPA		1,245,251	8	0.5781	3	75.97	6	88.27	1	10.04	3	818.4	4
040100		Arequipa	936,464	3	0.6044	7	75.94	46	85.95	1	11.52	1	871.0	10
040106	6	Chiguata	2,874	1174	0.4303	425	77.24	367	79.77	152	7.40	638	437.4	569
040113	13	Pocsi	574	1771	0.3557	693	74.48	759	37.91	1083	7.29	666	386.3	705
040114	14	Polobaya	1,483	1486	0.4894	298	74.52	752	80.04	138	9.20	265	577.0	368
040115	15	Quequeña	1,329	1537	0.5010	263	75.10	657	77.39	178	11.42	38	547.6	408
040119	19	San Juan De Tarucani	2,202	1312	0.3358	780	79.59	105	44.87	885	6.13	1051	312.3	939
040400		Castilla	38,990	137	0.4810	41	74.26	74	59.76	56	8.48	51	665.2	31
040402	2	Andagua	1,227	1569	0.3659	646	73.27	933	43.89	926	7.06	746	407.5	643
040404	4	Chachas	1,827	1390	0.2423	1366	76.89	404	28.81	1328	5.04	1442	193.0	1421
040409	9	Orcopampa	9,234	544	0.5235	199	75.54	593	46.48	846	9.44	241	874.3	99
040500		Caylloma	86,542	71	0.4795	43	76.82	39	70.48	30	8.33	53	587.9	51
040504	4	Callalli	2,210	1310	0.3777	596	78.97	185	64.85	428	6.56	894	351.7	814
040514	14	San Antonio De Chuca	1,510	1479	0.3213	845	79.81	87	38.32	1065	6.72	846	280.7	1040
040515	15	Sibayo	728	1720	0.4947	284	79.17	158	77.03	188	6.59	887	683.8	252
040518	18	Tuti	813	1697	0.3722	615	77.77	310	72.91	265	6.34	972	334.4	873
040600		Condesuyos	18,540	176	0.4645	48	77.21	34	59.61	58	8.34	52	576.9	54
040601	1	Chuquibamba	3,495	1065	0.4804	311	74.28	786	61.31	509	9.26	260	621.3	315
040602	2	Andaray	698	1736	0.4067	498	73.79	855	64.45	439	7.06	743	452.3	539
040608	8	Yanaquihua	5,538	812	0.4666	345	78.31	262	60.91	518	8.27	437	570.1	381
040800		La Unión	15,164	179	0.2903	135	81.16	2	32.98	145	6.31	118	233.9	167
040804	4	Huaynacotas	2,356	1280	0.2397	1385	79.28	146	20.43	1560	5.62	1237	195.2	1410
040805	5	Pampamarca	1,341	1535	0.1744	1725	80.60	42	15.76	1678	4.53	1622	116.1	1749
040806	6	Puyca	2,868	1176	0.1469	1807	81.53	14	9.20	1780	3.64	1787	111.0	1768

Source: Report on Human Development Peru 2013. Climate change and territory: Challenges and Responses for a Sustainable Future

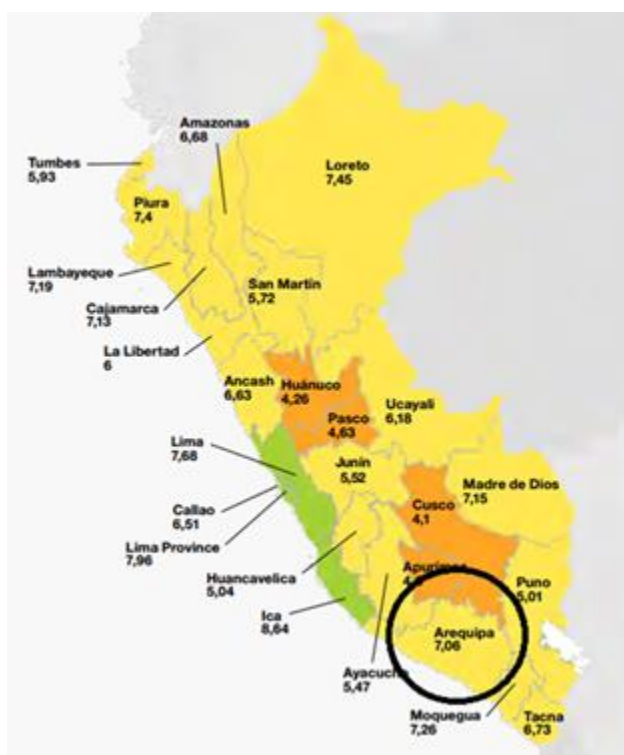
<http://www.pe.undp.org/content/peru/es/home/library/poverty/Informesobredesarrollhumano2013/IDHPeru2013.html>

Environmental Context

In the Peruvian Andes, where the project is focused, the highland areas found above 3,800 mts (*Altiplano* and *Puna*), are characterized by a frigid climate, where the average annual temperature is 3.1° C, with highs of 14.0° C in summer and 10.7° C in the winter. The rainfall reaches amounts varying between 481- 926 mm annually.

Environmental Context: Vulnerability to Climate Change

Below is the vulnerability map for administrative areas and cities in Peru, as well as vulnerability indices to climatic changes, exposure, awareness and adaptive capacity in the administrative areas and cities.



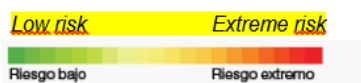
Map: vulnerability map for administrative areas and cities in Peru. **Source:** Development Bank of Latin America-CAF: Vulnerability and Adaptation to Climate Change Index in Latin America and the Caribbean.

Table N° 5

Vulnerability indices to climatic changes, exposure, awareness and adaptive capacity in the administrative areas and cities

Área administrativa	Índice de vulnerabilidad al cambio climático	Índice de exposición	Sensibilidad	Índice de capacidad adaptativa	Ciudad	Índice de vulnerabilidad al cambio climático	Índice de exposición	Sensibilidad	Índice de capacidad adaptativa
Amazonas	6,68	6,00	5,31	5,32	Chachapoyas	4,19	5,91	2,93	5,32
Ancash	6,63	7,88	3,45	5,32	Huaráz	4,76	7,03	2,90	5,32
Anurímac	4,60	4,65	4,12	5,32	Abancay	2,97	3,36	4,41	5,32
Arequipa	7,06	6,85	6,47	5,32	Arequipa	3,63	5,37	2,31	5,32
Ayacucho	5,47	5,74	4,47	5,32	Ayacucho	2,75	3,45	3,65	5,32
Cajamarca	7,13	8,23	2,45	5,32	Cajamarca	5,16	7,58	3,23	5,32
Callao	6,51	9,26	2,57	5,32	Callao	4,96	8,16	1,24	5,32
Cusco	4,10	3,74	5,05	5,32	Cuzco	3,94	5,58	3,13	5,32
Huancavelica	5,04	6,01	3,29	5,32	Huancavelica	3,78	4,40	4,40	5,32
Huánuco	4,26	4,26	4,37	5,32	Huánuco	2,99	3,90	3,35	5,32
Ica	8,64	9,71	5,51	5,32	Ica	6,47	9,74	2,76	5,32
Junín	5,52	5,74	4,37	5,32	Huancayo	3,60	4,65	3,62	5,32
La Libertad	6,00	7,06	3,02	5,32	Trujillo	5,69	8,81	2,41	5,32
Lambayeque	7,19	9,37	2,83	5,32	Chiclayo	1,80	3,15	2,09	5,32
Lima	7,68	8,47	3,72	5,32	-	-	-	-	-
Lima Province	7,96	9,50	2,72	5,32	Lima	5,51	8,89	1,65	5,32
Loreto	7,45	7,53	8,01	5,32	Iquitos	3,74	4,34	4,64	5,32
Madre de Dios	7,15	6,54	8,25	5,32	Puerto Maldonado	4,07	5,31	3,75	5,32
Moquegua	7,26	6,90	5,15	5,32	Moquegua	3,80	3,74	5,96	5,32
Pasco	4,63	4,10	6,41	5,32	Cerro de Pasco	3,09	3,56	4,27	5,32
Piura	7,40	8,56	2,42	5,32	Piura	5,73	9,05	2,10	5,32
Puno	5,01	5,41	5,17	5,32	Puno	2,19	1,97	3,48	5,32
San Martín	5,72	5,76	5,58	5,32	Moyobamba	4,91	5,92	5,68	5,32
Tacna	6,73	6,79	6,33	5,32	Tacna	6,04	9,09	2,85	5,32
Tumbes	5,93	6,98	3,34	5,32	Tumbes	1,93	3,41	1,88	5,32
Ucayali	6,18	6,45	7,93	5,32	Pucallpa	4,72	6,56	3,61	5,32

The table provides information on Arequipa, in both its urban and rural areas, as pertains to its place on indices covering vulnerability, awareness, exposure, and adaptive capacity. **Source:** Development Bank of Latin America-CAF: Vulnerability and Adaptation to Climate Change Index in Latin America and the Caribbean, Chart 31, Pg. 162. Scale:



Below a map of the project's location is presented, to the scale of the Arequipa Region. In the map, the project's five target provinces are identified (Arequipa, Caylloma, Condesuyos, Castilla and La Union), and the distribution of the project's beneficiary population.

PROJECT LOCATION MAP

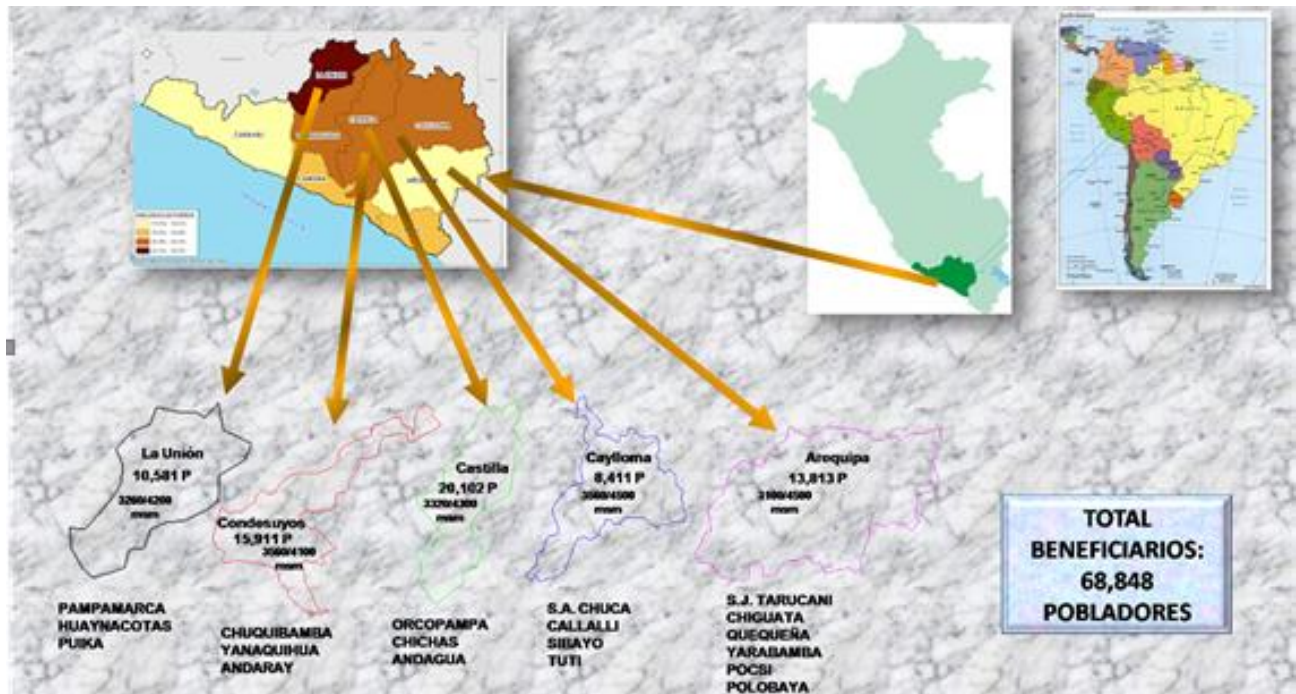


Image Insert: This map identifies the Project's various locations in the Arequipa Region, as well as population information and the number of beneficiaries. Source: Prepared by COPASA, 2015.

Environmental Context, Climate Change Impacts:

The Regional Strategy for Adaptation to Climate Change in the Region of Arequipa¹⁷ identifies the following impacts of climate change in the target area of the project:

1. **Changes in agricultural production affecting alpaca fiber production:** Water shortage will favor the reduction of irrigated areas and the advance of desertification, which will bring as a consequence the increasing scarcity of grazing areas, both natural and cultivated. The scarcity of natural pastures, especially for the andean cattle will become dramatic in the higher elevations, and result in malnutrition, disease and reduced capital represented by the region's most important livestock, camelids, in an extremely impoverished region.

Changes in temperature will favor increased frost, indian summers, and the rise of pests and diseases to higher altitudes that can affect both human health and that of the alpacas. Water availability and the increased presence of extreme climatic events can seriously affect food security in the region.

2. **Water shortage:** The main result of changes in temperature and rainfall will be the relative scarcity of water available. The volume of water deficit in the coming years can reach between 20

¹⁷ Regional Government of Arequipa, Regional Environmental Authority. Regional Strategy for Adaptation to Climate Change, August 2009 Preview, Chapter IV.

and 30%, with lower rates of up to 50% in the highlands. A severe drought in 2016 is highly probable. The provision of this resource in the region depends mainly on rainfall regime, as well as the retention capacity of the snowy glacier. On the other hand the water capture infrastructure is insufficient and mainly aimed at providing water to cities; 6 of the 8 provinces have a reduced infrastructure for provisioning and management of water. The main vulnerability of the region to projected climate scenarios is due to the limitations of topography and infrastructure for seasonal water harvesting.

Scarce and poorly managed water resources: The main source of water resources are constituted by the melting and drainage from nearby peaks, from which springs originate, as well as ponds and creeks. The rivers crisscrossing the territory are of a torrential type, reaching their peak flows during December, January, February and March, with their flow reduced to exhaustion in the months of May to October. In addition to the resource's limitation, there are management practices that require improvement.

3. Displacement and Migration: The reduced availability of water, along with the damages to alpacas' fiber production, is likely to increase poverty in rural areas and increase rural migration to the cities. The populations most prone to these displacements are those who inhabit the poorest places in the region, especially in the provinces of Condesuyos, La Union, Caylloma and Caraveli (three (3) of them belong to the targeted project area).

4. Human Health: Temperature changes along with its consequences (frost, indian summers, and the rise of pests and diseases) are impacting heavily on the health of the population; in the last 9 years, cases of ARIs (acute respiratory infections) in children under 5 years have increased by more than 190.000 cases.



Photograph: Rural Household in their home, in the Rural Community of Ñequeta, Province of Caylloma.
Source: COPASA Archives (2012)

As seen in the previous picture, the construction of the houses is rustic. The traditional construction technique is not suitable for the current temperature variations, particularly for extreme descents that are becoming common.¹⁸

The prevalence of diseases like acute respiratory infections (ARIs) and acute diarrheal diseases (ADDs), among Andean highland populations, increases the rates of malnutrition, morbidity and

¹⁸ In the majority of cases, the dwellings do not have the minimum infrastructure for avoiding cold seeping into their interior, such as weather stripping around doors, windows, and the rafters of the roof, which tends to be lacking. To this problem, meager access to energy can be added, which is called thermal comfort. The laerge majority of homes have wood-burning stoves, which are inefficient in their use of fuel.

mortality, especially among the most vulnerable: children, gestating women and older adults (see Tables Nos. 6, 7, 8 and 9).

Acute respiratory infections (ARIS) become more prevalent during the cold spells, due to exposure to extreme low temperatures. Additionally, the technology used in traditional kitchens and the use of alpaca manure as fuel (use due to the near absence of available wood) produces the accumulation of smoke in the homes, which increases exposure to risk conditions related to ARIS during cold spells.

Also, limits in the availability of water leads to the use of water for human consumption from inadequate sources due to lack of treatment. This circumstance is one of the predominant causes of acute diarrheal illness, in particular among the child population.

The following table shows the frequency of acute respiratory infections (ARIs) in the project's target provinces (2011 information). For the range of the most affected ages, younger than five years old, the incidences show a general effect on the order of five hundred children for every thousand children.

Table N° 6
ARIS and pneumonias by province

ARIS AND PNEUMONIAS BY PROVINCE ¹⁹							
PROVINCE	ARIS					Pneumonia + 5	
	Population - 5	Population 5	Population +5	Total	TIA -5	Cases	TIA (x)
Arequipa	75,541	3,158	4,763	7,921	42.02	62	0.82
Caylloma	9,376	35	475	833	38.18	8	0.85
Condesuyos	1,713	69	154	223	40.28	0	0.00
Castilla	3,791	127	261	388	33.50	0	0.00
La Union	1,728	51	164	215	29.51	0	0.00
(x) Cumulative Incidence Rate							
In the province of Arequipa, the rates for ARIs are 42.02 episodes per thousand children below the age of 5, and for pneumonia, 0.82 cases per thousand children below the age of 5. Source: Arequipa Regional Health Department – 2011							

Source: <http://www.bvsde.paho.org/documentosdigitales/bvsde/texcom/ASIS-regiones/Arequipa/Arequipa 2011.pdf>

The following graph shows the high incidence of ARIs (acute respiratory infections) among those younger than five years of age, in the project's target provinces. The most affected province was La Union.

¹⁹ Source: Regional Office of Public Health, Arequipa; Chart: Provided by COPASA-Arequipa

Table Nº 7

CUADRO Nº 4									
CASOS DE IRAS EN MENORES Y MAYORES DE 5 AÑOS SEGÚN PROVINCIAS 2015									
GERENCIA DE SALUD AREQUIPA									
PROVINCIA	CASOS DE LA S.E. 49				ACUMULADO A LA S.E. 49				Tasa Total Acumulada x 10,000
	IRA Menores 5 Años		IRA Mayores 5 Años		IRA Menores 5 Años		IRA Mayores 5 Años		
	N°	Tasa X1000	N°	Tasa X1000	N°	Tasa X1000	N°	Tasa X1000	
REGION	3133	30.20	5540	4.68	181897	1753.41	347997	388.88	4116.62
Arequipa	2423	32.56	4300	4.81	139763	1878.21	268630	300.19	4213.35
Camana	128	24.64	158	2.94	7329	1410.78	11510	214.11	3195.65
Caraveli	131	35.55	183	4.92	6814	1849.12	10402	279.48	4208.88
Islay	77	19.83	156	3.20	4845	1247.75	8936	183.31	2618.47
Caylloma	198	20.49	324	3.83	11617	1201.97	20617	243.83	3421.14
Condesuyos	48	29.80	81	4.96	2683	1665.43	7230	442.69	5524.72
Castilla	85	23.25	222	6.34	5668	1550.33	12100	345.58	4594.78
La Union	43	26.36	116	8.94	3178	1948.50	8572	660.86	8046.84

Fuente: EPID- V.S.P.

Source: Bulletin of the Regional Health Office, Arequipa 2015

Below is a table that presents the incidence of acute diarrheal illnesses (EDAs, for its acronym in Spanish) in the project's target area for the year 2011. In addition, in this case, the most affected range of ages was that of those younger than five years, with a cumulative incidence of 422 children affected out of each one thousand, and with four of the five target provinces showing significant effects.

Table Nº 8

CASES DE ADDS PER DIAGNOSTIC TYPE BY PROVINCE ²⁰														
PROVINCE	CASES OF S.E. 52				CUMULATIVE S.E. 52				CUMULATIVE TOTAL OF ADDS					
	ADD watery		ADD amoebic		ADD watery		ADD amoebic		Minors younger than 5 years			Older than 5 years		
	-5	+ 5	-5	+ 5	-5	+ 5	-5	+ 5	Nº	Rate	Nº	Rate	Nº	Rate
REGION	422	638	14	23	0	0	0	0	34437	1758.89	39658		22819.55	
Arequipa	353	551	11	18	28488	33061	798	847	29286	394.32	33908		3932.75	
Caylloma	27	44	2	3	2347	2469	115	155	2462	271.26	2624		3387.29	
Condesuyos	10	10	1	0	759	903	181	5	940	541.16	908		5403.80	
Castilla	28	28	0	2	1067	1331	66	64	1133	298.94	1395		3963.07	
La Union	4	5	0	0	575	783	41	40	616	253.21	823		6132.64	

Source: <http://www.bvsde.paho.org/documentosdigitales/bvsde/texcom/ASIS-regiones/Arequipa/Arequipa2011.pdf>

²⁰ Source: Arequipa Regional Department of Health; Chart: Provided by COPASA-Arequipa

In the interests of a comparison, the following table shows the tendencies and the situation of acute diarrheal diseases (ADDs) for the year 2014. In recent years, 81,947 cases of acute diarrheal illnesses have been reported, arising basically from the consumption of untreated water.

Table Nº 9
Trends and situation of diarrheal diseases (ADDs)

ADDs IN MINORS OF 5 YEARS FOR THE MONTHS OF 2014 ²¹													
ADDs	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
ADDs watery	2743	3621	3469	3107	2490	2526	3123	3637	2911	2311	2354	2669	34961
ADDs amoebic	114	168	188	135	97	88	106	56	100	68	104	102	1326
Hospitalizations	26	33	58	51	59	53	79	76	33	32	26	20	546
Deaths	0	0	0	0	1	0	0	0	0	1	0	0	2
The most affected province was Condesuyos, with an incidence rate of 541.16 per 1000, in of 5 years of age, and La Union with an incidence rate of 6132.64 per 1000 in children older than 5 years of age.													

Source: Arequipa Regional Department of Health; **Chart:** Provided by COPASA-Arequipa

The prevalence of diseases like acute respiratory infections (ARIs) and acute diarrheal diseases (ADDs), among Andean highland dwellers, increase the rates of malnutrition, morbidity and mortality, especially the most vulnerable groups: children, pregnant women and the older adults.

Environmental Context, Impacts of Climate Change: Local Economy

Below is a qualitative list of the impacts of climate change that are affecting the local economy, in particular on the household economy of the alpaca breeders:

1. Household Economy:

Concerning division of labor in the household, women have an important, active, and physically demanding role in the care of the flocks. Additionally, women are responsible for kitchen activities, normally in conditions detrimental to their health, due to the design of traditional stoves and the fuel used, which gives rise to their direct exposure to a smoke-filled atmosphere and indirectly to the other family members.

Sewing and weaving, as a complementary activity to the primary activity of alpaca raising, is done almost exclusively by women, in few cases as an exclusive activity and in others as a complementary. Alpaca fiber crafts are sold as a product of this weaving in markets with unfavorable demand for the women weavers.

In the region, women are excluded from the inheritance of land ownership, and those who are owners are exclusively widows.

Women overwhelmingly maintain the household and care for the infants and small children; water-carrying is a task shared with the men.

Climate change has been reflected in changes in wind patterns, making them more intense. This change is reflected in damage and destruction of homes, alpaca shelters (lean-tos) and affects the health of people and animals.

²¹ Source: Arequipa Regional Department of Health; Chart: Provided by COPASA-Arequipa

Because of water shortage and low efficiency practices in this resource's management, soil productivity (particularly in the production of pastures) is decreased, which leads to a decrease in the quality and quantity of alpaca fiber.

Frosts that occur in the southern hemisphere's autumn and winter periods, affect human and animal health provoking diseases and causing high mortality rates among the alpaca herds. The alpaca breeders pay the associated costs.

Frequent electrical storms in the area bring excessive rain, lightning, and thunder causing damage to the lives of people, animals as well as the destruction of homes. The rains, when heavy, cause bronchial diseases, alpacas mortality (mostly young animals). Also in these cases, the alpaca breeders pay the associated costs.

Hailstorms are common, often accompanied by cold winds. These occasionally are accompanied by the added aggravation of snowfall, causing further harm to the health of local residents, as well as their livestock and crops. Once more, the alpaca breeders face the associated costs.

NOTE. When these phenomena hinder access to these communities, the local government's budgets are affected by the associated costs.

The image below provides a recent example of media reports on this set of problems.

Jueves 11 de Junio de 2015 **REGIÓN 13** **10 | REGIÓN** Domingo 28 de Junio de 2015

FRÍO PREOCUPA A CRIADORES DE CAMÉLIDOS, PIDEN VACUNAS
4 mil crías muertas en la provincia de Caylloma

El alcalde provincial de Caylloma, Rómulo Tinta, informó ayer que debido al frío que recrudece en su provincia han muerto entre 3 mil a 4 mil crías de camélidos sudamericanos en los distritos de Callalli, Tisco y Sibayo.

"Esto representa el 4% de la mortandad del ganado especialmente en crías. Antes, estas muertes se registraban a partir del 21 de junio pero ahora el frío se adelantó y preocupa", dijo.

Reveló que el último domingo se registró una temperatura de menos 15 °C en el distrito de San Antonio de Chuca.

Ante esta situación precisó que ha pedido apoyo al Ministerio de Agricultura y Riego y Agrorural con vacunas y cobertizos. "Entregarán 160 cobertizos a nivel nacional, hemos pedido que esto aumente", dijo.

Finalmente señaló que en Caylloma, hay 500 mil camélidos sudamericanos.



Las crías de los camélidos se mueren por el frío.

SIETE MIL ALPAQUEROS AFECTADOS POR BAJAS TEMPERATURAS
Camélidos mueren por frío en Caylloma

Un total de 25 mil camélidos han muerto en la provincia de Caylloma. Las bajas temperaturas, menos doce grados centígrados, han sido la causa de mortandad. "En el 2014 tuvimos una pérdida del 10% de las 500 mil alpacas, hoy a pocos días del inicio de temporada ya llegamos al 5%", expresó el alcalde de la provincia de Caylloma, Rómulo Tinta. Según informó la autoridad edil por cada animal muerto se pierde de 200 a 300 nuevos soles. Tinta además, informó que gestiona ante el Ministerio de Agricultura (Minagri) que Caylloma sea integrada en el programa "Seguro alpaquero". En la actualidad la única región que es beneficiada es Puno. Esta semana el Minagri enviará 65 mil vacunas para tratar diarreas.



Source: These images provide examples of significant herd mortality. They correspond to local newspaper REGION news (jun 11 and 28 de 2015). The June 11th title states: "Cold snap worries camelid breeders, vaccinations requested- 4,000 alpaca yearlings dead in Caylloma Province". Another June 11th title notes: "Seven thousand alpaca breeders affected by low temperatures- camelids die due to cold in Cold Caylloma". Then the text reports on the death of 25,000 head of alpacas in the recent season.



Photographs: Effects of the cold spell in the Arequipa Region, which caused significant mortality among the camelid herds and the destruction of homes due to heavy snowfall. **Source:** COPASA Archives (2012)

The table below provides a summary of recent impacts due to climate change on the local economy:

Table N° 10

GENERAL SUMMARY OF DAMAGES DUE TO COLD AND DROUGHT ACCORDING TO THE NATIONAL INSTITUTE OF CIVIL DEFENSE (Statistics for 2013)^{16 17}		
Population		
Persons Affected	217,997	Persons
Dwellings Affected	129,127	Homes
Agriculture		
Crops Affected	1,663	Ha
Natural Pastures Affected	216,756	Ha
Animals Affected (impacts on health)		
Cattle	65,576	Heads
Sheep	664,569	Heads
Camelids	652,550	Heads
Dead Animals		
Cattle	2005	Heads
Sheep	127,677	Heads
Camelids	129,387	Heads

Source: Elaborated by Copasa based on data from the National Institute Of Civil Defense (INDECI).
https://www.inei.gob.pe/media/MenuRecursivo/publicaciones_digitales/Est/Lib1140/Libro.pdf

The following table shows the average annual losses of camelid breeders by Household. The study was conducted by FAO in an area larger than the project's target area, which shows a different average for alpacas than that identified in the Arequipa Region.

Table Nº 11²²

ANNUAL EFFECTIVE LOSSES (x) ²³				
SPECIES	AVERAGE NUMBER OF ANIMALS	DEAD ANIMALS	PER UNIT PRICE US. HEAD	TOTAL LOSSES US \$
Alpaca	92.36	14.97	37.00	1,796.40
Sheep	40.39	3.49	50.00	174.50
Llama	23.53	1.79	120.00	214.80
Cattle	9.12	0.25	350.00	87.50
Totals	165.4	20.5	640.00	2,273.20
<p>(x) Analysis of the impact of annual events in periods of extreme cold / Andean Highland - family. Food and Agriculture Organization of the United Nations, FAO, Emergency Rehabilitation and Coordination Unit</p>				

Source: FAO, Regional Agriculture Bureau, Arequipa

Gender Conditions

In accord with the 2012 National Livestock Census, women form 34.5% of the individual livestock producers in the Department of Arequipa. Among the producers, 3.16% of the men are illiterate, while 14.68% of the women are. Women make up 49.12% of household members. Among the producers, 10.6% of the women and 5% of the men had no formal schooling, while 8.8% of the women and 8.6% of the men had completed higher education. 73% of the women participate in agricultural and livestock work, while 27.6% of the men do. Among the women, 11.2% have received some kind of technical training or business orientation, while 18% of the men have.

In the Department of Arequipa, 63.9% of the women, (15 years or older) participate in the labor force, while 80.9% of the men (15 years or older) do so. In the Department, 68.6% of the women (25 years or older) have received at least a high school education, while 81.3% of the men (25 years or older) have done so.

Although this information is not exclusive to alpaca raising, it does demonstrate indicators of gender inequality in access to education and training and access to employment, while the concentration of women in agricultural and livestock raising is much greater in comparison to that of men.

²² For the elaboration of this chart, the results from field assessments in six regions of Peru and the preliminary study of the impact of cold spells elaborated by the FAO Office's Emergency and Rehabilitation Coordination Unit in Peru were taken into account. Document coordinator: Yon Fernández de Larrinoa Arca, Sub-Regional Coordinator for Emergencies in the Andean Region (FAO). In the study, the losses are reported annually.

²³ Regional Agriculture Bureau, Arequipa

Environmental Context, The cultural value of the alpacas raising

The living traditions of weaving in Peru go back to pre-columbian cultures like that of Paracas, the Wari and the Incan Empires. In Peru, the most important fiber textiles from animal sources are those from vicuñas²⁴ and from alpacas. This fiber, in addition to its export value, is the basis of emblematic artisanal creations of Peruvian culture, such as the beautiful weavings (*tapices*) that are produced in Ayacucho's Santa Ana neighborhood, the soft Andean ponchos that are woven in many places in Cusco and Puno, *arpillería* pieces (hand-sown, quilted pieces that narrate pictorially the life of migrant populations) produced in the Pamplona neighborhood in Lima and fine baby alpacas sweaters, woven in Arequipa and Huancavelica. Some textiles are enhanced by Andean embroidery, testimony of a refined artisanal culture in Peru.²⁵

From this perspective, building a panorama of sustainability for alpaca raising has a highly meaningful cultural value, because it keeps alive the links to national cultural roots and links with production centers that still make up a unique cultural network, which allows for the production of raw materials which sustains the aforementioned ancestral cultural traditions, valuable as much for the refinement of its production, as for the value of identity to Peruvian national culture.

Institutional Context

The project is aligned with the National Environmental Action Plan - PLANAA Peru 2011-2021 which establishes as its fifth goal, forests and climate change strategies for reducing vulnerability to climate change:

- Developing and implementing regional and local adaptation and mitigation strategies in the face of climate change, reducing land and soil degradation, as well as increasing the capacity to mitigate the effects of drought, and strengthening the system of monitoring and forecasting of weather phenomena of natural and human origin.

This proposal is framed in a similar manner to the Action Plan for Adaptation and Mitigation in the face of climate change, defined by the Peruvian Ministry of the Environment which, as responsible for coordinating the implementation of the NSCC (National Strategy for Climate Change), has defined the following lines of action pertinent to the project (In these lines COPASA will provide its experience to the project):

- Promote policies, measures and projects to develop the ability to adapt to the effects of climate change and the reduction of vulnerability.
- Dissemination of knowledge and national information on climate change in Peru as it relates to vulnerability, adaptation and mitigation.
- Management of fragile ecosystems, especially mountain ecosystems to mitigate vulnerability to climate change.

The Peruvian Government presented its INDC (Intended Nationally Determined Contributions) to the UNFCCC in September of 2015, including both the mitigation component as well as the adaptation component. In the adaptation component, the commitment includes 1. The National Adaptation Plan; 2. In the intermediate objectives for agriculture, the reduction of climate change's negative impact in agricultural activity; 3. Attention to overlapping disaster risk areas, resilient

²⁴ Today garments made with this fiber has a high commercial value, as it is considered one of the finest in the world.

²⁵ http://www.mincetur.gob.pe/PECEX/lecturas_complementarias/otras_lecturas/Artesania_peruana.pdf

public infrastructure, a focus of attention on poverty and vulnerable populations within an adaptation perspective, a focus on gender and the promotion of private investment in adaptation to climate change. From this perspective, the project is aligned with the prioritization of: 1. reduction of climate change's negative impact on agricultural activity; 2. attention to disaster risk; 3. focus of attention on vulnerable populations from an adaptation perspective; and 4. gender focus.

Policy Framework

National Climate Change Strategy (Executive Decree No. 086-2003-PCM); its purpose is to reduce impacts and conduct research in the field of vulnerability and design action plans directed at ecological mitigation based on the CDM (Clean Development Mechanism).

A certain lack of awareness persists on the part of authorities and community leaders about the consequences of climate change, and as a result their commitments are still weak and they do not assume fully their corresponding responsibilities in the leadership of risk management and climate change adaptation programs. This limits the adoption of disaster prevention and adaptation programs and projects, which is why increased motivation and awareness through training and/or field days are indispensable.

Project/ Programme Objectives:

Short Title of the Project: AYNINAKUY (A word from Quechua that means 'we together adapting')

The project objective is to reduce vulnerability and increase adaptive capacity to respond to the impacts of climate change of the highland Andean indigenous communities in the provinces of Arequipa, Caylloma, Castilla, La Union, and Condesuyos. The project seeks to reduce the exposure of these communities, dependent on camelid fiber production, to climate-related threats, by strengthening their livelihoods through the development of local processes of adaptation and climate risk reduction and through the strengthening of community capacities to reduce the risks associated with economic losses from climate-induced effects.

This project is aligned with the results framework of the Adaptation Fund and directly contributes to the following outcomes:

AF Results Framework - Outcome 2: Strengthening of the institutional capacity to reduce the risks associated with climate-induced socioeconomic and environmental losses.

At the community level and that of local authorities, capacities for damage assessment and needs will be developed (in concert with local authorities and community leaders). Technical assistance will be provided for the development of prevention plans (in conjunction with local authorities).

AF Results Framework - Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level.

Awareness raising activities will be undertaken at the local level covering the need for and the value of alternative proposals for strengthening alpaca offspring for fiber production. Activities and teaching materials will be developed to promote ownership of the skills required to use and maintain the alternatives (for the protection of camelids, to ensure adequate feed

for them, to manage water so that the sustainability of natural resources used is guaranteed as well as its usefulness).

AF Results Framework - Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress.

In order to restore and expand natural areas (*bofedales*-high altitude wetlands) that are used for grazing alpacas, resistant native species (red clover and white clover) will be introduced and existing rustic channels that provide for the distribution of water to these areas will be improved. These activities will increase the resilience of wetlands and help to curb land degradation and desertification processes associated with it.

AF Results Framework - Outcome 6: Strengthened livelihoods and sources of income for vulnerable populations in targeted areas.

In order to strengthen alpaca yearlings to improve their fiber production, the following activities will be carried out:



Photo: Example of an improved shelter for alpacas. Source: COPASA Archives

- Construction of shelters to protect the alpacas from the effects of cold temperatures
- Build fences and introducing pasture rotation to avoid overgrazing.
- Introduction of the use of high altitude foraging grains (Forage Barley, UNA 80 variety, *Hâtif de Grignon* or winter barley) to complement and improve alpaca nutrition to increase their resistance to cold weather.



Photo: Harvest of high altitude forage cereals. Source: COPASA Archives, 2015

- Reservoirs will be built into to have water available during dry seasons.



Photo: Type of earthen dyke to be constructed for the storage of snowmelt and from the short rainy season.
Source: COPASA Archives (2012). The image corresponds to dykes operating in the region

- Promote the use of irrigation technology to optimize water use in order to increase its availability in grazing areas;



Photo: Irrigation technology in use in the Pallpata Rural Community- Espinar
Source: COPASA Archives

- Introduce the use of species for pastures which are resistant to the cold (ryegrass, *dactylis glomerata*) to guarantee sufficient pasture areas.
- Implement early warning systems in the rural communities. Basic meteorological stations with thermometers for highs and lows, rainmeters, humidity meters (hygrometers) to measure temperature variations, rainfall amounts and humidity in the area.



- **Photo:** Implementation and training for the Early Warning System-EWS. **Source:** COPASA Archives
- Implement prevention campaigns on animal health to protect alpacas in the face of cold spells arising from climate change.



Photo: Animal Health Campaigns (alpaca deworming). Source: COPASA Archives

Project / Programme Components and Financing:

Project Components:

1. Implementation of measures designed to strengthen the means of livelihood and income sources for vulnerable communities in the selected areas, and the implementation of complementary measures.
2. Strengthening and development of community and institutional capacities for reducing risks associated with economic losses caused by adverse weather events.

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)	Total Amount (US\$)
1. Implementation of measures designed to strengthen the livelihoods and income sources of the vulnerable communities in the selected areas, and implementation of complementary measures.	1.1. Specific livelihood strategies strengthened in relation to climate change impacts: 270 shelters built for animal protection; 36 Animal Health Campaigns; 72 protective fences installed, 900 hs of high altitude cereals; 72 hs of improved highland wetlands with clover; 72 hs of improved pastures.	1.1 Improvements in the health conditions and means of feeding livestock, through strengthening life strategies in relation to climate change impacts.	1.376.600	2.037.600
	1.2.: 72 pressurized irrigation modules installed; 36 highland wetlands (vulnerable natural assets) strengthened; 10,000 m	(Secondary) 1.2: Greater capacity for resilience in the ecosystem in response to pressures produced	380.600	

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)	Total Amount (US\$)
	of improved /built rural canals; 36 micro-dams built; 36 rustic reservoirs built.	by climate change and variability. 1.2: Improvements in availability of water and in irrigation conditions will allow for greater volumes of plant growth and greater extensions of areas apt for animal nourishment.		
	1.3.1. Five (5) Water purification systems in the most vulnerable communities, 1.3.2. Campaigns for the improvement of living conditions in 72 rural residences.	(Secondary) 1.3: Reduction in the rate of cases of ARIS and ADDS in participating/beneficiary communities and households. 1.3: Improvement in the conditions of housing quality to withstand extreme climate conditions.	280.400	
2. Strengthening and development of community and institutional capacities for reducing risks associated with economic losses due to the weather.	2.1. 22 Agreements with local and community authorities for the implementation of Evaluation and Monitoring Plans; 36 commitments of beneficiaries' selection; 2 training modules in teamwork and leadership;	2.1: Greater awareness and ownership on the part of men and women regarding local management processes and self-management for adaptation to and reduction of climate risk.	1.400	
	2.2. Awareness-raising activities about adaptation and risk reduction: 9 drills; Implementation of de 36 EWS modules; 5 Disaster prevention plans in educational	2.2: Improvement in the awareness and capacities in climate risk management and adaptive techniques.	33.200	

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)	Total Amount (US\$)
	institutions; Formation of civil defense platforms (18 District level and 36 communitary);			
	<p>2.3. Targeted population groups (28.78% of participating vulnerable communities) in awareness-raising activities and training in climatic risk management and adaptive techniques:</p> <p>18 agreements, programs, projects that will give continuity to the activities and project achievements and for the publication of lessons learned;</p> <p>Preparation of technical guides (13 topics, 43,000 copies) on: 1. adaptation to climate change; 2. use of the early warning system; 3. adaptation and risk prevention for educational institutions; 4. Livestock production, fodder production water production and management and household housing improvement.</p> <p>2.3. Capacity building complementary activities: 1. 72 Adaptive techniques workshops; various risk management strategies at the the institutional,</p>	2.3: Improvement in the awareness and capacities in climate risk management and adaptive techniques.	296.061	330.661

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)	Total Amount (US\$)
	community and district level.			

Project/Programme Execution cost	355.300
Total Project/Programme Cost	2.723.561
Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)	217.885
Amount of Financing Requested	2.941.446

Projected Calendar:

Milestones	Expected Dates
Start of Project/Programme Implementation	February 2017
Mid-term Review (if planned)	
Project/Programme Closing	August 2019
Terminal Evaluation	November 2019

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.

The project has been designed with the intention of implementing an integrated management model that, in the face of a cyclic scenario of climate change risks that is having an impact on the activity of breeding camelids for fiber production, provides vulnerable highland Andean communities in the Arequipa Region an alternate response model in contrast to the common recurrence to disperse efforts, and allows for a consistent and complete set of alternatives that increase climate resilience playback, allows disparate efforts and provide a consistent and complete set of alternatives to increase the climate resilience of these communities and enable them to make their livelihoods sustainable.

The Project's design has been approached with gender considerations in mind, from the consultation activities to the development of the indicators. A gender specialist carried out a cross field gender assessment of the project design and, based on both the Milestones results of the evaluation as well as the gender analysis recommendations, some activities and indicators have

been incorporated in the project design with the intention of guaranteeing that the project's implementation be gender responsive and that the monitoring and evaluation of the project include the gender perspective component and indicators (gender responsive indicators and monitoring arrangements).

From the viewpoint of an integrated management model, the project has been divided into two components, which are described below:

COMPONENT 1: Implementation of measures directed at strengthening institutional and community capacities in order to reduce risks of losses occasioned by climate change.

COMPONENT 2: Implementation of measures designed to strengthen community and institutional capacities for the reduction of risks associated with losses due to climate change.

COMPONENT 1

Implementation of measures designed to strengthen means of livelihood and income sources of vulnerable communities in the selected areas and implementation of complementary measures.

For the project's target areas, the Andean highlands areas of the Arequipa Region, expected scenarios of glacial retreat and changes in rainfall patterns do anticipate that threats of water scarcity are going to intensify in the future over the medium and long term, with the risk of intensified stresses due to the reduction of favorable periods of rainfall (which may be reduced from between 6 and 9 years up to 4 and 6 years) and the narrowing of the rate of return of the critical periods of rainfalls (which can vary from 6 to 9 years to 4 to 7 years). These threats extend to the consequences in a chain of resulting impacts: reduction of water available for human consumption, for sustaining the highland wetlands (*bofedales*), and, as a consequence, the reduction of their areas and the increase in the risk that some disappear, reduction in the productivity of the soil in natural and cultivated areas (such as those areas used for pasturing alpacas), a risk in the increase of overgrazing (due to the absence of adequate and available terrain), malnutrition and imbalance in the health of camelids and threat of loss of livestock, reduction in the productivity of alpaca fiber, and of its quality, as a consequence of this imbalance, threats of serious losses in the livelihood derived from the alpaca fiber production in the highland areas, with a risk (that can increase over time) to the sustainability of this livelihood, impacts on human health, in particular on the most at-risk population (younger than 5 years) as a consequence of the use of sources unfit for human consumption.

For these same project target areas, the scenarios forecasting an increase in extreme temperature conditions (reduction of low ranges, and increase in the high ones) generate the threat of cyclical cold waves with diverse, linked impacts: losses in the productive capacity of the soils available for sustaining the way of life derived from alpaca raising (the cold spells tend to damage, in very short periods of time, the natural and cultivated plant cover available for grazing), losses of livestock, in particular, the alpacas newborns and yearlings (due to the low resistance to the cold resulting from nutritional stress and a sharp drop in the habitat's temperature), risk of high social and economic impact as a consequence of losses in the herds which support the way of life, risk of deterioration in the exchange infrastructure (roadways) due to weather inclemency,

risk of impacts on health (respiratory illnesses in particular), especially among the population younger than five (5) years of age.

The exposure to this set of risks has been generating cumulative impacts that put at risk the sustainability of alpaca breeding for their fiber production, as a way of life in the vulnerable highland Andean communities in the project's target area. Moreover, in combination with the economic stress generated by the effects of these impacts, this same population is exposed cyclically (each year) to impacts on health that these cold spells cause.

This project component is oriented to the implementation of actions for managing each one of the different risks mentioned above, with the goal of building a sustainable horizon for alpaca breeding and fiber production, in such a way that practices for the rational management of risks associated with water scarcity, reduction in grazing areas, and deterioration in human and animal well-being in the face of these cold spells can be generated.

Concrete expected products 1.1: specific livelihood strategies strengthened in relation with climate change impacts.

Expected concrete outputs 1.1.1. Livestock and fiber production is improved with 270 alpacas shelters and health campaigns to improve the sanitary conditions of the alpacas and 72 protective fencing that are constructed.

Considering that breeding camelids for fiber production is the principal economic activity in these communities, the measures are focused on strengthening those variables which expose this economic activity the most in the face of climate variability and its impacts. As such, technically upgraded shelters will be built so that the camelids can withstand the cold spells, animal health campaigns will be held to improve the health of the animals (affected by the cold), well as to improve their resistance to the cold.

Products 1.1.2: Protective fencing, with livestock mesh, installed. Protective fencing will be installed to develop pasture rotation (a system that optimizes the recovery of vegetal cover that provides forage for the alpacas).

Expected concrete outputs 1.1.3., 1.1.4. y 1.1.5.: With these products, losses of the animal's foraging sources due to frost damage, one of the cold's most important impacts on economic activity, will be reduced.

Expected concrete outputs 1.1.3. Fodder production is improved with 900 Ha of high altitude feed grains.

Expected concrete outputs 1.1.4. 72 Ha of cultivated pastures for high altitude forage

Expected concrete outputs 1.1.5. 72 Ha of Clover sown in recovered wetlands and 36 high altitude wetlands recovered in this way. The ecological reintroduction of clover follows the recovery of plant cover in the key highland wetlands (bofedales) that are used for grazing (this latter activity is complemented with improved water infiltration into the soil).

Expected concrete outputs 1.2. Water production and management is improved with: 72 pressurized irrigation modules (**output 1.2.1**); 36 improved highland wetlands (**output 1.2.2**); the Construction and improvement of 10,000 m rustic canals (**output 1.2.3**); the construction of 36 micro-dams (**output 1.2.4**); the construction 36 reservoirs (**output 1.2.5**).

The aforementioned water management measures will contribute to the sustainability of the supply of water to be used both for feeding the alpacas as well as for growing fodder and for the protection and expansion of wetlands that guarantee the availability of the resource.

Expected concrete outputs 1.3.1. Five (5) Community water purification systems are installed to prevent diseases.

Water management needs to be complemented by an additional measure that allows the water to be used for human consumption and have the proper potability profile in order to avoid negative secondary impacts on health (diarrhea). As such, five (5) purification systems will be installed in five critical districts.

Expected concrete outputs 1.3.2. Living conditions of 72 rural housing are improved with cold resistant specifications and composting latrines

The project includes the upgrade of a group of housing units, with the goal of making them resistant to conditions resulting from climate variability and change. This action forms part of a comprehensive adaptation management model proposed as a model for communities and authorities (local district governments) for other future experiences. Through this activity, two (2) healthy housing units will be implemented in each of the 36 communities involved in the project so that each of the communities has a model for future experiences. This is a pilot activity that aims to educate and motivate the rural families in the community with a solution of moderate cost and affordable technology to improve their quality of life and to lend more support to this livelihood.

These housing units will include a heating system consisting of solar walls (Trombe walls), electrification by an autonomous photovoltaic system, an improved stove and a composting latrine.



FotoPhoto: Implementation of heaters and Trombe walls, low-cost, accessible technologies.

Source: COPASA Archives

Expected concrete outputs 1.6. SAT early warning modules for rural communities are implemented.

The integrated management model also includes the installation of an early warning system (EWS) in each of these 36 communities. The expectation is that these EWS will promote the prevention and reaction actions in the communities, through civil defense committees, in the case of critical weather conditions.

Adaptation to climate change measures, with the implementation of the housing units and water purification, will have a positive impact on the health profile of the project's target communities. The formulation of an integrated management model of this kind requires responding to one of the critical dimensions of the cyclical impact of these cold spells and shortage of drinking water (health impacts).

Indirectly the project hopes for this to contribute to the availability of fiber and to encourage those dedicated to its production to invest more time and effort, thus reducing the levels of temporary migration in search of distinct work in other areas, such as mining.

COMPONENT 2

Strengthening and development of community and institutional capacities for the reduction of risks associated with losses due to climate change.

The second component is oriented at promoting activities for the development of the necessary skills for effecting a culturally assimilable change in productive capacities and in the protection of human and animal well-being.

An initial group of measures is aimed at developing community awareness regarding the reduction of risks associated with economic losses caused by the weather, and at developing basic administrative skills to manage that risk. These activities will be led by competent technical personnel provided by the project.

Expected concrete outputs 2.1. Activities to raise awareness and to develop capacities and ownership regarding local processes for management and self-management of adaptation and climate risk reduction.

- **Concrete outputs 2.1.1:** 22 Agreements with local and community authorities for the design and implementation of monitoring and evaluation plans.
- **Concrete outputs 2.1.2:** 36 Commitments for the selection of beneficiaries with the participation of various actors.
- **Concrete outputs 2.1.3:** Implementation of two training modules in teamwork and leadership (in the framework of one day training sessions).

Expected concrete outputs 2.2. Activities to raise awareness and develop capacities and ownership regarding local, community and institutional processes of adaptation and climate risk reduction.

- **Concrete outputs 2.2.1:** nine disaster drills, four at the provincial level, five at the district level.
- **Concrete outputs 2.2.2:** Implementation of 36 teaching modules of early warning systems (EWS) in rural communities.
- **Concrete outputs 2.2.3:** Elaboration of five prevention disaster response plans, in educational institutions.

- **Concrete outputs 2.2.4:** Formation and strengthening of 18 district and 36 community civil defense platforms (civil defense platforms is the current name as of June 2016 for previously denominated civil defense committees).
- Educational Innovation Competitions will be held covering environmental and climate change themes, in coordination with local education districts and schools.

Expected concrete outputs 2.3. Activities to raise awareness improve and transmit capacities for climate risk management and adaptive techniques.

- **Concrete outputs 2.3.1:** Preparation of 18 agreements, programs, projects that provide continuity to the project's activities and achievements, that incorporate lessons learned from the project, its results and the recommendations from the project's monitoring and evaluation reports.
- **Concrete outputs 2.3.2:** Two Annual publications of lessons learned in the COPASA websites and of the organizations that include a similar diffusion on their corresponding websites.
- **Concrete outputs 2.3.3:** Elaboration of technical guides (13 topics, 43,000 copies) about: 1. Climate change adaptation and environmental risk management. 2. Management and operation of the early warning system. 3. Adaptation and risk prevention in educational institutions. 4. Planting of forage cereals and cultivated pastures, installation of modern irrigation pilot projects, highland wetlands management, animal health, construction of shelters, and improvement of family housing.
- **Concrete outputs 2.3.4:** 72 training sessions (Field days) covering: 1. installation, management and operation of teaching modules for community early warning systems EWS, and implementation and strengthening of community and district civil defense platforms (former civil defense committees). 2. Adaptation to climate change, risk management and environmental protection (educational institutions). 3. Formation of basic semestral evaluation and needs analysis teams at the district level. 4. disaster prevention (establishment of semestral evaluation teams, climate change risk management, elaboration of strategies for long term climate change risk management and their dissemination), for municipal officials and community representatives. 5. Diagnostics of dangers and vulnerabilities, interactive risk maps, prevention plans, community response, for heads of household. 6. Risk management and environmental protection, for educational institutions 7. Transfer of techniques for highland, rural housing improvement: Trombe solar walls, rural electrification system, composting latrines and improved stoves. 8. Training workshops on adaptation technologies (modern irrigation techniques, handling and upkeep of forage grains, associated grasses, clover in high altitude wetlands, animal care and health, shelter construction).
- Field days will be held under the 'learning by doing' modality for the development of skills in modern irrigation techniques, handling and upkeep of forage grains, associated grasses, clover in high altitude wetlands, animal care and health, shelter construction, improvement of rural Andean highland dwellings with solar wall heating systems, the installation of stand alone photovoltaic panels, composting latrines and improved stoves-

- Municipal officials, community representatives, prioritized educational institutions, heads of households will be trained in the diagnosis of dangers, vulnerabilities, interactive maps, prevention plans, community focus on topics related to adaptation to climate change, risk management, and environmental protection. Workshops will be held for the formation of five basic teams for damage assessment and needs analysis at the district level, including the staging of disaster drills.
- Some of the skills development activities will involve jointly community leaders and authorities: workshops for the establishment of teams for damage assessment, climate change risks management and the elaboration of a long term strategy for climate change risk management and its dissemination.

In order to facilitate advisory processes (external to the project's own resources) for local governments involved in the project, with the goal of developing capacities for the incorporation of risk management and climate change adaptation topics in its management documents, the project will establish, during the period of its activities, a permanent coordination with the following institutions: MINAM (Ministry of the Environment), DGCCDRH (General Office for Climate Change, Desertification and Water Resources, bureau of the Viceminister for Strategic Development of Natural Resources of MINAM), CEPLAN (National Strategic Planning) and the MEF (Ministry of Economy and Finance).

In parallel with the project's preparation, MINAM and CEPLAN were preparing in a coordinated manner the elaboration of methodological guidelines for the inclusion of climate change conditions in the concerted local development plans. The Ayninacuy Project foresees incorporating those methodological guidelines in the development support training sessions and/or updating of local governments' planification management documents, once the methodological guidelines are made public and assimilated by the project's team.

About the beneficiaries and the scale and combination of the activities:

The number of beneficiaries will be defined based on a census available with the local authorities SIFHO²⁶ (Sistema de Focalización de Hogares, Household Targeting System). Such survey identifies their living conditions, including the poverty levels; on the other hand their willingness to actively participate in the project will be also verified, giving priority to female heads of household mothers. Based on that census and on previous contacts with the communities, the scales of the activities have been determined, giving priority to the more extreme poverty levels.

The activities will be performed transversely, combining different themes and in a playful way to spark the interest of the peasants, considering they are not used to theoretical sessions, but rather

²⁶ The SISFOH (System of Household Targeting) is a fundamental tool for responding to the needs of social information. To this end, it has an information system about socioeconomic characteristics of households, called General Registry of Households (PGH, for its acronym in Spanish). In this context, the focus is the means by which State subsidies are assigned to the most needful and vulnerable families. The most recent information obtained from the SISFOH is from 2014. The census results can be found at: <http://www.sisfoh.gob.pe>

practical activities; therefore the methodology uses learning by doing and training materials produced in a playful manner they find most attractive and appealing.

Long-term adaptive management and dissemination strategy

Training activities are dynamic, based on training in action processes and focused on the identified production interests of the peasants. In addition, working with the *Yachachiqs* forms a central part of the plan, who are expert local farmers, to communicate the techniques and cultural support.

The project proposes a holistic management approach, through which: 1. a massive training both in modern adaptive techniques own of the breeding alpacas livelihood, and in local management practices risk of climate change will be made. 2. Demonstration modules will be implemented both in the modern adaptive techniques and in the improving of the quality of housing, in order to protect the health of household members; 3: training for community members to participate in the activities of planning and allocation of local budget will be implemented; 4. The practical activities, including adaptive techniques of raising alpacas and improving the quality of housing will be held around the Aynu, solidarity ancient practice that reduces the financial costs and multiply the workforce available in a discontinuous and rotative manner, to benefite the members of the same community; 5. agreements with local authorities will be established, among other purposes, to ensure continuity of project activities.

The particularities mentioned of the holistic management approach seek to establish a base of capabilities and successful experiences that: 1. Encourage and allow both members of the communities and local authorities to develop the type of activities proposed by the project to expand the radius of the proposal through collective or authorities initiatives tha make profit of the already developed capabilities, experiences developed in the project and partnership management. 2. Contribute to develop a culture of initiative in management and self-management. 3. Let recognize the benefits and conveniences of integral management and of the joint participation of different types of actors in order to help transform the approaches prevailing in planning and management.

On the other hand, it is planned to make agreements with local governments to incorporate in their monitoring activities the follow up of the project, and to replicate the models developed in the project. Other areas where the experience could be replicated are Puno (region with the major alpaca fiber production), Cuzco, Tacna and Moquegua.

In consideration of common characteristics of the geographical environment (the *puna* ecosystem) and the ancient practice of raising camelids for their fiber and other purposes, the project's possible replication is expected in other regions of Peru, as well as other countries that share the highland ecosystems and the ancestral practice of raising camelids and use of their fiber. These countries are Bolivia, Chile and Argentina. Just as the conditions for social and economic development are similar, the high probability of project replication is anticipated and/or transfer of experience and specific knowledge developed during the course of the project.

As project follow up strategy, these activities are foreseen: 1. Project impact evaluation (about six months after the end of the project); 2. Indicators follow up (at least one year after the end of the project); 3. A follow-up budget allocation to be negotiated with the local governments; 4. periodic visits by COPASA, after the end of the project (to be negotiated).

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.

This Project focuses its attention on Andean Highland communities in the provinces of Arequipa, Caylloma, Castilla, Condesuyos and La Union, located in the Arequipa Region, whose almost sole possible economic activity is alpaca breeding and high altitude crops, in large measure under the responsibility of women as a consequence of male migration in search of labor. The intervention will focus its gender efforts to propose a women involvement in the making decisions processes as well as in training events, because although male migration is important, women's participation in decision-making is still limited. It is necessary to settle upon appropriate strategies to promote and enhance the capabilities and skills of women in different manners, both productive and social.

The women participation model will be explicitly maintained throughout all the project activities. To make it sustainable beyond the project, both the project follows up and the follow up and replication agreements with the local authorities will include a section dealing with this subject.

Environmental Benefits:

The water management activities of the project will allow the recovery and expansion of the wetlands in the project area and will increase the conservation and improvement of the pastures. In addition, the expansion and preservation of the planted areas will reinforce this last aspect. Consequently, in the areas of project, the soil is going to be preserved, and the land degradation en erosion processes will be avoided while the carbon stock in those soils will increase. To make sustainable this reduction of climate change impacts the monitoring and follow up of the project results will be essential.

Recovering high altitude wetlands optimize their water infiltration capacity and the renovation of the stock of natural pastures.²⁷ High altitude paramo, *puna* and *jalca* wetlands are not isolated bodies of water but complex systems, and are, thus, essential to micro-basin dynamics.

In addition to being important as water sources, high altitude Andean wetlands are also essential habitat components for camelids of economic and ecological importance such as vicuña, guanaco and chinchilla. High altitude Andean wetlands are considered by the Ramsar Convention as ecosystems of great fragility associated with natural causes such as climate change, prolonged drought in the highlands and human intervention. With the wetlands recovery, the project will improve and will help to make sustainable the complex environmental services these systems offer.

The use of irrigation systems, with the incorporation of handling enclosures, in abiding with ecological features of the natural surroundings and the population's cultural characteristics, increases the productive capacity of the forage cover, as it preserves it from the processes of erosion and desertification.

²⁷ Andean Highland Wetlands: Regional Strategy: RAMSAR or The Convention on Wetlands of International Importance

Note: The water infrastructure we propose is innovative at high altitudes, avoiding negative impacts that may be associated with larger infrastructure, since it is small-scale appropriate infrastructure that is also natural resources management.

Social and Economic Benefits:

As explained in section C, considering direct and indirect beneficiaries, the implementation of the project may avoid, over 5 years, the losses of about 140.000 alpacas and vicuñas heads, corresponding to prevent losses in revenue from an order and \$ 2.8 million (USD) per year. An indirect consequence of such economic benefits could be the reduction of migration effects.

The project directly benefits 68,848 inhabitants in the highland provinces of Arequipa, Caylloma, Condesuyos, Castilla and La Union. It is aimed at meeting the needs of people living in extreme poverty, according to the Human Development Index (HDI), the targeted populations are located at 0.5219 and 0.5658 on the HDI place which is below the national average of 0.598.

The project will contribute to improving the quality of life of this population, by avoiding a worsening in the rural poverty in the highlands of the Peruvian Andes due to the negative effects of climate change. Effects such as the reduced availability of flows in springs and more irregular rainfall, both central to the sustainability of livelihoods obtained from high altitude livestock and dry farming, will be alleviated. The technologies that we propose to implement in the project will enable greater resilience to climate change, as much for their positive effect on income as for the cost savings gained from reducing negative impacts on health and livestock.

Beneficiaries

We have selected five (5) of the most remote provinces and 18 districts in the highlands (at elevation \pm 3,800 masl), where the effects of climate change and the lack of any focus on risk management and adaptation are evident. These provinces have a total population of 240,467 inhabitants in their rural areas, characterized by extreme poverty and vulnerability to the effects of climate change, with scattered populations, of which the project will benefit 68,848 beneficiaries directly. The direct beneficiaries comprise 28.63% of the Arequipa region's total population, while the remainder will benefit indirectly. (See Table 12).

Table N° 12

DEMOGRAPHIC DATA IN THE AREQUIPA REGION				
Population-Arequipa Region				1,259,562
(Residents)				Inhabitants
PROVINCE	URBAN (Residents)	RURAL (Inhabitants)	% Selected	SELECTED POPULATION (Head/House hold)
Province-Arequipa	868,922	78,862	7.16%	5,645
Province-Caylloma	0	89,042	7.16%	6,373
Province-Castilla	0	38,887	7.16%	2,783
Province-Condesuyos	0	18,340	7.16%	1,313
Province-La Union	0	15,336	7.16%	1,098
Province-Camana	57,776			
Province-Islay	52,914			
Province-Caraveli	39,483			
TOTAL	1,019,095	240,467		17,212
Percentage	80.91%	19.09%		
Total Covered by the project (Each head of household represents an average of 4 members)				68,848
Percentage of population attended directly by the Project				28.63%
Percentage of population attended indirectly by the Project				71.37%

Source: National Institute of Statistics and Computing-INEI (acronym in Spanish). **Chart:** Provided by COPASA Arequipa

Selected Project Areas:

Based on the analysis of vulnerability in each of the provinces, taking into account remoteness, poverty levels, and climate impacts, the most vulnerable districts have been selected. In Arequipa, the following most vulnerable districts were selected: San Juan de Tarucani, Chiguata, Polobaya, Pocsi and Quequeña, with a total population of 8,471 inhabitants.

In Caylloma, which has twenty districts, the most remote districts have been selected: San Antonio de Chuca, Sibayo, Callalli and Tuti; with a total population of 5,164 inhabitants.

Castilla, which has fourteen districts, of which the districts with the highest elevations, such as Orcopampa, Andagua, and Chachas, have been selected; with a total population of 12,373 inhabitants.

Condesuyos, which has eight districts, of which the districts of Chuquibamba, Andaray and Yanaquihua have been selected, being those that contain elevated poverty indices, with a population of 9,271 inhabitants.

La Union, which has eleven districts, of which those that are found in the most elevated areas have been selected: Pampamarca, Huaynacotas, and Puyca, with a population of 6,484 inhabitants (See Table 12).

Gender Issues as an additional project benefit

A core criterion for the development of the project's group activities will be the promotion and requirement of women participation in the training events/field training days and in the actions the community can develop to strengthen the alpaca raising way of life. Initially, the goal is defined as a minimum of 30%, a goal to be verified once the baseline is defined; this guideline will be oriented, in particular, toward motivating acceptance among the men of a broader participation by women.

A more decisive and committed involvement in the organization and decision-making considerations for taking on aspects of risk management will be promoted among men and women.

The development of skills and capacities will be encouraged and emphasized in the project activities (both productive and social), due to the fact that it is they who are dedicated mainly to alpaca breeding and feeding activities, due to the frequent absence of the men as a consequence of the search for other sources of income.

The strategies used to engage the various stakeholders convened by the project is the use of local mass media outlets and convocations seeking the participation of regional and local authorities.

The project will prioritize the outreach to and the participation of women with leadership profiles, so that they become promoters in support of other women and mobilizing agents for promoting actions that drive economic activities and others related to adaptation to the impacts of climate change.



Photo. Women working in various activities. **Source:** COPASA Archives-2012



Photo. Women's Participation in the dissemination and validation of the Project's design workshop in the Chivay district, June 2016

Other socioeconomic benefits, the quality of alpaca fiber

In building a panorama of sustainability for alpaca breeding, the enhancement of fiber quality occupies an important place, insofar as its quality, besides adding value to the product (which benefits the entire productive chain), contributes another variable favoring sustainability because it positions it better in the face of demand, both nationally as well as internationally, both for the production of fiber as well as goods made from it.

This project can have a positive impact on the quality of alpaca fiber to be produced, insofar as it will have an effect on three parameters of the alpaca raising: the quality of animal nutrition, the health of the alpacas and sheltering of animals in the face of exposure to inclement weather, such as intense rainfall which can impair the growth of high quality fiber. The project will not focus on other parameters that influence fiber quality.

Management of Environmental Impacts in Compliance with the Environmental and Social Policy of the Adaptation Fund

During the project concept phase, the project was categorized as **Category B** as a result of CAF's screening performed to identify potential environmental and social impacts and risks of the project. Also, a preliminary risk and environmental and social impacts assessment was undertaken. Later, during the Full Proposal's preparation stage, in May 2016, according to CAF's Environmental and Social Management Policy and procedures, an Environmental and Social assessment was undertaken with a visit to the project's area. This evaluation, carried out by a professional from CAF's Environmental Office, produced an IAS report (Social and Environmental Report), in accord with CAF's procedures for Environmental and Social Assessment. The IAS report is included in this document, as Annex D. In consideration of the results of such evaluation, the project's Environmental and Social Management Plan (Annex B of this document) was prepared and was approved by COPASA, entity that would be the project executor.

Part of the environmental and social assessment's objectives with the visit to the project area was to confirm the preliminary assessment of risks and environmental and social impacts (which was included in the project concept document). The E&S assessment report included the following table that synthesizes the results of verification of compliance with the Adaptation Fund's environmental and social safeguards.

Because of the criterion of discretion requested for the dissemination of the project (as described in section H of this document), the consultation on the results of the environmental and social assessment, as well as about the Plan Environmental and Social Management Project, was postponed for the start of the project. This was also decided in order to avoid the perception of the project as guaranteed promise. As it is proposed that full consultation on the project objectives, activities and concerns about it, will be implemented once the project financing shall be notified

by the Adaptation Fund, the consultation on the results of the Environmental and Social Assessment and on the project Environmental and Social Management Plan will be included in the same set of activities.

During project implementation, CAF's annual project performance report will include the status of implementation of the Environmental and Social Management Plan and also of any corrective actions that had considered necessary to avoid, minimize, or mitigate environmental and social risks. On the other hand, CAF's project terminal evaluation reports shall also include an evaluation of the project performance with respect to environmental and social risks.

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

In the five provinces of the Arequipa Region in which the project's target population lives, there are some 42,300 inhabitants, whose livelihood is almost exclusively based on raising alpacas, while the alpaca population exceeds 300,000 animals. On the other hand, Peru is the world's principal producer of alpaca fiber, with 83% of the world alpaca population (between 3 and 4 million head). Alpaca herding is distributed throughout 17 departments in the country, while Arequipa is one of the three departments concentrating the larger part of alpaca production.

If in fact it is true that climate change and climate variability, from many years, have had an impact on this important livelihood as much for the Peruvian economy as well as for its culture, identity and traditions, the project's objective is to strengthen the livelihood by building alternatives to make it sustainable. Additionally, the project seeks to develop a low-cost integrated management model that is replicable.

The integrated management model is proposed as a parallel and coordinated management of activities in a set of critical variables, oriented at strengthening the alpaca raising livelihood, with the intention of coordinating efforts among the different variables in order to optimize results and avoid low effectiveness that creates both the disarticulation among actions as well as unidirectional action.

The variables or critical dimensions of the at-risk livelihood (alpaca raising) that the project encompasses are: ensuring animal nourishment, improving water resource management practices, institutional and community climate risk management, awareness development (communities already show advances in this aspect), technical training in already proven best practices and the improvement of family housing (protection offered by the traditional house has been quite overwhelmed by climate change).

The project has not taken on other variables or critical dimensions of this set of problems, due to the complexity accompanying the management of those other dimensions, and, in consequence, on account of the level of specialization and concentration that this management requires. This is the case of topics related to the productive chain, such as: genetic improvement, the strengthening of activities that diversify household finances and the local economy such as weaving and crafts production, or the diversification of offerings of alpaca-based products (meats, preserves). The project considers that these dimensions form part of an integrated management model at a higher level, more at the program level than at the project level. The project is proposed

as an integrated management proposal in which its objectives make up part of a broader perspective that requires being completed in conjunction with other complementary projects.

The first response that project proposes regarding the most cost-effective alternative for advancing toward strengthening and sustainability of the alpaca raising livelihood in the areas selected is the aforementioned integrated management model, which permits avoiding the loss of efforts made in different variables or their waste due to disarticulation. As an example, one can take the case of the improvement of animal feed availability: good water management practices allow for extending the time over which this resource is available, and this, in turn, makes it possible to sustain or improve the results of crops for animal feed. However, if the variables of these crops have not been dealt with adequately, (improvement in practices, overcoming limitations in the concepts regarding appropriate seeds, in improved species, facilitating access to them), the benefits afforded by the adequate management of water resources can be lost or wasted due to the absence of a parallel development in those other variables or due to the lack of coordination with that parallel development. In the same example, in comparison with the unarticulated aforementioned variables, under the same costs, integrated management will permit more effective results, due to synergy.

The absence of an integrated vision and of coordination in the planning and execution, the unidimensional solutions or actions, arise from budgetary limitations, from the habitual practices and from management capacity both of the producers as well as the producers' organizations, of the governments at distinct levels and of other institutions, and also from division of roles at the institutional level. The project seeks to give visibility to the results of its proposed integrated management in order to facilitate and encourage its repetition.

The second response that the project proposes regarding the most cost-effective alternative to move toward the strengthening and sustainability of the alpaca raising livelihood in the areas selected is the focus on active participation and mutual action of the target population. The target population's active participation means that the beneficiaries take an active part in the process of a product (be it the construction of a shelter, the planting of cereal, etc.), contributing their own labor and eventually minor resources. Mutual action implies that a community group (neighbors, family members) participates in the process of generating a product for one of the beneficiaries, contributing collective labor.

Mutual action has important and current antecedents in the culture of the inhabitants in the project's area of interest (this was confirmed during the consulting activities).²⁸.

²⁸ With origins that harken back to the Tawantinsuyo, *Ayni* was a system of generalized family reciprocity among the members of the *ayllu* (endogamic communities), directed at the construction of public structures and to agricultural work. In *Ayni* the help that a group of individuals or members of a numerous family offered to carry out tasks had a counterpart of reciprocity, the initiating 'donor' group would later become the 'beneficiaries'. This millennial system of reciprocal work continues strongly rooted not only in Peru's rural Andean communities, but also, in the mestizo populations of Ecuador and Bolivia.

The *Minka*, or collective work, has another connotation. With that, the collective carried out works that benefitted the *ayllu* as a whole: local irrigation canals, bulwarked fields, crops terracing, bridges, temples, cities, local storage of products, corrals, fences, etc. This system enveloped and obliged all the members of the community to work to the benefit of the community or *ayllu*. In contrast to the *ayni*, the *minka* did not imply a moral debt nor did it oblige the payment of any kind. The *minkas* were fundamental for maintaining links of solidarity and allowed for the *ayllu*'s survival.

Participative action in the generation of a product (such as the recovery of a highland wetland, the improvement or construction of rustic canals) contrasts in various manners with the generation of the same product by means of the contracting of consulting companies or contractors. In this last case, works or services are delivered to its beneficiaries as a finished product or service, with the common result being the exclusion or distancing of beneficiaries from the corresponding process to the generation of the product.

It is common to find that with the generation of a product by means of contracting consulting companies or contractors, the absence or distance of the beneficiaries from the process does not facilitate that they build a meaningful relationship (personal, affective, social, cultural) with the contributed product or service and as a consequence does not favor a value ownership of the contribution. On the other hand, that distance is the frequent cause that the products or services, although they are “adequate” for the paradigm of consultant or contractor, may not respond to the reality, to the interpretation of the problems and to the values of the beneficiaries. So, for example, the consulting process allowed for the verification of examples of shelters delivered to the producers in which important technical errors were evident and a use for storage instead of animal protection was found.

In the participative action proposed by the project, the producers, whose livelihood is at risk, are involved in all the activities: they are trained in best practices in a learn-by-doing modality, they receive training from a leader recognized by the same community, with expert knowledge in productive activities (trained and assisted by a technician with experience) and they participate in the risk management activities. What is more, they participate in group activities for a beneficiary (who can be the participant) or for a group of beneficiaries. Involvement in the participative action allows for the building of ties and meanings (personal, affective, social, cultural) with the practices and with the result of that participative action. Additionally, the contribution of work, and occasionally of materials accessible to producer are capitalized in the project as a cost reduction. In this manner, a social bond is woven around the project, traditions of mutual participation are reactivated (*Ayni* and *Minka*, see footnote on previous page) and meaningful values are forged in the participants, in relation to the delivered products and services and also in relation to the mutual action. The contribution of work and/or materials, while reducing very important project costs, allows for ownership of the good or service, and increases the guarantee of the product's sustainability (a reservoir, for example, or the rustic canals connected to it) and of the social dynamics that allow for its replication under similar frameworks.

Mutual participative action entails the project covering its training needs, and fulfilling its follow-up, evaluation and reporting, due generating its own costs. However, the reduction of total costs per activity, the guarantee of ownership and the potential for replication this creates increases in a significant way the good's effectiveness (construction of shelters, raising livestock fencing, planted area, etc.) or of a generated service (training, the vegetal matter production of a highland wetland, etc.). In the project's outlines, in order to achieve the same results (in terms of the same product or service) the cost-effectiveness of mutual participative action is shown to be qualitatively and quantitatively superior to the cost-effectiveness obtained by the contracting of consultants or contractors; additionally, mutual participative action offers very attractive social gains.

There is another option of intermediate participative action between the mutual participative action described above and the contracting of consultants or contractors of the 'turnkey' kind: the contracting of consultants and contractors that use local labor. If indeed the cost-effectiveness of this option in terms of labor costs is more attractive than the option of contractors who introduce outside workers into the target area (rural labor is less expensive than urban), the cost-

effectiveness advantages of mutual participative action remain superior, for the same aforementioned reasons.

In Annex A, a cost comparison exercise is presented for the three aforementioned options: 1. With *Ayni* type labor (Ayninacuy Project), 2. With rural labor. 3. With urban construction labor. If the figures utilized in the exercise do have slight differences with the project’s final budget, for the same set of activities, a very important difference in costs can be observed regarding Option 1. “With *Ayni* type labor”: Option 2 costs are higher by 181% with respect to Option 1, while the costs of Option 3 are higher by 271% with respect to Option 1. The table shown below presents the summary of the comparison.

Table 13

Labor cost comparison for three alternatives to achieve the same products that require labor inputs.

	ALTERNATIVE 1 With <i>Ayni</i> type labor (Ayninacuy)	ALTERNATIVE 2 With rural labor	ALTERNATIVE 3 With urban construction labor
Total Cost of project implementation	2,921,554	5,309,954	7,937,194
% Comparative vs Alternative 1 (<i>Ayni</i> Alternative) for total cost of project implementation	100%	201%	336%
Comparative evaluation of labor costs	LOWEST COST	MIDDLE COST	HIGHEST COST

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

Alignment of the project with the institutional and policy framework at regional (subnational) level:

The Regional Strategy for Adaptation to Climate Change in the Arequipa region 2008-2018 states:²⁹

The Strategy includes among its axes, number 6.2. Strategic axes:

²⁹ http://www.regionarequipa.gob.pe/arma/index.php?option=com_content&view=article&id=1168&Itemid=473

file://servidor/Users/proyectos/Mis%20Documentos/Downloads/estraregcambli.pdf

1. Climate Change Policy, inserted in the Regional Development Plans and Local Governments.
3. Protection of biodiversity and water sources.
5. Training, awareness and dissemination at all levels.

In the development of this axis, the strategy proposes the following objectives:

- **6.3.3. Protection of biodiversity and water resources** The Arequipa Region needs to implement in a prioritized manner a Special Program for the protection of water resources, including the development of harvesting strategies and sustainable water management,
- **6.3.6. Validate adaptation measures** The development and validation of adequate adaptation measures for the livestock sector, with the involvement of the same rural breeders is equally another strategic option.

The project activities related to cultivation and rationalized use of water (water conservation and improvement of high altitude wetlands in use) will develop these two objectives, 6.3.3 and 6.3.6.

The Concerted Development Plan 2013-2021 of the Arequipa Region.

The Plan's General Objective, "Natural Resources and protected, recovered and sustainably utilized environments", is developed in the following specific objectives:

1. Conservation and sustainable use of natural resources and biological diversity.
2. Integrated and efficient water and regional basins management.
3. Adequate environmental quality absent ecosystem encroachment and recovery of degraded environments.
4. Consolidate Environmental Governance, a high level of awareness and environmental culture, and active citizen participation.
5. Eco-efficient and competitive development of the private and public sectors, promoting economic and environmental potentialities and opportunities.

With the goal of developing the former objectives, in the Plan the following strategies have been designed:

- Drive the integrated management of basins prioritizing the conservation of the headwaters' of the basins, and the sustainable use of water resources and soil for social well-being.
- Drive the implementation of water seeding and harvesting projects in the highland areas of the region for the improvement of productive activities and as measures for climate change adaptation and environmental risks.
- Drive measures for the improvement and conservation of natural pastures, wetlands, and high altitude wetlands, achieving their sustainable use and avoiding overgrazing or the intromission of activities (mining, construction, etc) which lead to their destruction.
- Strengthen the weather monitoring system through hydrological and meteorological stations and by implementing an early warning system to prevent environmental risks.

The project's central activities are framed within the former objectives and strategies:

- In their goals and focus, the activities related to the strengthening of alpaca breeding as an economic activity (Component 1) develop the specific objective 5. (Eco-efficient and competitive development of the private and public sectors, promoting economic and environmental potentialities and opportunities).
- Activities related to the harvesting and rational use of water (water conservation and improvement of high altitude wetlands in use) develop specific objectives 2 (Integrated and efficient use of water and regional watersheds) and 3 (Adequate environmental quality absent ecosystem encroachment and recovery of degraded environments), as well as the second strategy (Drive the implementation of water seeding and harvesting projects in the highland areas of the region for the improvement of productive activities and as measures for climate change adaptation and environmental risks), and the third strategy (Drive measures for the improvement and conservation of natural pastures, wetlands, and high altitude wetlands, achieving their sustainable use...).
- Activities related to rationalized use of pasturing areas also develop the specific objective 3 and the third strategy mentioned above.
- The manner in which the skills development activities are anticipated (with the active participation of the communities) develops objective 4 (Consolidate Environmental Governance, a high level of awareness and environmental culture, and active citizen participation).
- Activities related to the implementation of early warning modules develop the fourth strategy enumerated above: Strengthen the weather monitoring system through hydrological and meteorological stations and by implementing the early warning system to prevent environmental risks.

Relationship with National Policy

The AYNINAKUY project is aligned with the following national policies, plans and priorities for sustainable development and adaptation to climate change (including national guidelines):

1.- NATIONAL STRATEGY FOR FACING CLIMATE CHANGE (ENCC), approved by Executive Order Nº 011-2015-MINAM

In its vision for 2021, Peru is adapting to the adverse effects of climate change, and takes advantage of the opportunities imposed by climate change, establishing the basis for a low-carbon, sustainable development.

In the first of its strategic objectives, “The population, economic agents and the State increase awareness and adaptive capacity for actions in the face of climate change’s adverse effects and opportunities.” The project aligns itself with three of the indicators defined for this strategic objective: 1. An increase in the proportion of persons whom know what actions to take for managing risks in the context of climate change and for adaptation in the face of climate change. 2. An increase in private investment and in the quality of public spending for adaptation to climate change. 3. A reduction in the loss of human life, and economic losses due to disasters arising from climate variations.

2.- The “BICENTENNIAL PLAN, PERU 2021”

With regard to soil, Axis Six of the Plan indicates that desertification, defined as the process of land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, such as climatic variations and human activities, constitutes a high priority environmental problem in the country.

On the other hand, under the rubric OBJECTIVES, GUIDELINES, PRIORITIES, GOALS, ACTIONS and STRATEGIC PROGRAMMES, point C of the PRIORITIES notes what category should be prioritized: 1. Sustainable use and management of natural resources. 2. Improving environmental quality (air, water and soil). 3. Ensuring adequate water availability throughout the country. 4. Adapting the country to climate change. 5. Implementing the National Environmental Management System.

In conjunction, the project develops the aforementioned article of axis 6: deal with, preferentially, soil degradation resulting from climatic variations. Likewise, the project responds to the prioritization that the Bicentennial Plan accords ensuring the adequate availability of water, and climate change.

3.- National Environmental Action Plan - Peru 2011-2021 PLANAA

Prioritized goals. GOAL 6

6.5.-conservation and sustainable use of ecosystems and genetic resources (Camelids)

Goal No. 5 - Forests and Climate Change the following: (See Table 14).

The State has developed the Multisector Plan against frost and cold fronts, which aims at articulating multisector efforts for prevention and risk reduction during frosts and the cold season of 2015, as well as preparedness activities; developing Government intervention strategies, designed to intervene in those critical areas where the population is highly vulnerable and that given their geographical location, the state's presence is weak; with the goal of protecting the life and physical integrity of the local population and their livelihoods. This nation-wide plan is in keeping with the implementation of the programme in an area that needs large amount of support.

In conjunction, the project is consistent with the Multi-sector Plan, and as such corresponds to an intervention strategy focused on prevention and risk reduction in face of cold spells. Below are the projections established by this Multi-sector Plan:

Table N° 14

Strategic Action	GOAL FOR 2017	GOAL FOR 2021
Estimate and reduce vulnerability in the face of climate change.	Vulnerable areas in the face of climate change at the regional and national levels, identified	Vulnerability has been reduced and/or adaptation capacity in the face of climate change has been increased at the local, regional and national levels.

Strategic Action	GOAL FOR 2017	GOAL FOR 2021
	Responsible entities: RG, LG, MEF, MINAM, MINAG, MVCS, MINEM, MINSA, MINEDU, PRODUCE. ³⁰ Co-Responsible entities: ANA, SENAMHI, INDECI, National Commission on Climate Change and like entities at the regional level, Businesses, Civil Society.	
Develop and implement Regional and Local Strategies of Adaptation and Mitigation in the face of Climate Change.	50% of regional government develop and implement strategies of adaptation to and mitigation of climate change.	100% of regional governments develop and implement strategies of adaptation to and mitigation of climate change.
	Responsible entities: RG, MINAM. Co-Responsible entities: MINAG, SENAMHI, IGP, LG, Universities, Businesses, Civil Society. ³¹	
Reduce land and soil degradation 118 and, as well as increase the capacity to mitigate the effects of drought.	The area of degraded soils has been reduced by 30% in relation to the updated baseline. – Early Warning System for Drought, implemented. –The area of zones affected by drought have been reduced by 5%.	- The area of degraded soils has been reduced by 50% in relation to the updated baseline. - The area of zones affected by drought have been reduced by 20%.
	Responsible entities: MINAM, MINAG, SENAMHI, ANA, RG, LG. Co-Responsables: MEF, MINEM, PRODUCE, CONCYTEC, IGP, National Commission for the Fight against Desertification, Unions, Businesses, Civil Society. ³²	

Source: Multi-sector Plan in the face of Frosts and Cold Spells 2015³³

The project will be executed by the COPASA (acronym corresponding to Special Project of the Regional Government of Arequipa), **institution** responsible for the Integrated Rural Development Program, with a focus on Disaster Risk Management and Adaptation to Climate Change, aimed at the rural poor and those in extreme poverty.

Projects executed by COPASA possess the category of Special Project, which facilitates the execution of projects in a fast, versatile and autonomous manner.

Intended nationally determined contribution (INDC) from the Republic of Peru

The Peruvian iNDC³⁴ (September 2015) defines the following sector priorities in adaptation:

- i. Water (Water resources)

³⁰ RG: Regional Government, LG: Local Government, MEF: Ministry of Economy and Finance, MINAM (Spanish acronym): Ministry of the Environment, MINAG: Ministry Agriculture, MVCS (Spanish acronym): Ministry of Housing, Construction and Sanitation, MINEM: Ministry of Energy and Mines, MINSA (Spanish acronym): Ministry of Health, MINEDU: Ministry of Education, PRODUCE (Spanish acronym): Ministry of Production.

³¹ SENAMHI (Spanish acronym): National Meteorology and Hydrology Service of Peru, IGP (Spanish acronym): Geophysical Institute of Peru, Universities, Businesses, Civil Society

³² ANA (Spanish acronym): National Water Authority, CONCYTEC (Spanish acronym): National Council on Science, Technology and Innovation, National Commission for the Fight against Desertification, Unions, Businesses, Civil Society.

³³ <http://www.pcm.gob.pe/wp-content/uploads/2015/07/PLAN-MULTISECTORIAL-ANTE-HELADAS-y-FRIAJE-2015-10.06.2015.pdf>

³⁴ United Nations Framework Convention on Climate Change (UNFCCC).

- ii. Agriculture
- iii. Fishery
- iv. Forestry
- v. Health

The mentioned INDC defines, as vulnerable populations to be addressed on a priority basis, the following: rural populations related to subsistence Household farming and/or weak market linkages, many of them grouped in peasant and indigenous communities; small farmers; artisanal fishermen; native communities; small forest producers; and, from a health perspective, infants, women and seniors.

For each one of the priority sectors enumerated above, the INDC has defined scopes, objectives and goals. For the project these are pertinent in the sectors of health and water. Below are the scope and intermediate objectives defined for these two sectors:

- Water Sector
 - Scope: Includes supply (resources) and demand (use): direct human consumption, agriculture and livestock, energy, mining and industry. It includes physical and eco-systemic infrastructure.
 - Intermediate objectives: Encourage and promote actions and projects that increase the availability of water in the context of CC.
- Health Sector
 - Scope: Considers increasing the adaptive capacity of health services in order to face CC, and the resilience of vulnerable populations to its effects.
 - Intermediate objectives: Reduce vulnerability and increase the population resilience to the health effects of climate change.

In addition to the prioritized sectors, the INDC has defined five crosscutting areas. The goals of two of them are related to the project objectives and activities:

- Poverty and Vulnerable Populations Approach goals: Increase the number of programs and instruments against poverty that incorporate adaptation to climate change.
- Gender and Intercultural Approach
 - Formulation and approval of the Action Plan on Gender and Climate Change
 - Encourage the participation of indigenous organizations in actions on climate change

Peru Gender Policy Framework

Peru, in response to international commitments, underwritten with the goal of eradicating gender gaps and all forms of sexual discrimination, has the challenge of incorporating in public policy a gender focus. The Ministry of the Women and Vulnerable Populations counts on National Plans such as the “National Plan for Gender Equality” (PLANIG) 2012 – 2017 and the “National Plan against Violence to Women 2009 – 2015”. The PLANIG is the policy instrument whose objective is interweave gender focus in the Peruvian State’s public policies, in its three governmental levels, guaranteeing the equality and the protection of human rights for women and men, no discrimination and the full development of individual and potential and capacities. In this manner,

it is expected to guarantee all people the exercise of their rights to equality, dignity, free development, well-being and autonomy, as well as eradicating all forms of discrimination, in order to reach real and effective equality.

All of this, in the framework of compliance with Law N° 28983,35 “Equality of Opportunities between Women and Men Act” and the Legislative Decree N° 1098, “Organization and Roles of the Ministry of the Women and of Population Vulnerables Act”, in its **Article 3º** states:

3.1 From the principles of the Act

The present Law is based on the fundamental principles of equality, respect for liberty, dignity, security, human life, as well as the recognition of the pluricultural and plurilingual nature of the Peruvian nation.

3.2 The State drives the equality of opportunities between men and women, considering the following principles:

- a) The recognition of gender equity, banishing practices, concepts and languages that would justify the superiority of one of the sexes, as well as any kind of sexual or social discrimination and exclusion.
- b) The prevalence of human rights, in their full sense, highlighting the rights of women throughout their lives.
- c) Respect for Peru’s pluricultural, multilingual and multiethnic reality, promoting social inclusion, interculturality, dialogue and exchange in equitable conditions, democracy and mutual enrichment.
- d) Recognition of and respect for children, adolescents, young adults, the elderly, persons with disabilities or minority groups most affected by discrimination.

In line with the “National Plan for Gender Equality” (PLANIG) 2012 – 2017, the Ayninacuy Project proposes the following contributions:

Table 15

Ayninacuy Project proposes the following contributions to National Plan for Gender Equality

Strategic Objective	Results	Project contribution
Promote and enhance gender mainstreaming at the three levels of government	National and regional public entities have responsibilities for implementing gender equality policies.	Regional government, by means of Special Project COPASA, supports gender equality policies implementation through AYNINAKUY Project.
	Public entities identify gender gaps and allocate budget for their reduction.	AYNINAKUY will elaborate a list of gender gaps and will request specific budget to the central government to contribute to their reduction.
	Participatory budget and the National Public Investment System (SNIP) include a gender perspective in project	AYNINAKUY will support local governments in their participatory budget preparation,

	prioritization and analysis in assessment, when needed.	to prioritize projects with a gender perspective.
Strengthen a culture of respect and of appreciation of gender differences	Eradication of stereotypes and discriminatory practices based on gender differences.	AYNINAKUY will promote a culture of equality and enhance women's leadership within their communities.
	Public entities adopt inclusive language for their communications and official documents.	AYNINAKUY will use inclusive language in all its official communications and training materials.
	Education institutions promote sharing domestic responsibilities.	AYNINAKUY will work with municipal schools to raise awareness about the importance of sharing domestic responsibilities.
Reduce education gaps between women and men	Families living in situation of poverty and extreme poverty in rural areas improve children care.	AYNINAKUY will improve dwelling conditions by introducing water and sanitation and heating services, thus improving health and living conditions of beneficiaries, including children.
Guarantee economic rights of women with the same conditions of equality and equity than men.	Labour skills development programs, employment creation and productive projects, supported by the State, guarantee a gender quote by promoting Andean and Amazonian rural women participation, including those with disabilities.	AYNINAKUY will promote equal and fair labor conditions for both women and men working in project activities.
Increase women and men participation in decision-making processes and in citizen and political participation.	Public entities implement affirmative action measures to guarantee women representation in decision-making positions.	AYNINAKUY will support local campaigns that address these issues.
Value women's contribution to natural resources sustainable management	Risks management and natural disasters prevention, as well as natural resources care, with a gender perspective.	AYNINAKUY's risks management activities will include a defined minimum participation of women.
	Rural women receive information, training and technology transfer for natural resource management: water, land and forest	AYNINAKUY will include training activities for both women and men.

	Rural women use clean technologies in domestic combustion processes	AYNINAKUY will promote improved cooking facilities within households, which reduce greenhouse effects and contribute to health improvement.
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Additionally, among the goals defined for the Project, for the trainings, a minimum of participating women was defined (30% for all the activities, 40% for housing improvement, goals to be confirmed after the baseline is established). The project established also, in line with this normative framework and based on the consulting activities, to develop a guide on development and family and personal strengthening oriented with a priority toward women. As regards the formation or strengthening of platforms (committees) of civil defense (18 district and 36 communal), the project established the goal of inclusion of at least one woman in the formation of each platform.

What is more, for the beneficiaries of the project’s products, once initiated the project, an agreement will be established, with the participation of the communities and authorities, for the selection of beneficiaries. One of the project’s goals is the prioritization of women heads of household in the criteria of the selection of beneficiaries.

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.³⁵

The environmental impacts of the project activities are expected to be minimal. Therefore EIA (Environmental Impact Assessment) and water protection specific regulations will not be applicable. The construction activities will be also minimal and hand made, and they will have low environmental impact; consequently no specialized building codes will be applicable.

To comply with the Environmental and Social Policy of the Adaptation Fund, a CAF environmental officer, to verify if all the E&S applicable AF’s principles are well managed by the project, shall conduct an environmental and social evaluation. Findings of this evaluation

³⁵ LEGAL REGULATIONS THAT GUIDE THE EIS (Environmental Impact Study; Spanish acronym-EIA):

- Law N° 28611, General Law on the Environment.
- Law N° 28245, Framework Law of the National Environmental Management System.
- Law N° 27446, National System for the Assessment of Environmental Impact Law.
- Legislative Decree N° 1013, Legislative Decree that approves the Law of the Creation, Organization and Functions of the Ministry of the Environment.
- Law N° 26839, Law for the Conservation and Sustainable Use of Biological Diversity.
- Law N° 26834, Protected Natural Areas Law.
- Executive Order N° 038-2001-AG, Regulations for the Protected Natural Areas Law.
- Law N° 27314, General Law of Solid Wastes.
- Executive Order N° 029-94-EM, Regulations for Environmental Protection in Electrical Activities.
- Law N° 28749, General Law of Rural Electrification.
- Executive Order N° 025-2007- EM, Regulations for the General Law of Rural Electrification.
- Executive Order N° 031-2007-EM, Regulations for the Organization and Functions of the Ministry of Energy and Mines.
- Decree Law N° 25844, Law of Electrical Concessions.
- Law N° 27783. Decentralization Framework Law.
- Ministerial Resolution N° 535-2004-MEM-DM, Regulations for Citizen Participation for the execution of Energy Activities within the Administrative Procedures for the Assessment of Environmental Studies.

shall be solved by mitigation or management actions/solutions described in an E&S Management Plan for the project, defined by CAF responsible environmental officer (to be complementary to any other E&S management plan existing and applicable to the project).

Normally, CAF Environmental officer responsible of formulating such plan, shall visit the project Area and interview both the project proponent and the communities representatives.

For the project implementation phase, the project proponent shall designate an officer responsible for the E&S Management Plan implementation, monitoring and reporting. A CAF Environmental officer CAF will review the periodic reports of the implementation and monitoring of the E&S Management Plan, and if he/she considers it adequate, the necessary additional request or verification visit shall be executed.

NOTE: At the end of the document a list of minimal environmental impacts is shown, to demonstrate that such impacts are minor.

COPASA for the Self-sustaining development of Arequipa was originally created by Executive Order No. 002-97, PRES, under the technical cooperation agreement between the governments of Peru and Germany; it has technical, administrative and financial autonomy, with budgetary allocations provided by the Regional Government of Arequipa as well as funding and assistance from various sources of national and international cooperation, aimed at the implementation of projects related to food security, rural development, risk management, climate change adaptation, rural social infrastructure programs and strengthening the operational capacity of the Regional Public Administration.

The project does not affect nor is contrary to the environment, it will neither change nor influence waterways. To the contrary it will support their recovery and preservation, combining modern technology with ancient practices without affecting the customs and traditions of the people in the areas selected.

COPASA has operated since 2007, under the aegis of Regional Ordinance No. 090-Arequipa, once the financial support of the government of the German republic came to an end. Its roles were redefined, becoming the counterparty to the Regional Government of Arequipa for Technical and Financial Cooperation Agreements it may enter into, or have delegated to it.

COPASA's scope of action are the eight provinces of the Arequipa Region, giving priority to the less developed districts and annexations in which the highest levels of extreme poverty are concentrated.

- a) The project is aligned with the policies, national development plans and sub-national focus on adaptation to climate change, including the following standards:
- b) General Environmental Law (Law No. 28611 of 13 OCT2005) Framework Law of the National Environmental Management System (June 2004) Article 9 defined as functions of the National Environmental Authority follows: "a) propose, coordinate, direct and evaluate the National Environmental Policy b) Approve the Plan and the National Environmental Action Agenda". Similarly, Article 4 paragraph 4.1 states that the environmental functions under the responsibility of the entities that make up the National Environmental Management System are carried out in a coordinated, decentralized manner and subject to the National Environmental Policy Plan and the National Environmental Action Agenda and cross-sector rules made to achieve their objectives.

- c) Executive Order No. 012-2009-MINAM (May 2009), approved the National Environmental Policy, incorporating in its paragraph 6, Compliance Standards, the obligation to establish specific targets and performance indicators among other provisions, which should allow monitoring their effective implementation, throughout all three levels of government.
- d) With the international treaties signed by the country, the political constitution of Peru, according to paragraph 22 of Article 2 declares the fundamental and inalienable right to enjoy an environment adequate and balanced for the development of life, coupled with the Ministry of Environment which is the lead agency in the environment sector and the competent authority for the formulation of the national environmental policy applicable to the three levels of government in accordance with the provisions of Legislative Decree 1013 of May 13, 2008 which approved the law of creation, organization and functions of the Ministry of Environment.
- e) The objectives of the Ministry of Environment are focused on four strategic pillars that define the full and gradual incorporation of the environmental dimension in public policies:
 - Axis 1: Sovereign State and Guarantor of Rights
 - Axis 2: Improving the quality of life in a healthy environment
 - Axis 3: Reconciling the harmonious use of natural resources
 - Axis 4: Natural Healthy Patrimony: individual and social duty to preserve it.

Framework Law for Decentralization, (Act No. 27783 of 17JUL2002)

Organic Law of Regional Governments. (Act No. 27867 of 16NOV2002)

Organic Law of Municipalities (Law No. 27972 of 26MAY2003)

Organic Law for Sustainable Use of Natural Resources
(Act No. 26821 of 25JUN1997).

As described in section C, the Project has been classified as category B according to the procedure of environmental and social screening conducted by CAF. While the negative environmental and social impacts of the project are expected to be minimal or nil, CAF conducted an environmental and social assessment to verify this assumption and as a result of the evaluation will formulate a Plan of Environmental and Social Management for the project and a Monitoring, Reporting and Assessment of Environmental and Social Management Plan for the Project. During the project implementation in their annual performance reports of the project, CAF will include a description of the status of implementation of the Environmental and Social Management Plan, as well as corrective measures that have been necessary to implement in order to avoid, minimize or mitigate environmental and social risks. CAF's final and mid-term reports will also include an evaluation of the project with respect to environmental and social risks.

The preliminary assessment of the project's proponent states that no additional assessment for compliance is required for the following aspects are central to the environmental and social principles of the Adaptation Fund. While this statement is recognized as reasonable, CAF's Social

and Environmental Assessment shall, if applicable, include the relevant actions in the Plan for Environmental and Social Management.

Norms that the Project must fulfill

Below are included norms with which the project must demonstrate compliance or that serves as a reference point for carrying out an activity.

- **Water Quality for Human Consumption Regulations.** Given that the project includes the implementation of 5 water treatment units for human consumption, the project will require from the contractor, prior to final reception of the installations or equipment, that the provider demonstrate through samplings and analysis that the treatment complies with the standards established in Water Quality for Human Consumption Regulations, contained in Executive Order N° 031-2010-SA. Prior to the beginning of operations for the water treatment units, the project will verify that the pertinent registry and authorization requirements are satisfied per the aforementioned regulations.
- **National Strategy for the Preservation of Wetlands in Peru.** In particular, with respect to the Strategy's section 5.3.6. Design, development and recovery of technologies for the management of wetlands, and section 5.4., Management and Sustainable Development Activities, promotion of traditional use techniques for the management of wetlands, the project will report to the Ministry of the Environment on the progress and results, in order to ensure the dissemination of the experience, and the sharing of lessons learned.

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

The project does not overlap with or support activities that are already supported with other funding sources. Consequently, there is not duplication of project with other funding sources.

Other initiatives in the Arequipa Region that complement the Project were identified:

- **MULTISECTOR PLAN IN THE FACE OF COLD SPELLS AND FROSTS 2014** (<http://www.pcm.gob.pe/wp-content/uploads/2014/05/PLAN-MULTISECTORIAL-ANTE-HELADAS-y-FRIAJE-2014.pdf>).

In section 6.3., actions by the Ministry of Agriculture and Irrigation – MINAGRI, the following is expected: For the execution of activities foreseen by MINAGRI in order to comply with the Multisector Plan ara la ejecución de las actividades previstas por el MINAGRI para dar cumplimiento al Plan Multisectorial in the face of Cold Spells and Frosts 2014, a general amount of USD 2.42 MM (8,352,684 PEN) has been budgeted, for the acquisition of:

- Veterinary Kits (9,136 units),
- Hay Kits (74,670 units).

Said budgets can be found within the framework of the Multisector Budgetary Plan 068 Reduction of Vulnerability and Emergency Care for Disasters, The area of intervention

with the product encompasses districts in Apurímac, **Arequipa**, Ayacucho, Cusco, Huancavelica, Junín, Pasco, Puno and Tacna, places where it will be held.

These emergency assistance actions can potentially benefit the members of the participating communities in the project. In the face of the fact that the activities and budgets are already pre-defined and due to the nature of the activities, the veterinary kits can be a complement to project actions.

Se identificaron proyectos de otros fondos, relacionados temáticamente con los objetivos y/o actividades del proyecto Ayninacuy. Las actividades de algunos de ellos tienen aproximación geográfica, pero el área de interés de ninguno de ellos coincide con el área de interés del proyecto Ayninacuy. A continuación se presenta una reseña de ellos:

Other funds projects, thematically related to the objectives and / or activities of the Ayninacuy project were identified. The activities of some of them have geographical proximity, but the area of interest of none of them match the area of interest of Ayninacuy project. Following, a summary of them is presented:

Table 16

Other funds related projects

Sector/Issue	Project	Implementing Agency	Agency	Loan US\$MM
World Bank – WB - http://www.worldbank.org/projects/				
At the beginning of July 2016, WB web did not registered active projects in the project zone related thematically with it (water supply, general water and sanitation, animal production, agricultural extension). Below one (1) project is summarized with a thematic proximity, implemented outside of the project area.				
Irrigation	Sierra Irrigation Project	World Bank	Subsector Irrigation Program (PSI), Ministry of Agriculture	20
<p>Commentaries: The project concluded in 2015.</p> <p>Objectives: Increase in agricultural production, increasing the water efficiency (rehabilitation of agricultural irrigation infrastructure, ..., Promote the development of the Organization of Self-sustaining Water Users.</p> <p>Some districts in the target area of the Ayninacuy Project (Province of Caylloma) were initially considered possible beneficiaries, finally were not included, in accord with the project's reports at this site: http://www.worldbank.org/projects/P104760/sierra-irrigation-subsector?lang=en.</p>				
Irrigation	Various projects Modernization of Irrigation.		Subsector Irrigation Program (PSI), Ministry of Agriculture	-----
Commentaries: Objective/strategy: Installation of pressurized irrigation systems, financed with Organizations of Water User and Regional Governments.				

In June 2016, PSI's webpage reported 2 projects executed in the Arequipa Region, in districts outside of the target districts in the Ayninacuy Project. Web: <http://www.psi.gob.pe/programa/psi-sierra/>

Global Environment Facility – GEF - <https://www.thegef.org/gef/>

At the end of June 2016, GEF's website registered 49 national projects approved for Peru (15 of them on climate change), and 26 regional projects that include Peru. None of these projects has any action projected for the Project's area of interest. Below are listed the projects with the greatest thematic proximity to the Ayninacuy Project.

Biodiversity	Conservation and Sustainable Use of High-Andean Ecosystems through Compensation of Environmental Services for Rural Poverty Alleviation and Social Inclusion	GEF	MINAM Perú	535
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The project seeks to protect and sustainably use High Andes ecosystems that provide environmental services, especially biodiversity and water, by transferring economic resources from downstream beneficiaries to upstream rural communities.

Among the project's result is that of improving the sustainability of highland Andean landscapes and incorporating in the regulatory framework measures for conserving biodiversity and generating a sustainable use of it. In its activities, it includes the restoration of 4000 has of highland wetlands in the Lima and Ancash Regions, outside of the project's areas of interest. At the end of June 2016, GEF's website registered the project's status as "CEO endorsed".

Multifocal Area	Sustainable Management of Agro-Biodiversity and Vulnerable Ecosystems Recuperation in Peruvian Andean Regions Through Globally Important Agricultural Heritage Systems GIAHS Approach	FAO	Minam Perú	9,3
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Project Objectives: To conserve in-situ and to sustainably use globally-important agro-biodiversity through the preservation of traditional agricultural systems, the integrated management of forests, water, and land resources, and the maintenance of the ecosystem services in selected Andean regions.

At the end of June 2016, GEF's website registered the project's status as approved in April 2016.

The project's area of intervention are located in the Departments of Huancavelica, Junin, Apurimac, Huanuco, Ayacucho and Cajamarca, outside of the area of interest of the Ayninacuy Project.

Inter American Development Bank, IADB (<http://www.iadb.org/es/proyectos/>)

At the beginning of July 2016, IADB's website did not register projects in execution or in preparation in the project's area of interest (the agricultural and rural development, water and sanitation, environment and natural disasters were consulted, in the implementation phase) and the projects in preparation. Below 2 projects are summarized with thematic relation to the project, but with execution in other zones in Peru.

Sanitation and water for human use	CT: Pilot Project: access to water and sanitation for dispersed rural communities	IADB	Care Perú	1,0
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Objective: design and implement models for the provision of individual solutions for the supply of water and sanitation in disperse rural areas.

Activities: Analysis of experience for the provision of water and sanitation services in disperse rural environments. Elaboration of management models for the provision of water and sanitation services in disperse rural environments. Implementation of 3 pilots (one in the Mountains).

The project was initiated in the first quarter of 2015, at the end of June 2016 it was in execution.

Energy Efficiency	CT: Financing of Clean and Efficient Stoves in Andean Communities	IADB	WORLD VISION PERU	0,9
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Objective: install 2500 eco-efficient stoves in the Departments of Ayacucho and Ancash.

On the other hand, currently, there are not other initiatives in the target regions that complement the project, but it is expected that the project experience will be used by the local governments to replicate it with other communities.

As a Regional Governmental Organization, COPASA has updated information related to Adaptation project under development in the region and is able to confirm that, currently, no other projects are being executed with overlapping scope or activities. On the other hand, after 18 years of experience COPASA has executed 11 projects since 1985. This experience has allowed

COPASA to design the strategy of the project's capacity building activities considering its knowledge of the local culture, traditions and project needs.

Among the projects/programs executed by COPASA the "Adaptation to Climate Change Programme (2006 – 2007)" can be found. This project's perspective and design have been nourished by the experience gained in that programme; in particular, in the construction of a comprehensive management model that could resolve the disarray of previous experiences.

At present, the COPASA Special Project has been developing the "Program to strengthen local governments (2015 - 2018)", leading to participatory planning processes, and local budgeting, taking into account criteria of rationality and efficiency, guiding the implementation of projects as planned and per the approved budget. This project proposal perspective is a consequence of the development of such project, and the participatory planning process criteria and processes of such Program have allowed the COPASA to respond to the needs and expectations of involved communities, after having implemented a consultation process. The local budgeting criteria of the programme have been also considered, as well as the programme criteria of rationality and efficiency.

The *Tambos*

There is a project being implemented by the central government, named *Tambo*, which is a center of support services for rural habitats. It consists of an installation built in a rural settlement in which State agents converge to provide infrastructure, equipment, and training services, in a direct way with said community and those in its area, in order to improve their quality of life.

The implementation of the *Tambos* responds to the need to bolster State presence and to make social inclusion possible among rural populations such as those targeted by the project, a population that presents the highest indices of poverty, chronic malnourishment among children, and social exclusion, a situation which has remained constant over many decades and that also, in some indicators, has worsened. Through the *Tambos* the central government seeks to carry out rapid interventions, by means of provision of services and infrastructure in rural areas, thus contributing to their social inclusion, and bolstering the presence of the State.

For the Arequipa Region, five (5) *Tambos* will be built. If indeed the *Tambos* initiative is complementary to the project's actions in the general perspective of offering options of improved quality of life by means of the linking of services offered by the State, in the project's particular objective of strengthening the livelihood constituted by alpaca raising the *Tambos* do not offer complementarity. The project will not seek out articulation with that initiative.

NOTE ABOUT CURRENT AND RELEVANT GEF PROJECTS:

- Currently, there is a Regional GEF Project (Project name: Conservation of the Biodiversity of the Paramo in the Northern and Central Andes /Proyecto Paramo Andino), with a US\$ USD 18,695,304 budget, and whose Geographical Scope includes: Colombia, Ecuador, Peru and Venezuela. The project objectives include:
 - i. implement examples of good practice in Paramo management at nine critical Paramo sites,

- ii. support different governmental and non governmental levels to adopt key policies for Paramo conservation,
- iii. increase the technical capacity of Paramo inhabitants and field practitioners to manage Paramo,
- iv. increase awareness and information about Paramo among decision makers and the population in general, and
- v. replicate best lessons of the project to other areas and scales at the Andean level.

Specially in the objective iii (increase the technical capacity of Paramo inhabitants and field practitioners to manage Paramo), the focus of this project is very close to the Aininacuy project activities related to wetlands (Bofedales) recovery. Nevertheless, for Peru, the project activities are focused on the Regions of Piura and Cajamarca, located far from Arequipa.

As this GEF project scope also includes “replicate best lessons of the project to other arand scales at Andean level”, the Aininacuy project will consult them, before, the start of activities in order to verify if there will be information relavant to Aininacuy Project activities to be assimilated.

- On the other hand there is another approved National GEF Project (Project name: Conservation and Sustainable Use of High-Andean Ecosystems through Compensation of Environmental Services for Rural Poverty Alleviation and Social Inclusion). With a US\$ USD 18,695,304 budget, this GEF project is oriented to protect and sustainably use of High Andes ecosystems that provide environmental services, especially biodiversity and water, by transferring economic resources from downstream beneficiaries to upstream rural communities.

The outcomes of this project includes “Conservation and/or sustainable use of at least 25,000 ha of high Andes ecosystems and landscapes.” And within this coutcome one of the outputs says: “Conservation, rehabilitation, improvement and sustainable management of at least 4,000 hectares of bofedales”, which is very close to the bofedales recovery purposes of the Aininacuy Project. Also in this case, the Geographic scope of the project if Far from far from the Arequpa Region (to be developed in the Lima, Ancsh and Huancayo Regions). As a consequence, the actions of this GEF project are not to be considered as results to built upon, for Aininacuy Project.

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

COPASA has successfully executed 11 projects since 1985, addressing in a focused manner various situations such as emergencies and post-quake reconstruction, disaster risk management, access to energy services, adaptation to climate change, food security, and improved stoves. This depth of experience has provided COPASA with several lessons learned about how to develop a project like this one with Andean highland communities, so that their

beneficiaries can take ownership of the project, participate in activities, sharing the effort in the follow-up to the 'learning by doing' methodology. The Ayninacuy Project is a strategy conformed by the articulated implementation of the following lessons learned:

- An integrated management model, understood as the coordinated and parallel management of activities in a set of critical variables, oriented to strengthening the livelihood of alpaca raising, with the intention of coordinating the efforts of different variables, in order to optimize the results and avoid the low effectiveness that creates both the disarticulation in the actions as well as unidirectional action.
- A communicative and didactic methodology supported in the training provided with the support and presence of the community members with recognized experience (*Yachachiqs*), with the intent of eliminating the cultural barriers and of facilitating communication and ownership during training.
- A training session from the learn-by-doing principle, with the intent of promoting the applicability and the value of the learning process.
- Successfully proven techniques for improving the production of animal feed (crops, highland wetlands improvement, and water management).

In addition, the products that the project proposes to deliver will be distributed equitably in the selected districts. These products are proposed as demonstrative modules, to be located strategically in order to facilitate their access and visibility; the project proposes converting those modules in practical references of verification, example and learning of lessons successfully learned, with the intent of motivating and facilitating the replication of these experiences. Technical training with broad participation and local availability of the trained knowledge of the *Yachachiqs* are instruments to favor such a replication.

This methodology allows for the creation of foundations of a real sustainability as per the proposal's objectives, to ensure that the impacts of the extreme cold spells cease to be a recurring situation, as is currently the case, and that the population inhabiting the mountainous region of Arequipa develop its capacity to better face the consequences of climate change and to reduce their impacts, particularly for the most vulnerable members of the population (children and older adults) and their livestock capital.

Thus, the preliminary phases for developing a knowledge management strategy, necessary in order to know the resources and awareness levels regarding the Project's several facets, have already been carried out. All activities under Component 2 make up the main body of the Project's knowledge management strategy and are critical for engaging communities and some authorities both in the Project's activities as well as in and sustaining its results.

The implementation of component one activities will be implemented after component two activities have been developed. Learning activities will be based on various methodologies for adult training, including "field days", which are training days where the participants put into practice what they are learning. Learning is expected to be facilitated by the fact that participants are expected to use the techniques learned in his private life due to its practical importance. Additionally, the technical experts in rural communities (*Yachachis*) will support the development of the project with home visits. To enhance the follow up and sustainability of the learning, local vigilance committees, leaded by the *Yachachis*, will be constituted.

Every workshop and fieldwork day shall produce a written memory, with the lessons learned reported by the participants and by the activity leaders at the end of each activity, and complemented during the corresponding practical activity.

The planned development of teaching materials will also bring to capture and disseminate the knowledge already developed in the communities. The preparation of every written guide will include two consultations steps, the first to capture the existing knowledge of interest to be disseminated; particularly in the reported more experienced persons of the community, and the second one to verify the adequacy of the guide design, by using a preliminary version to be tested with community members.

The final version of the teaching materials shall be also transferred to the local authorities during the follow up and replication agreements.

The Project's assessment and monitoring activities will incorporate criteria and indicators for assessing knowledge management activities. The project Annual Progress Report, APR, will report about the lessons learned and the implemented best practices.

At the Project's conclusion, a final report on lessons learned will be made in digital format and will be presented to the authorities and institutions related to the project. This report will have printed report for dissemination to participating communities and other identified communities that may be interested in the experience and that share conditions of vulnerability prior to project.

Section J includes a description of follow up strategies que are complementary to the learning strategy described here.

Regarding the quality management of the project's knowledge products

In order to control the quality in the design, implementation and dissemination of technical guides that will be elaborated and distributed in order to give support, complementarity and sustainability to transmission and ownership of technical capacities, a written procedure will be elaborated once the project has begun, which will be validated in the initial workshop.

The procedure will establish the measures to be considered with the goal of:

- Identifying and defining clearly the activity's objectives and the target population.
- The appropriateness of the capacities to be developed, within the perspective of the objectives and the project's expected results project of the target population's needs or prior situation within the framework of those objectives and project results.
- The adaptation and efficacy of the teaching strategy with respect to the project's objectives and expected results and the conditions of the target population.
- Guarantee a response to the results of the consultations.
- Coherence in communication in order to achieve greater visibility and learning.
- Establish, measure and monitor a management metric/indicator for the quality of the project's knowledge products (for this metric no baseline will be established, it will be measured from upon execution).

Factors which make the project's replication possible:

With the intent of highlighting the project's potential for replication, some aspects are included below which reveal similarities in physical and social contexts. The development of repeatable initiatives exceed the scope of this project.

- The Andean highlands, the South American highlands, the Collao plateau and that of the Titicaca region, are all an extensive plain in South America located at an altitude of 3800 masl and which encompasses part of the northwest of Argentina, western Bolivia, part of northern Chile, and part of southern Peru. It has historic importance for giving rising to diverse civilizations, such as the Tiahuanaco culture, and for seeing the domestication of plants like the potato and of animals like the alpaca, vicuña and llama. Due to its environmental and ecological characteristics, it is a unique natural region on the continent and for its altitude it belongs to the so-called *puna* region. The term 'highland plateau' or '*puna*' is generally accompanied by a qualifying term to identify the country in which it is found, that is, the Argentine *puna*, the Bolivian *puna*, the Chilean *puna*, and the Peruvian *puna*. This ecosystem extends through four countries: northwestern Argentina, western Bolivia, where its greatest extension can be found, part of northern Chile, and part of southern Peru.
- Regarding climate change. The results of the IPCC's Fourth Report reveal the central and southern region are registering an increase in the average annual air temperatures of 0.02 to 0.05 °C per decade during the 1901 to 2005 period, with the southeast of Brazil registering the highest increase of more than 0.1 °C per decade. In the mountains the climate warming is reported with the altitude.
- Changes in precipitation in the 1901 to 2005 period are not homogeneous in the region, revealing a reduction along the Pacific Coast (20 to 40%). The annual trends, however, during the 1979 to 2005 period show an increase (reduction) in the central coast of Chile (in the sector stretching from Bolivia to northwestern Argentina), reflecting the high variability in precipitation and the influence of El Niño in the region, including mountainous regions. At subregional scales, the expected climate change patterns are still difficult to detail due to the Andes unusual topography.
- The mountain glaciers respond with great sensitivity to climate change, both as regards temperature as well as precipitation. With few exceptions, practically all the Andean glaciers (total surface area of more than 28,000 km², Casassa *et al.*, 2007) and a few glaciers on the higher volcanoes in Mexico are experiencing an accelerated retreat in response to tropospheric warming, threatening the provision of water resources from the ice. (Bradley *et al.*, 2006). As was explained previously, in the high elevations of Peru, Bolivia, Argentina and Chile, the raising of South American camelids is very common and widespread way of life.

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 of the ad aptation fund.

The consultation process was carried out in two stages. The first of these was developed for the presentation of the Project Concept, between the months of January and March of 2105. The second stage was for the preparation of the Full Proposal, between the months of May and June 2016.

In the first phase of the consultation, COPASA presented, in a meeting held in each of the 17 selected districts, in front of leaders of affected communities, representatives of public organizations, communal authorities, women's organizations, irrigation organizations, breeders' organizations and a representative from the medical post (if one were present), an integrated management approach as a continuity strategy solution to the following problems:

- During dry seasons, the natural pastures lose their ability to support grazing notably, resulting in overgrazing.
- The breeders of South American camelids, who do not have access to adequate wetlands and irrigation, suffer losses in their herds as well as diminished fiber production on the order of 5%, and loss of offspring from miscarriage due to environmental stress on the order of 10-15%.
- Due to the fact that in some small villages there is no water during the dry season, losses occur due to deaths caused by malnutrition on the order of 10-15% of the herds, which de-capitalizes the breeders, instigating greater migration to nearby cities in search of means to cover families' basic needs.
- Weak organization among the breeders undermines their ability to negotiate with local authorities a prioritization of their needs within the framework of the development agenda (participative budget).
- They do not have resources to access new technologies, which could allow them to diversify their production.
- Deficiencies in the handling of forage planting to improve the nourishment of their herds: high altitude seeds, harvest and post-harvest (storage and/or dry baling of hay).
- Insufficient knowledge of water management in technical manner, water harvesting through the construction of small rustic dykes and wetland and high altitude wetlands management.

Copasa's approach is based on the interaction and consultation with the local communities, and the project implementation experience gathered during several years by COPASA regarding local culture and social environmental and economic issues. The set of problems and actions proposed to solve them (which had already been reviewed and discussed over the course of COPASA's interaction with different actors in the region) was agreed to accept it by consensus, including active participation in the activities. The integrated management proposal was received as the possible implementation of a set of necessary actions, although the participant's interest in discussing the methodology was not evident.

Meeting minutes are available from each of the meetings held between the months of January and February 2015. Meetings were held in each of the selected provinces of Arequipa, Caylloma, Castilla, Condesuyos and La Union. In the meetings participated representatives from the following local district governments: San Juan de Tarucani, Chiguata, Pocsi, Quequeña, Polobaya, San Antonio de Chuca, Sibayo, Tuti, Callalli, Chachas, Andagua, Orcopampa, Chuquibamba Andaray, Yanaquihua, Pampamarca, Huaynacotas Puika. Below are included samples of the supporting documentation from the consultation process.

The project outputs presented in the Project Concept document, based on the dominant needs, requests and interests of the participants, summarize the agreements of the meetings. The

project target population are the members of the participant communities in the lowest levels of poverty (which will be verified and documented with the SIFHO information system), whose livelihood is the alpacas raising and the sale of the alpaca fiber.

Annex C includes the attendance lists for these meeting, as well as, two samples of the hand-written meeting memoranda prepared by community members, and two samples of the rolls of those in attendance and two photographs of the meetings are included as well.

In addition to the consultation meetings, during the first phase diverse organizations and entities were contacted with the intent of also presenting the project's perspectives. In these activities the following important project stakeholders were identified:

- The Regional Government of Arequipa.
- Regional Office of Agriculture of Arequipa
- Regional Office of Education of Arequipa
- Administrative Water Authority of Arequipa
- Local Water Authority of Arequipa
- Regional Office of the Environment of Arequipa.
- National Meteorological and Hydrological Service of Peru, Arequipa
- National Institute of Natural Resources, Arequipa Region
- National Animal Health Service, Arequipa Region
- The local governments of the eighteen districts, project's area of influence, belonging to the provinces of Arequipa, Caylloma, Condesuyos, Castilla and La Union.
- Representatives of Community Organizations
- Representatives of the Andean Camelid Breeders' Associations in the Highland areas of the Arequipa Region.
- Representatives of the various Health Centers, Posts and Stations in the eighteen districts, within the Project's area of influence.
- Representatives of the Civic Organizations in the selected provinces and districts.
- Rural associations or communities within the Project's area of influence.

First phase of the consultation, consultation with women of the community (enero, febrero 2015):

With the intent of recording the perception of the women of the project, various unstructured interviews were held, in Quechua, with women in the project's target communities, in different contexts from the meetings described above. The interviews were aimed at obtaining their opinions and points of view about the benefits of developing the project in their communities, in a context unaffected by pressure. In general, an enthusiastic approval was obtained, validating in this manner, from the feminine viewpoint, the necessity of implementing the proposed adaptation actions.

In addition to these interviews, in particular because women are the community members who spend the most time caring for livestock and crops, a series of surveys were done, oriented at establishing baseline information for the project.

Annex C includes two photographs of the surveys and the questionnaire employed between January and February of 2015, under the responsibility of COPASA's professional staff Arturo Rivera (engineer) and Rosmary Quiñones (social worker), who were also responsible for the aforementioned interviews.

NOTE: Although Quechua is a primary language in the rural areas of the Arequipa Region, the project is not working with specifically indigenous communities, but rather rural Andean communities, made up of families that live in and exert control over determined territories, linked by ancestral, social, economic and cultural ties, expressed through the communal ownership of land, communal work and mutual aid.

In the second phase of the consultation, three types of activity were developed:

- i. A consultation documented on film³⁶, without written minutes, with two groups of communities called together with the support of local authorities (district mayors) in order to verify the project's environmental and gender aspects and the participants' perception of the project. In this consultation the verbal presentation of the alpaca breeder's major problems regarding climate change was requested (the communities evidenced a clear, practical knowledge of what climate change represents for their productive activity).

The meetings were held in the rural area, one in a meeting hall (the Janansaya community, Callalli district, in the Province of Caylloma, on the 16th of May) and the other in an open field (the Condorcuyo community, Sibayo district, in the Province of Caylloma, on the 17th of May, 2016). Prior to the meeting in the Sibayo district, the municipal offices were visited and the project's group held an informational meeting with the deputy mayor (an official that replaced the major, as he was not available).

In the meetings, the project's referential experiences were conveyed, and the expectations and interests of the project participants were gathered, in relation to the pressures that their productive activity receives from climate change. An identity was found in the problem centers that the project had identified previously (improvement of animal nourishment and health, protection of the alpaca babies and vulnerable females, water management, housing quality). The following concerns were set forth: 1. In Janansaya, the need of animal management fencing, the continuity of the activities for favoring water management in the local municipalities, the vegetal species that best withstand stress from the cold, the appropriateness of testing seeding at different altitudes, the problems of certain soil types, the appropriateness of doing followup to attempts that local promoters are accompanying, the possibilities of achieving exchanges for the environmental services of high altitude areas in water harvesting. 2. In Condorcuyo, water scarcity and the deficiency of physical resources such as shelter for animal protection (proposal by the local mayor), the importance of generalized attitudes that requires transformation, such as pessimism, the

³⁶ Video available at <https://www.facebook.com/pecopasa/> (see AYNINACUY PROJECT- AREQUIPA REGION S. P. COPASA).

need for micro-dams and of the implementation of fencing, attention to environmental protection the need to transform traditional crops, the appropriateness of adequate water management for grazing (storage and modern irrigation), interest on the part of the district for the installation of demonstrative project modules.

With respect to gender aspects, all women participants were reported as linked to the productive activities of alpaca raising. The interests and worries they reported were:

- In the Janansaya community, need for support in water management, cultivation of pasture and the implementation of animal handling fencing, the condition of some women as heads of household (it was announced in the meeting that this circumstance was known of n three cases in the area), the fall in the price of alpaca fiber and meat, the attraction that migration has for young people due to the lack of work opportunities in the area, with fewer opportunities for women, the problems of traditional kitchens, the use of traditional medicine to confront health problems in the families (pneumonia, diarrhea), unfamiliarity with Trombe solar walls.
 - In the Condorcuyo community, the need to improve water management, to implement animal handling fences, to improve highland wetlands, to have access to shelter, to implement improved stoves, the alternative of weaving as a complementary option for the household economy, the limitations of impermeable clothing, the limitations in basic services (electricity, potable water) that affect the quality of life which in turn discourages the permanence of youth in the region (this circumstance affects also the women, given that upon separating from their family, the women that remain end up with a greater workload in the household, in addition to alpaca raising activities).
- ii. The workshop for the development of the Results Framework for the project, implemented in the offices of COPASA, on the 18th and 19th of May, 2016, with the participation of three (3) experts from the Ministry of Agriculture and from the Ministry of the Environment of Peru, two (2) alpaca producers (persons with experience in the productive activities, in the leadership of producers' organizations and in positions of local authority – municipal councilmembers), five (5) persons from the project's technical team and a facilitator. The workshop, in order to generate the products of the Results Framework presented in this document, relied on information gathered in these consultation meetings described above.
- Annex C includes the attendance list from this workshop and a sample of the intermediate results of its process.
- iii. The validation workshop for the workshop's results of development of the Results Framework for the project was held in the Sibayo district, in a space provided by the Municipality, the 16th of June, 2016, with the participation of around fifty persons from nearby communities, in their majority women. This meeting presented the general results of the design of the project's Framework and submitted them to the opinions and reactions of the participants. Thanks to the majority participation of women in the activity, this activity also allowed for a consultation of gender issues.

The participants were in agreement with the project's general objective "strengthening alpaca raising" and finally accepted the project's activities outline, expressing their interest

in participating in the training sessions and beneficiaries selection. With respect to the initiatives that the project proposes for the improvement of housing in the face of the demands that climate change imposes (Trombe solar walls, improved stoves that avoid smoke accumulation in the interior of the household, available healthy water, latrines for greater hygiene, solar panels for generating electricity), in particular, the women manifested their interest in having warm water in their homes for personal hygiene and clothes washing, and to have solar panel for warmth. The project team explained the technical reasons for the project's options (safety, experience) and responded to the evaluation that had been done of experiences with errors in Trombe walls and invited those with doubts about technical aspects to share and clarify them within the project's training spaces.

The women manifested that they dedicated more time to weaving (in comparison with men) and that they are interested in relying on a more stable market to sell their crafts. With respect to this, it was explained that although, due to the demands of this kind of consideration, the project does not include that aspect, COPASA would take into account the request, in case it have in the future the option of developing a project to embrace the proposal.

In the face of the activities that the project proposes for improving animal nourishment, questions and concerns also arose about the technical aspects and the problems encountered in the experience. The project team did a review of the successful experiences in which various of the proposed activities are based and invited those present to participate actively in the technical trainings in order to clarify and distinguish the questions and the field of actions for the proposals.

Among the participants were some women whose activity is cattle-raising and they requested specialized help. It was explained that project responds to the predominant economic activity in the area (alpaca raising) and it was explained to them that they could still participate in the project's trainings, and that the beneficiaries of the development activities or strengthening of assets can only be those households dedicated to alpaca raising.

In the face of the interests manifested by topics such as personal development, improvement of family life, leadership and negotiation, the project team agreed to include these topics in the trainings, given their complementarity with the strengthening of the livelihood that is the project's objective.

The project team emphasized the project's proposal to develop mutual actions that belong to the cultural heritage in the region, as a powerful instrument to multiply the project's benefits and results. This proposal and the other general agreements were included in the meeting report, and the meetings minutes placed in the district's archive.

CLARIFYING NOTE ABOUT THE SCALE OF THE CONSULTATION IN THE SECOND PHASE: COPASA, based on their knowledge of the customs and culture in the area, and, in particular, of the social actors proposed as the project target, recommended considering as a priority the following aspects of the participation and preliminary consultation, corresponding to the project's proposal formulation stage:

The agenda for an important part of the preparation activities for the elaboration of the 2016 version of the proposal coincided with the electoral period, due to which discretion was requested in the project's dissemination and, especially, particular care with the information that could be interpreted as promises.

Given the idiosyncrasy of the region's inhabitants, it was requested that the consultation not become overcrowded, insofar as the increased circulation of information about the activities that the project may carry out, once approved, could generate the perception that, despite the clarifications, the project's described activities were being offered as de facto future promises. Given the possible condition of the project's execution, and, in particular, given the limitation in the selection of direct beneficiaries, COPASA has requested greater discretion, with the goal avoiding risk to the seriousness and credibility built by COPASA in the region after many years of work.

In response to these requests from COPASA, the project team limited the consultation to a representative sampling or, in the perspective of implementing the whole consultation process once the approval of the project is certain.

Annex C includes the meeting report, with an attendance list and photographs of the event.

In the perspective of the above preventative discretion, the procedure for communications, questions, complaints, and demands both for the project in general, as well as for gender issues was not yet built in a consulted manner, with the participation of representatives of the communities of local authorities. Also for reducing the perception that the project's activities correspond to a future execution already defined and guaranteed, the aforementioned procedure will be built in a joint manner with participation of representatives from the communities and local authorities, once the project's financing is approved. It is anticipated that the procedure will have singular characteristics given the lack of access, or generalized use among alpaca raisers of electronic communications (internet or cellular telephones). Support from local authorities and from the channels for the socialization of information existing in the communities will be sought out.

I. Provide Justification For Funding Requested, Focusing On The Full Cost Of Adaptation Reasoning.

Below is a comparison between the baseline (no project intervention) and the proposal of the project's adaptation activities with the goal of justifying the Full Cost of Adaptation.

TABLE 17.

Comparison baseline (no project intervention) vs project's adaptation activities, for the Full Cost of Adaptation Reasoning

	Baseline line, No project intervention.	Adaptation Measures within the project's framework.
	COMPONENT 1	
1.	Because of the cyclically repeated impacts of cold spells, raising camels at high altitude periodically suffers large losses, which, according to estimates from the Ministry of Agriculture (MINAG, for its acronym in Spanish), can reach 30% of the animal population during a cycle.	The Project is oriented to responding to set of challenges that faces the sustainability of economic activity of alpaca raising for fiber production, in the Andean highlands of Arequipa (an activity that in the majority is exclusive).
2.	To date, the aforementioned MINAG (Ministry of Agriculture) has been responding to these impacts in a reactive manner, and under a distant and centralized administrative framework, with low effectiveness in prevention and meager projection in the management of long-term risk.	The project is aimed at implementing an integrated management model that avoids the replication of disperse efforts and offers a consistent set of options for strengthening the main and almost sole livelihood of vulnerable target communities (raising alpacas for selling their fiber). The project seeks to manage the set of variables whose dynamic jointly affects the sustainability of alpaca raising productive activity for their fiber in Andean highland communities in the Arequipa Region.
3.	In The above mentioned way, the Ministry has undertaken: distribution of seeds (2007), construction of shelters (2006 to 2010), distribution of medicine and hay (2008 to 2010); implementation of the National Intervention Plan for confronting the effects of frosts and cold spells (2012, decrees DS 092-2012-PCM y DU 015-2012-PCM); distribution of: teaching kits, coats and blankets, veterinary medicine kits, hay bales (2013, Multi-sector Plan for Response to Frosts and Cold Spells 2013, DS N° 064–2013-PCM); distribution of beds, mattresses and blankets, hay and veterinary kits, medical attention and others (2013, Multi-sector Plan in response to	The Project proposes an integral solution in which the articulation, centralization and coordination of adaptation measures can offer a reduction of costs which recur cyclically, as well as greater effectiveness.

	<p>Frosts and Cold Spells, DS N° 102-2013-PCM) 2014 Secretariat of Disaster Risk Management of the President's Council of Ministers (PCM, for its acronym in Spanish); construction of highland corrals, distribution of kits, coats, housing upgrades, teaching and veterinary kits, distribution of hay, others (2015, Secretariat of Disaster Risk Management, Resolution N° 001-2014- PCM/SGRD). All of these interventions have surpassed by far S/. 200,000,000.00 (PEN) (approximately USD 74,000,000. at the prevailing exchange rate in the years in which these expenditures occurred).</p>	
<p>4.</p>	<p>In the scenario described, the Andean alpaca raising communities affected by cold spells and other manifestations of climate change have low capacity to respond to the impacts of variability as a result of their financial and management limitations and the lag in the effectiveness of their ancestral practices in the face of the rigors of climate variability (low temperature, intensity of winds, rainfall patterns, decreased water supply from glaciers). As a result, the sustainability of their livelihood at present is threatened in the medium term, due to high cyclical losses.</p>	<p>While centralized state interventions have evolved into some preventive measures, the centralized action scheme has not arrived at a preventive solution for medium and long term that will avoid or significantly reduce the recurrence of progressive losses caused by climate change. The Project proposes a preventive solution for medium and long term.</p>
<p>5.</p>	<p>The animals' state of health is a critical variable in the face of the stress that cold thermic conditions induce. The preventive action in animal care turns out to be essential. Government support has included this aspect sporadically.</p>	<p>Another important aspect of protecting the health and lives of camelids in the face of the effects of climate change is the care of their health to ensure that the herds are in optimal conditions in order for them to best withstand the cold spells. This is why the project includes also camelid health campaigns. In the framework of the integrated management model that project proposes, the effectiveness of this action is reinforced thanks to parallel action regarding other critical variables in the animal's resistance to the cold: the availability of animal feed and their physical protection from the cold.</p>

6.	<p>In the face of a reduction in the productive capacity of natural resources used for grazing (highland wetlands or <i>bofedales</i>), there are no antecedents of neither state nor private interventions, for avoiding their continued reduction due to the limitation of water resource, nor for avoiding their exhaustion due to overgrazing.</p>	<p>Faced with the cyclical reduction in forage sources for alpacas, caused by cold spells, and the loss of pastures during periods of drought, in order to reduce in medium and long term the costs of these interventions and to generate the sustainable practice of self-sufficiency regarding the necessary forage, the project proposes:</p> <p>Introduce the cultivation of pasture and forage plant species that are resistant to cold, such as ryegrass and <i>dactylis glomerata</i> (pastures) and forage grain, UNA 80 variety, basic Hatif Grignon Barley (forage). Although this includes the delivery of resistant seeds, which the State has been done on various occasions, the project seeks to break the long-term ineffectiveness of this kind of action by coupling the distribution of seeds with a technical training process under the 'learn by doing' approach. Additionally, in order to overcome the limitations of cultural gaps in intervention actions, and in seed distribution, the project will use a practice with proven effectiveness that consists of relying on community members recognized for their knowledge and experience (the "<i>Yachachiqs</i>") in order to implant into the community's customs the use of the high altitude species or varieties of improved seeds (this resource will also be used for other skills training actions).</p> <p>Introduce pasture rotation and fencing, with the aim of avoiding overgrazing and pasture scarcity.</p> <p>In the face of a reduction of the productive capacity of the natural resources used for grazing (highland wetlands), the project proposes to engage the communities that use these natural pastures, such as high altitude wetlands (<i>bofedales</i>), in the care and expansion of these areas through the introduction of native species (red and white clover) and the maintenance of the distribution canals that provide them with water.</p>
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7.	<p>Scarcity of water resources (a resource necessary both for basic necessities as well as to sustain the foraging productivity of terrain used grazing) is also an element of cyclical stress that has been increasing in these areas. Given that it is not a trigger element of cyclical climate crises, it has not received attention in emergency responses. Although it is an element that has begun to receive attention in regional strategic plans³⁷, it has not yet moved past the level of strategic considerations, without reaching the level of the definition of practical projects on a broad scale. Without the project's intervention, the risks to the sustainability of productive activities like alpaca raising are increased in the medium term, due to projections regarding water scarcity in the future.</p>	<p>In the face of a scarcity in water resources, the Project introduces a rationalized use of water, extending the construction of earthwork dykes for storage and implementing irrigation systems to sustain pastures during droughts.</p>
8.	<p>Limitations in the availability of water resources lead to use for human consumption from non-potable sources. This situation has been generating high indices of diarrheic illnesses that affect principally the population younger than 5 years old in the project's target areas. Even though health campaigns have been undertaken that include an awareness raising element of the impacts on health due the use of untreated water, there are no antecedents of systematic actions directed at eliminating the cause of untreated water. From the perspective of no project intervention, this situation will tend to persist. Although it is an aspect of quality of life, its impact on productive activity is found in a basic motivation to sustain household life in this area, in the face of the expectations of migration.</p>	<p>With respect to limitations in the availability of water resources that leads to use of non-potable sources for human consumption, the project proposes the implementation of five (5) community water treatment systems</p>

³⁷ Regional Climate Change Strategy in the Arequipa Region 2009: In the measures and policies for confronting Climate Change, some guidelines are defined in section 6.3.3 Diversity and Water Sources Protection.

<p>9.</p>	<p>From the perspective of building sustainability of alpaca raising for fiber production, the basic housing conditions in the face of climate changes are an unavoidable factor for the social validation of the project's actions: taking care of shelters for alpacas without taking into account household living conditions bring to the fore risks of social rejection of the proposals. New conditions arising from temperature variations are an unforeseen factor in the traditional household dwelling, and the high indices of respiratory illnesses that affect the population younger than 5 years old demonstrate this. In emergency responses, the government has dealt with this problem in the dimension of its consequences, so, for example, the Executive Order N° 102-2013-PCM, from the Secretariat of Disaster Risk Management of the Ministry of the Presidency of the Council of Ministers (PCM), established a series of actions to defend the lives and well-being of the affected population: distribution of beds, mattresses, shelter kits for children younger than three, medicine for prioritized attention of acute respiratory illnesses. Although responses are plausible, they are not accompanied by others aimed at reducing exposure to cold risks in the household residence. On the other hand, although awareness and information about the solutions for confronting this problem have started to spread through professional circles related to the problem, in the institutional strategic projections, a broad spectrum response has not yet been incorporated.³⁸ Without project intervention, for target areas, exposure in the face of heightened risks due to new extreme variations in temperature, in the household life, tends to persist unchanged.</p>	<p>In reference to the limitations of household dwellings in resisting cold spells, the project proposes the implementation of improvements in two rural residences in each of the participating communities (for a total of 72 improved dwellings), with cold resistant specifications and composting latrines. These improved residences have the purpose of serving as a model for low-cost upgrades within reach of the communities. In order to bring the upgrades to communities' technical capacity, the project's training component will include the implementation and management of the upgrades.</p>
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³⁸ Regional Climate Change Strategy in the Arequipa Region 2009.

	COMPONENT 2	
10.	The interventions undertaken by initiative of the central government have had significant financial costs, due to the weight of a remote, complex administrative structure, with a low capacity for sustaining prolonged contact with the target communities, and with scarce or non-existent followup and assessment of intervention results.	In addition to cost reductions (with respect to prior and habitual state intervention), the project includes a follow-up, assessment and reinforcement of training activities, in order to guarantee their effectiveness.
11.	The interventions undertaken to implement physical protection from the cold, for alpacas, have been done as external intervention, without the accompaniment of technical training that might prepare for ownership and the maintenance of the physical protection elements provided.	<p>The activities oriented to the construction of shelters against the cold for alpacas will be accompanied by technical training in parallel, in order to establish among the members in the participating communities a capacity for response and the maintenance of said shelters.</p> <p>Although the rural community members who have maintained this activity for generations had traditional technical solutions for building shelters against the cold, climatic changes have pushed their effects beyond the scope of known protection strategies. The wind patterns in particular require a transformation in the design of shelters, to ensure their resistance to the new wind patterns, while the communities' ability to respond to this variable has not allowed for a transformation of traditional knowledge. On occasion they have been aided with the distribution of technically upgraded shelters. This know-how, however, has not yet been assimilated by the communities. The distribution of a physical good is not sufficient because it does not guarantee the sustainability of its benefit. The project aims to build technically updated shelters with the proficient and instructive support of community members, previously trained, with the dual purpose of building these essential physical assets in a cooperative and participative action by the community and of encouraging both the assimilation of new technical approach into the community's culture. It is hoped that with the assimilation of new technical perspective, the community members remain able to reproduce the construction of these shelters and perform their maintenance on their own.</p>

12.	<p>The interventions undertaken in order to resolve abrupt limitations in forage has had two actions: delivery of hay to rural populations, and of resistant seeds. These actions have had significant financial costs. Hay deliveries, despite having become reaction framework and even a symbol of government aid, turn out to be ineffective insofar as they do not respond to the necessities and nutritional option of alpacas, and the rural populations tend to convert these contributions into commodities for the regional market. With respect to the delivery of seeds, they have been handed over without any sustained technical assistance that could make the transformation of productive forage practices possible.</p>	<p>In the face of the limitations in the availability of animal nourishment, having worsened due to the extreme climate conditions, the project seeks to demonstrate the preventative action planned for the handling of forage crop production: use of improved seeds, production of reserves for critical moments of intense climate stress. The project focus includes, in addition to the provision of seeds to the beneficiaries, training and accompaniment in the cultivation process.</p>
13.	<p>The seasonal cyclical actions of goods distribution in assistance campaigns tend to generate habits of passivity in the affected communities, as a result of which, in the long run, the social aid comes prejudicial to production.</p>	<p>The project component 2 is oriented to developing, in the participating communities, the technical capacities that will allow them to develop their own adaptation capacity, integrating them to traditional knowledge through a proposal of communication and transference of practical knowledge of proven efficacy in the region (support from the Yachachiqs). In this way the project seeks to reinforce the initiative of the alpaca raisers.</p> <p>The majority of the project's skills development activities are focused on increasing the resilience of the project's target communities: the transmission of technical knowledge (for the construction of shelters, for the cultivation of alternate species and for the preservation of pasturing areas, for pasture rotation, and for sustainable water management), which include the development of support materials for these activities, indispensable support for ensuring success in the results arising from the implementation of Component 1 activities.</p> <p>The project seeks to create within target communities resource appropriation skills in order to manage the impacts of cold spells. Thus, the project, instead of delivering shelters built by foreign technicians to manage the emergency, aims at empowering communities in the construction and maintenance of technically improved alpaca shelters. In</p>

		<p>this same vein, the project will provide training in the streamlined management and optimized use of grazing areas. The autonomy the project seeks to instill in the affected communities arises from an interest in ensuring that the management of cold spell impacts are appropriate for the community, which will contribute to the long term sustainability of the results. With this, the project offers the prospect of avoiding or reducing in future significant costs arising from reactive actions common to the centralized government's response model.</p> <p>The project proposes Followup on the effectiveness of skills formation and the need for their reinforcement will be agreed on with local authorities, through the same means of communication (<i>Yachachiqs</i>).</p> <p>What is more, the project seeks to develop in the target communities community management skills in the face of participation options and decision-making that may align with their interests.</p> <p>The project seeks to establish a precedent of comprehensive management run and coordinated at the local level, with the goal of contributing to the transformation of the ensconced social dynamic of ineffective and reactive attention in which the same communities, the state with its centralized management schemes, and other social agents have participated with a notable level of passivity. Each one of the two project components ends up being essential for achieving the stated objectives.</p>
14.	<p>The establishment of early warning systems also have been incorporated into regional strategic guidelines³⁹, but local solutions are not yet being built on a large scale. Without project intervention, for the target areas, the implementation of basic early warning systems could take many years.</p>	<p>The implementation of EWS (Early Warning Systems) is indispensable for reducing exposure to the risks of extreme cold and for setting in motion response actions. In of itself, the financing dedicated to this activity fulfills an adaptation to climate change function and also complements and ensures the investment directed at all the other actions designed to strengthen the camelid breeders' way of life and fiber production.</p>

³⁹ Regional Climate Change Strategy in the Arequipa Region 2009: Section 6.3.2. Institutionalility for the Monitoring Systems for risks in the region. It proposes the guideline of building institutionalility for integrating risk monitoring. 6.3.2. Institutionalility for Monitoring System for risks in the region (glacier retreat, natural dangers, etc.)

15.	<p>In terms of climate change risk management skills development, the regional strategic forecasts are moderate. The Regional Climate Change Strategy in the Arequipa Region 2009 foresees in the measures and policies for confronting Climate Change some guidelines that only emphasize awareness raising.⁴⁰</p>	<p>In order to build sustainability for the productive activity of alpaca raising for fiber it is essential to achieve an important cultural transformation that involves: the modification of some key productive practices of the participating communities (water management, cold resistant forage production, preservation and maintenance of grazing areas, rotational pasturing, physical of herds, recovery of highland wetlands, adaptation and improvement of household residences), the assimilation of basic risk management practices on the part of community members and some local authorities, the sensibilization of communities in the face of their participation in the development adaptive capacity. Without project intervention, the risk of repeating the same emergency response actions without the active and responsible participation of the affected communities in the construction of effective adaptation scenarios, as a result of which the productive activity of alpaca raising is maintained under a known risk.</p> <p>The component 2 skills development activities are aimed not only at communities, but also at local authorities or the immediate surrounding, with the goal of developing and strengthening awareness in the face of risks arising from climate change and preparedness for managing those risks.</p>
16.	<p>The women have a very important and demanding role in the framework of how the alpaca raising way of life works.</p>	<p>This project has an emphasis on gender, as it is largely the responsibility of women to do the alpaca herding and tend to the highland crops.</p>
17.	<p>The best practices that the project proposes have been tested successfully in other experiences. In the region there are other previous experiences that have generated positive lessons</p>	<p>The project has been designed to integrate with government programs and the knowledge and experience gained will be shared with authorities at the municipal, regional and national levels to encourage their replication (The</p>

⁴⁰ Regional Climate Change Strategy in the Arequipa Region 2009: Section 6.3.10 Citizen Participation: Recruitment, awareness and dissemination.

	<p>learned. No initiatives to articulate these obtained experiences nor to disseminate their lessons have been identified.</p>	<p>project is expected to be replicated subsequently in more regions of the Andean highlands in Peru).</p> <p>Additionally the project is proposed as replicable management model for best practices articulated in a consistent manner, within geographical and interested parties, with a base of stakeholders (producers, leaders and authorities) trained and motivated for its replication.</p>
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J. Describe how the sustainability of the project/programme outcomes has been taken into account when designing the project / programme.

The Ayninacuy Project is designed to create, through the active participation of the members of the target communities, some products that allow for strengthening the livelihood of alpaca raising. The project's strategic direction is oriented to establish, by means of the implementation of those products, some best practices demonstration modules, and, in turn, to the creation of skills for reproducing and multiplying them. The mechanisms foreseen for building and guaranteeing that sustainability are the following:

Cultural sustainability:

An element intended to ensure the sustainability of project outcomes is the active involvement of stakeholders in the project's target communities engaged in productive activities. This aspect aims at encouraging autonomy and initiative in the management of climate change risks that affect their productive activities, and that are within their reach, with the goal of disrupting the passivity inherent in being cared for, a very significant cultural aspect in the framework of response capacity in the face of these risks.

Technical sustainability:

A basic element required to ensure the sustainability of the project's outcomes is the incorporation of transmitted knowledge in the training activities. The strategy of relying on knowledge leaders, who will have received prior technical training in order to channel information and learning through communication channels important to the communities will also be proposed both for the purposes of follow-up as well the implementation of practices, such as the permanence of construction skills.

Gender focus for sustainability:

The empowerment of the women the project will seek is expected to promote participation, leadership and decision of the women in the production activities to be developed and improved. It is expected to favour an active and respected role of the women, not only to influence the sexist dominant culture, but also to enrich that culture with the dynamism of a recognized role that will seek to affirm his presence in the community by leading what they have been trained to do.

Institutional and financial sustainability:

As mentioned, the main strategy to sustain the community management of activities (in addition to the capacity building activities) is to make agreements with the local authorities to include the project outputs and activities in their monitoring activities and also to expand or replicate them.

At the institutional level, to ensure the project's sustainability, project plans include the implementation of inter-institutional agreements between the following social actors: local governments, presidents of rural communities, boards of irrigation users, irrigation committees, producer associations (Alpaqueros), associations of parents, the regional Directorate of Agriculture, Local education Management Units, health centers, National Meteorological and

Hydrological System-SENAMHI and COPASA⁴¹. Such inter-institutional agreements will include specific clauses for:

- Following up the results of the project, using the indicators proposed by project that are applicable.
- Identifying training and updating needs as necessary to give continuity to the techniques, practices and knowledge provided by the project and implement a systematic process for monitoring, evaluation, and corrective training action, relying on the model proposed by the project outline, centered on the *Yachachiqs*.
- Regarding the project results and other needs necessary to ensure the sustainability of the productive activity of raising alpacas, identify periodically (every six months or at most annually, as agreed with communities at the end of the project) those coordination needs with community and local authorities and lead and/or participate in the implementation of their agreements, verifying the active participation of communities. These actions will be supported in a constant monitoring under the responsibility of the Regional Government through its various interventions in the project areas.⁴²
- Incorporate the Adaptation to climate change component in the district strategic plans, to ensure that local authorities are those responsible for the economic and political sustainability of project results.
- In Peru, the National Budget Act, the destination given to the resources provided by the national government, local governments, is established in public hearings where the attention given to the projects is prioritized according to the analysis and requirement of the population which approves it. This is called participatory Budgeting. Part of the training the project will develop shall aim at encouraging the active participation in hearings and in the participatory budget.

To ensure the financial sustainability beyond the project activities, in addition to the follow up budget allocation to be negotiated with the local governments, strategic alliances with development banks will be explored. The final monitoring and evaluation report will include updated recommendations on this subject.

⁴¹ Copasa is a public decentralized entity under the Regional Government of Arequipa, dependent on the Regional Government, which acts as a technical and financial counterpart to the cooperation agreements entrusted to it by the Regional Government of Arequipa. In its role as an autonomous body, COPASA has autonomy and relies on support from the authority of the Region's executive branch.

⁴² The Arequipa Region has developed the Coordinated Regional Development Plan, 2013-2021 Arequipa, which provides the regulatory framework, regional policies, external and internal context, Regional Vision 2021, regional strategic priorities, and evaluation, tracking and monitoring schematic, which form part of this Regional Ordinance, and their pp. 94, 115, and 118 points to the Development Axis, the Regional Goals and Agenda of Regional Programs and Projects.⁴² The current development of this regulatory framework is consistent with the aspirations of maintaining the project's sustainability, since the intended objectives are gathered into the design of the Plan.

The table included below shows the commitments and coordination actions anticipated for ensuring the sustainability of project results:

Table N° 13

	ACTIVITY	OUTPUTS	ACTORS
1	Presentation of the detailed proposal of the project's components	Working meeting with Municipal institution at the provincial and local level Working meeting with the Community Organization Memorandum: concerns and commitments for the signing of Inter-institutional Cooperation Agreements	Local Authorities: Provincial level District level Community level
2	Elaboration of cooperation agreements and shared responsibilities	An Agreement for each public institution in the project area An agreement for each province An agreement for each district Elaboration of an agreement for each community In the end there will be: 20 Agreements with public and private institutions 05 Agreements with provincial municipalities 17 Agreements with district municipalities 34 Agreements with irrigation organizations Agreements with producer organizations Agreements with representatives of rural communities	Institutional representatives Local, provincial and district authorities Community authorities Representatives of producer organizations
3	Improvement and development of skills	Participation of all the members of the prioritized communities in the skills building field days	All the community members that participate in the other project activities
4	Participation in the development of local planning tools,	Inclusion of pertinent actions and follow-up to project outcomes in the participative budgets and realization of Strategic Plans	Local and community authorities

	ACTIVITY	OUTPUTS	ACTORS
		NOTE: Through participative budgets, it will be assured that the government lend support to these activities and that they remain as objectives to be pursued every year: these objectives will also be included in their strategic development plans	
5	Coordination between local and communities authorities for the implementation of monitoring and assessment.	Coordinated implementation of monitoring and assessment actions	Local and community authorities NOTE: these actors, as the signatories of the agreements, will also be responsible for guaranteeing the subsequent monitoring and assessment after the culmination of the project

Key stakeholders identified for guaranteeing the resources coming from the State (through the Participative Budgets explained above) and for the prioritization of support for future projects for climate change adaptation are local, provincial, district authorities, mayors and municipal council members.

As key stakeholders for proposal ownership and the inclusion of its continuity in the Participative Budgets the following roles have been identified:

- Leaders of rural communities
- Boards, commissions, and irrigation committees
- Camelid breeders associations
- Mothers' clubs
- Political authorities (lieutenant governors)
- Parent Educational Associations (APAFA, for its acronym in Spanish)
- Nutritional committees (known as *Vaso de Leche*, 'glass of milk')
- Medical post
- Educational institutions
- Other Institutions: ARMA (Regional Environmental Bureau), SENAMHI (National Meteorological and Hydrological Service), Farm Bureau, INDECI (Institute of Civil Defense), provincial, district and community civil defense platforms)

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

As described in section B of tPart II of this document, during the Full Proposal's preparation stage in May 2016 an environmental and social impact assessment was undertaken with a visit to the

project's area. This evaluation, produced a IAS report (Social and Environmental Report), in accord with CAF's procedures for Environmental and Social Assessment. Following CAF's IAS report, the project's Environmental and Social Management Plan was produced, and it was approved by COPASA, the project executor.

Part of the environmental and social assessment's objectives with the visit to the project area was to confirm the preliminary assessment of risks and environmental and social impacts. The E&S assessment report included the following table that synthesizes the results of verification of compliance with the Adaptation Fund's environmental and social safeguards (Annex B of this document includes the project's Environmental and Social Management Plan).

Relation FA Principles No.					
No.	Environmental and Social Principles (FA)	No.	Components Applicable to the Environmental Management Plan (EMP)	Fulfills	
				Yes	No
i.	Principle 1: Compliance with the Law	a (i)	Measures for Air Quality Control	x	
		a (ii)	Measures for soil conservation	x	
		a (iii)	Measures for water conservation	x	
		a (v)	Program solid waste management	x	
		b	Measures for management of the biotic component	x	
		c (i)	Measures for conservation of archeological remains	x	
		c (iii)	Measures for guaranteeing safety and health	x	
ii.	Principle 2: Access and Equity	c (ii)	Program for participation and community relations	x	
iii.	Principle 3: Marginalized and Vulnerable Groups.	c (ii)	Program for participation and community relations	x	
iv.	Principle 4: Human Rights	c (ii)	Program for participation and community relations	x	
		c (iii)	Measures for guaranteeing safety and health	x	
v.	Principle 5: Gender Equity and Women's Empowerment	c (ii)	Program for participation and community relations	x	
vi.	Principle 6: Core Labour Rights	c (ii)	Program for participation and community relations	x	
		c (iii)	Measures for guaranteeing safety and health	x	
vii.	Principle 7: Indigenous Peoples.		Not applicable to the project	x	
viii.	Principle 8: Involuntary Resettlement.		Not applicable to the project	x	
ix.	Principle 9: Protection of Natural Habitats	a (i)	Measures for Air Quality Control	x	
		a (ii)	Measures for soil conservation	x	
		a (iii)	Measures for water conservation	x	
		a (iv)	Measures for landscape conservation	x	
		a (v)	Program for solid waste management	x	
		b	Measures for management of the biotic component	x	
x.	Principle 10: Conservation of Biological Diversity	b	Measures for management of the biotic component	x	
xi.	Principle 11: Climate Change	c (iv)	Program for the prevention of environmental emergencies	x	
xii.		a (i)	Measures for Control de Calidad del Aire	x	
		a (ii)	Measures for Conservation de suelo	x	

Relation FA Principles No.					
No.	Environmental and Social Principles (FA)	No.	Components Applicable to the Environmental Management Plan (EMP)	Fulfills	
				Yes	No
	<i>Principle 12: Pollution Prevention and Resource Efficiency.</i>	<i>a (iii)</i>	<i>Measures for water conservation</i>	X	
		<i>a (iv)</i>	<i>Measures for landscape conservation</i>	X	
		<i>a (v)</i>	<i>Program for solid waste management</i>	X	
		<i>b</i>	<i>Measures for management of biotic component</i>	X	
<i>xiii.</i>	<i>Principle 13: Public Health.</i>	<i>c (iii)</i>	<i>Measures for guaranteeing safety and health</i>	X	
<i>xiv.</i>	<i>Principle 14: Physical and Cultural Heritage</i>	<i>c (i)</i>	<i>Measures for conservation of archeological remains</i>	X	
<i>xv.</i>	<i>Principle 15: Lands and Soil Conservation.</i>	<i>a (ii)</i>	<i>Measures for soil conservation</i>	X	
		<i>a (v)</i>	<i>Program for solid waste management</i>		

Below is a synthesis of the risks and impacts identified through the environmental and social assessment with the visit to the project area.

a. Project impacts about the physical component

Soil:

The actions that will be carried out in the project's execution consist principally of initial soil movement, removal to the work zone, canals (material from the zone will be utilized, concrete will not be used), micro dams (terrain will be adapted with geomembranes or similar materials), implementation of Trombe solar walls and use of vehicles. The impacts that can be foreseen are related to increased compaction, loss of vegetal cover within the work zone, contamination due to potential minor spills or leaks. Another potential source that may affect soil, could be caused by the handling and disposal of solid wastes, to which must be added possible accidental spills of hydrocarbons and chemical products.

It is estimated that the project's impacts on the soil component, will be of unremarkable low impact, being of a temporary and reversible nature.

Air:

Among the environmental aspects that will have an effect on air quality, are: gases from emissions due combustion, generation of particulate material and noise. These changes will be of temporary character, and due principally to vehicle exhaust, soil movement, transport, hauling and unloading of materials.

These activities will result in a temporary change in air quality in the project's sector. Another element to consider is the increase in noise levels, due principally to work activities, for example, the installation of Trombe solar walls. The noise increase occurs in an unremarkable and temporary form.

It is estimated that the project's impacts on the air component will be of unremarkable low impact, being of a temporary and reversible nature.

Water:

The project establishes the implementation and adaptation of micro reservoirs of approximately 10m x 10m, of low impact on the surroundings. Likewise, the water canals to be implemented will be rustic, with material from the zone. The impact on water resources is

registered in a focused manner by various tasks specific to the works stage, influencing principally dusts and earth thrown up as a product of soil movement. Another potential source of contamination are possible accidents or accidental spills.

It is estimated that the project's impacts on the water component will be of unremarkable low impact, being of a temporary and reversible nature.

b. Project impacts on the biotic component

Flora

The loss of vegetal cover will be minimal, and limited principally during the excavation work for the movement of soils and establishment of canals. It is likely that the loss over the trajectory of the rustic canal will be of localized, permanent nature, however, mitigation and/or compensation measures will be undertaken.

Fauna

Human activity and the noise associated with works activities will disturb the environment occasioning probably a temporary abandonment of the area by some bird species.

The alteration of the habitat caused by the elimination of part of the vegetal cover will not produce significant changes in the ecosystem, with which it is considered that will not be a significant effect on the biodiversity in the area.

The negative impacts on the flora and fauna are of low intensity, localized in a lesser portion of the terrain and short duration, given that they are limited to the works stage.

c. Project impacts on socio-economic component

The final impact is highly positive, as it is measures that will help improve the quality of life of communities and to reduce vulnerability to the effects of climate change (CC).

d. Project impacts on the socioeconomic component

The Executor Organism is COPASA, an autonomous entity of the Regional Government of Arequipa, created by E.O. 002-97-PRES on the 30th January, 1997. For the fulfillment of its purposes, it has an executive office, reporting to the Governor's Office of the Regional Government, enjoying technical, administrative and financial autonomy.

COPASA has at its disposal broad experience in the execution of projects and programs in the Arequipa Region, in irrigation, and programs related to preventing the effects of climate change. Likewise, it possesses advanced technical knowledge in order to move this project forward. During the Project's evaluation mission it has been possible to observe that there exists good inter-institutional coordination and relations, with the municipalities and the communities in the project's area of influence.

NOTE: The E&S evaluation report is included in the present document as Annex D.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Describe the arrangements for project / programme implementation.

For the implementation of the Ayninacuy Project, scheduled to be undertaken during 30 months beginning in February 2017, CAF, now the Development Bank of Latin America (formerly *Corporación Andina de Fomento*), will act as the Regional Implementing Entity, while the role of executor entity will be assumed by Special Project COPASA.

The COPASA Special Project (Cooperation with the process of self-sustaining development in Arequipa), is an autonomous agency of the Regional Government, created by EO 002-97-PRES on January 30, 1997, under the Technical Cooperation Agreement between the governments of Peru and Germany. To date and in compliance with its purpose, it has Executive Management, reporting to the President of the Regional Government, and possessing technical, administrative and financial autonomy.

The applicant has previous experience in technical cooperation in this topic, fulfills its function as the region's counterpart for technical and financial cooperation accords that the Presidency of the Regional Government of Arequipa entrusts to it. Since 1985, it has developed many and varied work programmes and projects on risks management, adaptation to climate change, rural and social development, local governments strengthening and others.

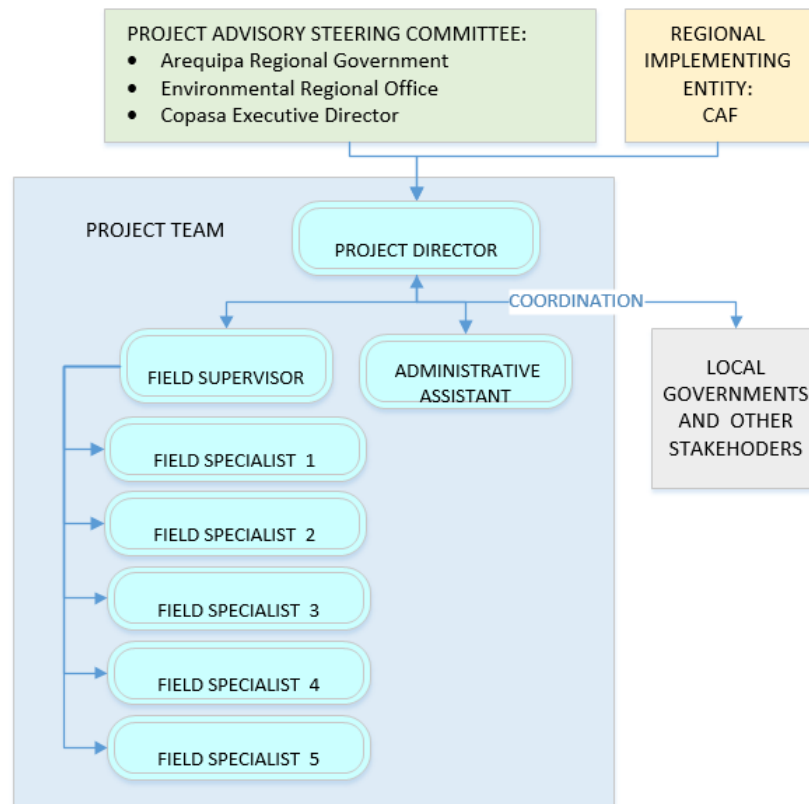
The project will be carried out in direct coordination with local governments of the 18 districts within the project's area of influence. Its implementation will engage stakeholders such as the Regional Government of Arequipa, local authorities, andean camelid breeders' associations, health centers in the districts, associations and rural communities and civil society. All of this will be done in coordination with the Ministries of Environment, and Agriculture, and the National Water Authority. The Project's institutional arrangements that are designed to work through the COPASA Special Project in direct collaboration with the Regional Government and local governments, maintaining constant communication, and as far as possible, will be aligned with other initiatives.

The following organigram shows the relationships foreseen for the development of the Project. The Project's Advisory Steering Committee will be formed by a Representative of the Regional Government of Arequipa, by a Representative of the Regional Office of the Ministry of the Environment (ARMA) and by the Executive Director of COPASA.

The Project's Advisory Steering Committee will have the following characteristics:

- Its principal role will be consultative, and it will offer guidance and supervision for the adequate development of the project and compliance with its objectives.
- The committee will meet at least once a quarter in order to reply to the quarterly reports on the project's advances and monitoring.
- Its recommendations will delivered to COPASA's Executive Director who will have autonomy in accepting them, and will respond in a justified manner to the Advisory Steering Committee with relation to said recommendations.

- The Project's Advisory Steering Committee's functions will include recommendations on technical assistance for the project team, and the likely actions for contracting and supplying it.
- It will also have a support function for assuring the quality and control of risks to the project's development and of its reporting documentation to the Implementing Entity.
- The Project's Advisory Steering Committee can recommend and obtain technical support external to the project and COPASA.



Project Organigram

COPASA's Executive Director has the responsibility for supervising planning, execution and reporting of all the activities related to followup, monitoring and project reporting.

The Project Team will have the following characteristics and roles:

- Be responsible for the planning, execution, verification, documentation, monitoring, evaluation and reporting of the project's daily progress.
- Through the project Director, reporting with respect to the previous responsibilities vis-a-vis the Executive Director of COPASA.
- Hold a minimum of two project meetings per month and include in project progress reports the minutes of these project meetings.

- The Project Director will be a professional with accredited experience, it is a full-time position. The responsibilities include:
 - Managing coordination with local governments and other entities which are significant stakeholders for the project's development and objectives;
 - Reporting at least once a month to COPASA's Executive Director on the progress, modifications and status of all the coordinated relationships.
- The Field Supervisor, responsible for the technical component of the project, will be a professional with accredited experience and will also be a full-time position.
- The responsibilities assigned to the project's administrative assistant include:
 - Be responsible for the planning, execution, verification, documentation, monitoring, evaluation and reporting on the project's administrative and financial development,
 - Support the Project Director and the Executive Director of COPASA in activities concerning planning, verification, documentation, monitoring and evaluation of the project's administrative and financial development (this includes communication with the Implementing Entity, CAF and the reporting activities to it).

In its role as the Regional Implementing Entity, CAF will be responsible for compliance with operating and fiduciary standards that correspond to it as the accredited Implementing Entity. CAF will be responsible for ensuring compliance with and delivery of the objectives and commitments approved of the different project components and for the verification and evaluation of possible modifications to original planning, as well as that of consultation before the Adaptation Fund with respect to possible modifications. CAF will be responsible for ensuring that the assignment and disbursement of project resources occur in a timely, efficient, effective manner.

CAF also will be technically and administratively responsible for the compliance with the Adaptation Fund's guidelines to the extent necessary for the achievement of the Results and Outputs foreseen for the Project in this document. In its function of general project supervision, CAF will be responsible for the delivery and opportune culmination of the project's inputs and products, for the coordination with other significant actors in the project (in particular with other governmental entities and other local or regional authorities). CAF will supervise activities of follow-up, monitoring and evaluation of the project's activities and results and, if considered necessary or convenient, it will implement its own follow-up, monitoring, and evaluation actions.

As an Implementing Entity, CAF is responsible for ensuring that the project achieve the defined results in this project document, with adequate quality standards and complying with the time and budgetary restrictions, assuring: transparency, compliance with the Adaptation Fund's policies (including the environmental and gender policies), the correspondence between the project's objectives and its actions and activities, the adequate allocation of project resources, communication with the pertinent social actors, and the adequate distribution of project opportunities and results.

B. Describe the measures for financial and project / programme risk management.

The analysis of the critical risks that project implementation can face was undertaken during the project's design stage, in particular during the development of the Project's Results Framework, with the participation of significant social actors. Below are presented the most significant risks and corresponding anticipated mitigation measures.

#	Type	Risk	Classification	Mitigating Measures
1.	Financial	The exchange rate for the PEN/USD is not holding above 3.43	Low	<p>By means of support from CAF's Office of Macroeconomic Studies there will be access to estimates and economic projections.</p> <p>In the project's dissemination possible consequences of this risk will be presented (reduction in the reachable goals with respect to those anticipated). On a quarterly basis, tracking exchange rate projections will be done. In the case of a significant negative impact, in consensus with the participating producers, measures with the greatest positive effect will be prioritized and agreements of prioritization on eligibility will be respected; compensation will be promoted with respect to project projections through possible assignments in the districts' participative budgets.</p>
	Climate	The restrictions foreseen for water resources are increased meaningfully by unforeseeable effects of climate change and of its variability.	Low	<p>In accord with the climate scenarios considered, significant increases in this restriction are not anticipated, regarding the foreseen restriction. Annually an evaluation of this risk will be done (using secondary sources). In the case of risk, the project will alert the local and regional authorities and the communities, and will increase the most intensive implementation of best practices for water resources management.</p>
	Técnical - cultural	Resistance to change in vulnerable communities	Low	<p>COPASA has a respected image among the communities. The best practices related to the livelihood proposed by the project have been tested successfully, and the target communities know them partially. Recognized local experts within the community will have the role of trainers in direct contact with the communities (in close technical accompaniment by COPASA), with the intent of eliminating the risk of cultural barriers. The project will</p>

				raise awareness among young people by means of the educational institutions, insofar as they serve as effective communicative and motivational channels are motors for change in the households (experience already proven by COPASA). From the project start it will enter into direct contact with the local authorities and will seek to alliances to consolidate it. Building demonstrable interest among the authorities will be pursued. The monitoring of results will seek to identify also indications of effectiveness of the training and the adaptation of the best practices.
	Gender	The project's dissemination, communication and motivation strategies are not effective for achieving a broad and active participation on the part of women.	Low	Women were consulted in two phases of the project's development and in both they expressed interest in the project's activities and benefits. The channels for convocation addressed to women have turned out to be effective. In the training sessions, together with the technical topics, family topics will be addressed, personal development and others, prioritized by the women in the consultation. In the project evaluations it will be determined whether or not a redesign of the strategies come to be necessary.

The monitoring and evaluation component is a fundamental axis of project control and a tool for risk identification. In the elaboration of the annual plan the existence of consistent monitoring, evaluation, and risk management activities will be verified. The periodic monitoring reports associated with project performance will include observations and recommendations about identified and unattended risk scenarios in an adequate manner.

C. Describe the measures for environmental and social risk management, in line with the Environmental and Social Policy of the Adaptation Fund.

Annex B of this document presents measures for Environmental and Social Management -E&S for the Project, in agreement with the Adaptation Fund's E&S Policies.

D. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan.

Below are presented the planned monitoring and evaluation activities - Project M&E. At the end of the section the budget for M&E is presented.

Monitoring activities will be implemented both by the Project Team as well as CAF in its role as Implementing Entity, in compliance with CAF's official procedures and in consistency with the practices from International Financial Institutions. The established indicators in the Project Results

Matrix (Project Results Framework) will be the basis for the project's monitoring and evaluation system. The monitoring will do the tracking of progress toward the established goals and toward the delivery of the projected products. The evaluation will attend to the achievement of results and the project's impacts in the perspective of its projected objectives. The monitoring results will be used for decision-making with respect to the necessary adjustments to the project's direction with the intent of optimizing the use of resources assigned to the project for reaching its goals.

Project Start and initial workshop:

Before the first two months from the project start have passed, an initial workshop will be held, with the participation of the whole Project Team, the Executive Director of COPASA, the Project's Advisory Steering Committee, CAF representation as the Implementing Entity and, to the extent possible reasonably manageable, of local and regional authorities with interest in the project.

The workshop's agenda and activities will assure the compliance with the following objectives:

- An understanding and agreement of all the participating actors regarding the project objectives and the roles, functions, and responsibilities of each part for the achievement of those objectives.
- An agreement about the structure of responsibilities, reporting and communications, about consultation mechanisms in case of doubts and unexpected events, about the procedures for resolving conflicts. An agenda of different types of periodic meeting required for the project's development.
- Revise and agree on the M&E requirements and procedures.
- Revise and agree on the requirements and procedures for reporting and annual auditing.
- Revise and agree on the indicators, goals, and means of verification and the assumptions initially expected for the project.

The initial workshop will have as products:

- The project's activities plan for the first year (counted from the start of the project), with relation to its budget and the progress indicators. This plan will include the necessary agreements and arrangements for the implementation of that first stage of the project.
- The monitoring and evaluation activities plan (including schedule) and its budget. The plan will include the indicators, goals and means of verification and the assumptions and risks reviewed in the workshop.
- A plan for periodic status and financial execution reports, and of annual financial audits in accord with CAF's fiduciary standards.
- The initial workshop report (to be elaborated 1 month after the workshop's end). This report will permit the formalization of the agreements and plans agreed upon in the workshop.

Baseline:

The Project Director will be responsible for consolidating the complete information to establish the baseline for the indicators defined in the Project Results Framework, before completing the

project's fifth month. La estrategia para el establecimiento de la línea base y su reporte serán aprobados por CAF.

Periodic Progress Reports:

The Project Director will be responsible for monitoring the execution at the project's activities level, and in these activities will have the support of the Administrative Assistant. The Project Director will report to CAF quarterly about progress in the execution of activities, of budgetary execution, and will hold on a quarterly basis face-to-face meetings with CAF or remotely via technology (or with greater frequency if CAF consider it necessary;), for the review of these reports, of project progress and of the decisions required for the project's good progress. CAF will be issue quarterly monitoring reports, will exercise continuous supervision and at its consideration will carry out periodic visits to the project's activities and verifications in the field of the state of project progress, with the support of the Project Team, in accord with the expected annual plans.

With the support of the Project Director, CAF, in its condition as Implementing Entity, will be responsible for issuing on a yearly basis an annual progress report (Annual Progress Report, APR) with a scope that includes, but is not limited to this content:

- The progress with respect to the project's objectives and outcomes, in function of the expected indicators and goals with the baseline, for each issue (cumulative report).
- The products delivered for each outcome foreseen in the project (annual execution report).
- Lessons learned and best practices developed or implemented.
- Risk management implemented and evaluation of the project's administration and execution.

Mid-term Evaluation

For this project a mid-term evaluation is not required, insofar as the planned schedule is fewer than three years.

Final Evaluation

This evaluation will be done once the project activities are finished, under an external consultant, with the following minimum content:

- The achievement of project results;
- The evaluation of risks to sustainability;
- The processes that influence the achievement of results, including financial management;
- The way in which the project has contributed to the achievement of the Fund's objectives,
- An evaluation of tracking and assessments systems. The final evaluations will take into account the minimum requirements that are presented below as well as the guidelines (that figure in a different document).

In addition to the final evaluation which was just described, CAF, with the support the Project Team, will prepare during the last three months of project activities the project's final report (Project terminal report), which will report on the achieved outcomes (objectives, results, products), from the lessons learned, from the impediments and problems experienced, from the expected unachieved results. The report will also include recommendations concerning the measures required to ensure the sustainability and replicability of the project's results.

Below is presented the budgeted Monitoring and Evaluation Plan (budgeted M&E plan):

Type of M&E activity	Responsible Parties	Parties Budget US\$	Time frame
Initiation Workshop and Report	Equipo de Proyecto CAF (IE)	8.000	Workshop: 2 months after project start up Report: 1 month after workshop
Measurement of Means of verification for project performance & results.	Project Manager	----	Annually
Quarterly Reports	Project Manager CAF	----	Quarterly
Annual Progress Report, APR	Project Manager	----	Annually
External Final Evaluaton	Project Manager CAF External Consultant	13.000	End of project
Programme Terminal Report	Project Manager CAF	----	3 months before the end of the project
Audits		24.000	Annually
Visit to field sites		(CAF staff travel costs: IE fees)	Based on Annual Plans
Water lab tests		2.000	Annually
Total		47.000	

- E. Include a results framework for the project proposal, including milestones, targets and indicators.**

AYNINAKUY PROJECT RESULTS FRAMEWORK

RESULTS	INDICATOR	GOAL			RISKS AND ASSUMPTIONS
		QTY.	U.M.	DESCRIPTION	
Project Objectives: 1. Strengthen the livelihoods of the rural communities in 5 Andean highland provinces in the Arequipa Region by means of local processes of adaptation and reduction of climate risks;	1.1. % of households and communities whose livelihood is most resilient	53.42	%	% of households and communities (in target population) whose livelihood is most resilient due to the implementation of actions to strengthen livelihood.	Assumption 1: the exchange rate for PEN/USD remains above 3.43. Assumption 2: the effects of climate change and of variability does not have a significant increase with respect to the expected projections
		15.18	%	% of households and communities (in target population) whose livelihood is most resilient due to the implementation of adaptive housing improvements.	
Project objectives: 2. Strengthen the rural communities' capacities in 5 Andean highland provinces in the Arequipa Region in order to reduce climate risks	2.1 % of the target population made aware of the adverse effects of climate change and of adequate responses	21.42	%	% of households and communities (in target population) whose livelihood is most resilient due to development of adaptive production skills.	
		7.16 (17,212 Persona)	%	% of regional households and communities whose livelihood is most resilient due to development of risk management skills. NOTE: this % corresponds to 100% of the target population.	
		20.92	%	% of the target population whose livelihood is most resilient due to development of adaptive production skills.	
		25.66	%	% of the target population whose livelihood is most resilient due to development of risk management skills.	
Component 1. Implementation of measures aimed at reinforcing the means of subsistence and sources of income in the vulnerable communities in the areas selected and the implementation of complementary measures.					
ANIMAL NOURISHMENT AND PROTECTION AXIS					
OUTCOME 1.1: Improvements in the conditions and means of providing animal nourishment and health, through strengthening the life strategies in relation to the impacts of climate change.	1.1.1 % of loss reduction (annual cycle).	30	%	% of loss reduction (estimated by the producer beneficiary in annual cycle) with respect to the baseline.	Assumption 1: The technical training sessions are successful and permit the producers to take ownership of the transmitted best practices. Assumption 2: The transmitted best practices are adequate for its objectives are assimilable by its beneficiaries.
	1.1.2 Has. of pastures reserved for rotational use	72	Ha	Has. of pastures reserved for rotational use.	
	1.1.3 M.T. of forage cereals produced per ha.	72,000	T.M.	72,000 M.T. of forage cereals produced per ha. (80 m.t./Ha)	

	1.1.4 N° of households benefitted with forage cereals production	1800	Beneficiary households	1800 households benefitted with forage cereals production	
	1.1.5 M.T. of improved grasses produced/ha.	1,152	M.T.	1,152 M.T. and of improved grasses produced (4 M.T./Ha per semester)	
	1.1.6 N° of beneficiary households	360	Beneficiary households	360 beneficiary households	
	1.1.7 N° Months that flock can be fed with these reserves.	4	Months	Months (4 months is the period of forage scarcity foreseen in the area).	
	1.1.8 N° Months the flock will be able to be fed with these reserves.	4	Months	months of reserves of pastures in highland wetlands (in order to be employed as feed only in periods of scarcity)	
Products 1.1: specific strategies for livelihood strengthen in relation to the impacts of climate change.	Number and type of adaptation assets (physical and related to knowledge) created in support of the specific individual and communal strategies for livelihood.				
Products 1.1.1: shelters built for animal protection (in particular alpaca mothers and offspring)	1.1.1.1 N° of shelters built. Capacity each shelter. (Indicator included in number and type of adaptation assets created in support of subsistence strategies).	270	Shelter	270 shelters built, with a capacity for 70 vulnerable animals in each shelter	
	1.1.1.2 N° head of livestock that will be protected	18,900	Heads	18,900 heads of camelids that the producer has evaluated as very vulnerable are protected in them	
	1.1.1.3 % protection animals most vulnerable	6.34 %	Animals	This data will be obtained once the baseline is done, (According to the Livestock Census, 2012, population of alpacas in the area of intervention: 322,500).	
Products 1.1.2: Protective fencing, with livestock netting, installed.	1.1.2.1 N° of fences installed (Indicator included in number and type of adaptation assets created in support of subsistence strategies).	72	Fences	72 fences installed.	
	1.1.2.2 Linear meters (LM) of installed fencing.	28,800 lm	Linear meters	Linear meters of installed fencing to be defined after identifying the baseline	
	1.1.2.3 Area protected by installed fencing	72	Ha	72 ha protected by installed fencing.	
Products 1.1.3: Seeding and cultivation of high altitude forage cereals.	1.1.3.1 Ha planted of high altitude forage cereals. Ha planted of high altitude forage cereals preserved available for grazing (from the 13th week of the seeding). (Indicator included in number and type of	900	Ha	Ha planted of high altitude forage cereals. Ha planted of high altitude forage cereals preserved available for grazing (from the 13th week of the seeding).	

	adaptation assets created in support of subsistence strategies).				
Products 1.1.4: Seeding and cultivation of improved pastures.	1.1.4.1 Ha of pastures of improved seeds. Ha of pastures of improved seeds preserved available for grazing (from the 13th week of the seeding) (Indicator included in number and type of adaptation assets created in support of subsistence strategies).	72	Ha	Ha seeded of improved grasses. Ha seeded of improved grasses preserved available for grazing (from the 13th week of the seeding).	
Productos 1.1.5: Installation of clover in highland wetlands to improve forage	1.1.5.1 Installation of clover in highland wetlands to improve forage.	72	Ha	Ha of improved wetlands with clover.	
	1.1.5.2 N° of improved wetlands with clover.	36	Wetlands	Improved wetlands with clover.	
Products 1.1.6: Animal health campaigns in selected rural communities	1.1.6.1 N° of campaigns executed.	36	Campaigns	36 of campaigns executed.	
	1.1.6.2 N° of dosed animals	10,000	Animals	10.000 dosed animals	
WATER MANAGEMENT AXIS					
SECONDARY OUTCOME 1.2: Greater capacity for resilience in ecosystem in response to pressures caused by climate change and variabilidad.	Sec 1.2.1 N° of wetlands improved and recovered through irrigation expanded with rustic canals that best support the conditions resulting from variability and climate change	36	Wetlands	Wetlands that thanks to improvement in their irrigation have recovered or improved successfully their environmental services.	Assumption 1: the anticipated effects of climate change and of variability do not increase in a significant manner the expected restrictions on water resources.
OUTCOME 1.2: Improvements in the availability of water and irrigation conditions allow for providing greater volumes of vegetal production and of greater areas consolidated for animal feed.	1.2.1 % of Ha increased with success production for animal feed	72	Ha	Ha increased with success production for animal feed.	Assumption 2: There are increase in risks originating from exacerbated volcanic or hydro-meterological dangers.
	1.2.1 Metric tons of improved grasses/Ha produced in increased areas.	1,152	T.M.	1,152 metric tons of stored feed (forage and grasses from improved seeds)/72 Ha of hectares in increased areas.	Assumption 3: Technical training are successful and allow the producers to take ownership of the transmitted best practices.
	1.2.1 LM of rustic canals built/improved that have been consolidated	10,000	LM (linear meters)	LM of rustic canals built/improved that have been consolidated in intervened wetlands	Assumption 4: The best practices transmitted are adequate for their objectives and are assimilable by their beneficiaries.
	1.2.1 N° of beneficiary households	600	Households	600 beneficiary households from wetlands with improved irrigation	
	1.2.1 N° of dry months or with water scarcity for which water stored in rustic reservoirs is available	5	Months	Months defined as dry or with water scarcity for which water stored in rustic reservoirs is available.	
	1.2.1 N° of beneficiary households from rustic reservoirs.	540	Households	Households beneficiaries from rustic reservoirs.	

Products 1.2.1: Modules of pressurized irrigation installed in selected communities.	1.2.1.1 N° of installed modules. Ha of improved grasses. (Indicator included in number and type of adaptation assets created in support of subsistence strategies).	72	Modules	72 installed modules	
Product 1.2.2: Improved vulnerable natural assets in response to climate change impacts, including variability.	1.2.2.1 N° of wetlands with improved irrigation via rustic canals that can best withstand the conditions resulting from variability and climate change.	36	Wetland/community	36 wetlands with improved irrigation via rustic canals (in order to increase their vegetal matter production) that can best withstand the conditions resulting from variability and climate change.	
Products 1.2.3: Construction and improvement of canals in order to optimize the management of water resources in wetlands.	1.2.3.1 N° meters of improved canals	10,000	LM	10.000 meters of canals built and/or improved.	
Products 1.2.4: Construction of reservoirs for storage of rainfall and of runs or natural sources.	1.2.4.1 N° of reservoirs built; Of 100m3 capacity each one. (Indicator included in number and type of adaptation assets created in support of subsistence strategies).	36	Unit	36 Reservoirs built	
Products 1.2.5: Construction of rustic reservoirs (ponds) for rainfall storage and runs or natural sources.	1.2.5.1 N° of reservoirs (ponds) built. (Indicator included in number and type of adaptation assets created in support of subsistence strategies).	36	Unit	36 Rustic ponds built	
	1.2.5.2 M3 of capacity in each reservoir.		M3	Indicator to be defined once baseline is identified.	
ATTENTION TO HUMAN HEALTH AXIS					
SECONDARY OUTCOME 1.3 Reduction in cases indexes of ARIS and ADDS in communities and beneficiary households	Sec. 1.3.1 N° cases ARIS reported/year.		N° cases	Goals to be defined after baseline is identified.	Assumption 1: Technical improvements are implemented in an adequate manner. Assumption 2: Beneficiaries incorporate the improvements into their lifestyle. Assumption 3: The benefits of the improvements, in quality of life, are disseminated to the community through: i. Social networks prior to project and ii. Through the group activities of the last phases of the project.
	Sec. 1.3.2 % reduction in cases of ARIS/year.		%	Goals to be defined after baseline is identified.	
	Sec. 1.3.3 N° cases ADDS reported/year.		N° cases	Goal to be defined after baseline is identified.	
	Sec. 1.3.4 % reduction in cases of ADDS/year.		%	Goal to be defined after baseline is identified.	
OUTCOME 1.3: Improvement in the conditions of housing quality to withstand extreme climate conditions	1.3.1 N° of direct beneficiaries per type of improvement installed in household.	360	Persons	360 of direct beneficiaries per type of improvement installed	
	1.3.2 Women heads of households prioritized in the criteria of beneficiary selection.	1	Parameter of prioritization for women heads household.	In the agreements for beneficiary selection at least one parameter of prioritization for women head household is included.	

	1.3.3 Subjective valuation of the previously established scale (1-5)	4/5		Subjective valuation of the previously established scale (1-5)	
	1.3.4 Parameters water quality for human consumption. 1. Total coliforms; 2. Heat resistant coliform; 3. Color; 4. Turbidity; 5. pH. NOTE: They are parameters of obligatory control (Peruvian Regulation Water Quality Human Consumption EO N° 031-2010-SA).		Indicators below the maximum limits allowable for parameters according to Annex I of the Regulation of Water Quality for Human Consumption EO N° 031-2010-SA.	The water for human consumption supplied by treatment systems installed must satisfy the maximum limits permissible for parameters according to Values defined in Annex I of the Regulation of Water Quality for Human Consumption EO N° 031-2010-SA. 10 rotating samples per area and annual included test upon delivery).	
	1.3.5 N° of beneficiaries	2,000	Persons	2,000 beneficiaries	
	1.3.6 N° of beneficiary households	400	Households	400 beneficiary households	
Productos 1.3.1: Water purification systems installed in the most vulnerable communities, in order to reduce the incidence of diarrheal diseases	1.3.1.1 N° of safe water purification systems installed	5	Systems	05 of safe water/purifier systems installed.	
	1.3.1.2 N° of m3 processed monthly	900	m3	900 m3 processed monthly in each module (each/month is 6/8 m3/day)	
Products 1.3.2: Improvement campaigns for "healthy rural homes": heating via solar walls; rural electrification (autonomous photovoltaic systems), composting latrines and improved stoves	1.3.2.1 N° of improved homes	72	Home	72 improved homes.	
	1.3.2.2 N° of composting latrines built	72	Latrines	72 Composting Latrines Built.	
	1.3.2.3 N° of Improved Stoves built	72	Stoves	72 of Improved Stoves built.	
	1.3.2.4 N° of photovoltaic panels installed	72	Panels	72 photovoltaic panels installed	
	1.3.2.5 N° of solar walls	72	Walls	72 of solar walls built.	
COMPONENT 2: Implementation of measures aimed at strengthening institutional capacities and those of the community in order to reduce risks of losses occasioned due to climate change.					
AXIS GOVERNANCE					
OUTCOME 2.1: Greater awareness and ownership concerning the local processes of management and self-management for adaptation to and reduction of climate risk.	2.1.1 % of the target population aware of local processes of management and self-management for adaptation to and reduction of climate risk.		%	% of the target population aware of local processes of management and self-management for establishing agreements, covenant, commitments and participative budgets for adaptation to and reduction of climate risk. Goal to be established after establishing a baseline.	Assumption 1: Local governments and beneficiaries participate in the project and support it in the execution, follow-up and/or replication of its different components.

	2.1.2 % of target population aware of local processes of management and self-management for adaptation to and reduction of climate risk is made up of women.	30	%	Goal to be verified after baseline is established.	<p>Assumption 2: dissemination, communication, project motivation strategies are emotion-based in order to achieve a broader and active participation of women.</p> <p>Assumption 3: Leaders and representatives of community organizations gain empathy with the project objectives and support and stimulate broad community participation in the project activities.</p> <p>Assumption 4: Members elected to form the civil defense platforms accept and assume responsibility and participate in activities.</p>
Products 2.1.1: Agreements and coordination with local and community authorities for the design and implementation of monitoring and evaluation plans (included follow-up once project activities finished and final evaluation).	2.1.1.1 of agreements (Covenants). N° of agreed monitoring and evaluation plans. N° of monitoring and evaluation reports. (see monitoring plan)	22	Covenants	04 provincial covenants 18 district covenants:	
Products 2.1.2: Commitments for beneficiary selection with the participation of various social actors: local authorities, community authorities, representatives of community organizations	2.1.2.1 N° of commitments signed.	36	Commitments	36 commitments signed.	
Products 2.1.3: Implementation of training modules in teamwork and leadership, in field days	2.1.3.1 N° Projects elaborated.	02	Projects	2 modules implemented in 36 communities.	
Activities 2.1.1: Dissemination of the detailed proposal of the project components to 1. Municipal institutions in the provincial and local level; 2. Community organizations	A2.1.1.1 N° of dissemination and motivation visits	4	Provincial Visits.	04 visits to provincial municipal institutions	
	A2.1.1.2 N° of dissemination and motivation visits	18	District Visits	18 visits to district municipal institutions	
	A2.1.1.3 N° of dissemination and motivation visits	36	Community leadership visits	36 visits to community organizations.	
Activities 2.1.2: Participation of community leaders in the development of local planning tools, for the inclusion of support actions, follow-up, project continuity and replication in participative budgets and execution of Strategic Development Plans.	A2.1.2.1 N° of participation processes initiated and culminated.	36	Plans	36 processes of participation initiated and culminated.	
Activities 2.1.3: Ritual spiritual blessing activities - and project start	A2.1.3.1 N° of activities executed by type.	05	Rituals	5 activities developed in the provinces selected by the project	
Climate Change Risk Management Axis					
OUTCOME 2.2: Greater awareness and ownership of local processes of adaptation to and reduction of climate risk.	2.2.1 % of target population aware of the adverse effects of climate change and adequate responses	7.16	%	% of regional target population aware of the adverse effects of climate change and adequate responses	<p>Assumption 1: Local governments have interest in the initiatives of project's risk management, participate in it and promote community participation.</p> <p>Assumption 2: Target community organizations and entities have interest in the initiatives of project's risk management, participate in it and promote the participation of its members.</p>
Productos 2.2: Awareness activities about adaptation and risk reduction with group participation of the target population: see specific products below.	2.2. N° and type of actions or risk reduction strategies at the local level				
Products 2.2.1: Disaster drills staging, at provincial level.	2.2.1.1 N° of drills (indicator included in N° and type of actions or risk reduction strategies introduced at local level)	4	Drills.	4 drills staged at provincial level	
		5	Drills	5 drills staged at district level	

Products 2.2.2: Implementation of teaching modules for early warning EWS in rural communities	2.2.2.1 of implementation events and module dissemination. (indicator included in N° and type of actions or risk reduction strategies introduced at local level)	36	Awareness and motivational visits.	36 awareness and motivational visits	
	2.2.2.1 N° of participants in the dissemination action	180	Participants.	180 of participants in the dissemination action	
Products 2.2.3: Accompaniment to educational institutions, in elaboration of its prevention and disaster attention plans, as climate change adaptation measures.	2.2.3.1 N° of accompaniment processes to project execution.	5	Processes in Educational Institutions.	5 of accompaniment processes to project execution "prevention and disaster attention plans, in Educational Institutions".	
	2.2.3.2 N° of elaborated plans. (indicator included in N° and type of actions or risk reduction strategies introduced at local level)	5	Plans	5 plans elaborated	
Products 2.2.4: Advisories for the formation and strengthening of district and community level civil defense platforms (reconnoitering, startup).	2.2.4.1 N° of processes initiated and culminated.	18	Processes in District Municipalities	processes of accompaniment to formation and strengthening of district level Civil Defense Platforms	
	2.2.4.2 of Platforms (committees) formed at district level. (indicator included in N° and type of actions and risk reduction strategies introduced at local level)	18	Platforms in District Municipalities	18 platforms of district civil defense formed or strengthened	
	2.2.4.3 N° of women included in the formation of each platform at district level.	1	Women	At least one (1) woman makes up part of each formed district level civil defense platform.	
	2.2.4.4 N° of processes initiated and culminated.	36	Processes of Rural Communities	36 processes of accompaniment to formation and strengthening of Community Civil Defense Platforms	
	2.2.4.5 N° of Platforms (committees) formed at community level. (indicator included in N° and type of actions and risk reduction strategies introduced at local level)	36	Platforms in Rural Communities	36 community civil defense platforms formed or strengthened	
	2.2.4.6 N° of women included in the formation of each community level platform.	1	Women	At least one (1) woman makes up part of each community civil defense platform formed .	
Knowledge Management Axis					
OUTCOME 2.3: improvement in awareness and climate risk management and adaptive techniques skills.	2.3.1 of members of vulnerables communities that participate in awareness on adaptation and risk reduction, per activity type.	28.78 %	Participants.	28.78 % of members of vulnerable communities that participate, per activity type.	Assumption 1: vulnerable communities have interest in training proposal, resistance to change is low or not meaningful and the best practices are assimilated by participants.

					Assumption 2: Local governments have interest in the project's risk management initiatives, participate in them and promote community participation.
Products 2.3.: Target population groups participants in awareness activities and climate risk management and adaptive techniques training: see specific products below.	2.3._ N° and type of adaptive actions and techniques introduced at local level				Assumption 3: Target community organizations and entities have interest in the project's risk management initiatives, participate in them and promote participation by its members.
Products 2.3.1: Preparation of agreements, programs, projects that lend continuity to project activities and achievements, that incorporate the project's lessons learned, its results and recommendations from the project's monitoring and evaluation reports.	2.3.1.1 N° of prepared continuity actions (agreement, programs, project)	18	Covenants	18 prepared continuity actions (agreements, programs, project)	
Products 2.3.2: Publication of lessons learned on COPASA's website and of the organizations that include a similar dissemination on their corresponding websites	2.3.2.1 N° of lessons per type	1	Annual Publication	01 publication of lessons per type, at mid-term and at end	
Products 2.3.3: Elaboration of technical guides about: 1. adaptation to climate change and environmental risk management. 2. management and operation of early warning system. 3. adaptation and risk prevention in educational institutions. 4. Seedings of forage cereals and cultivated grasses, installation of modernized irrigation pilots, wetlands management, animal health, shelters construction, improvement of family housing.	2.3.3.1 N° developed guides, 2.3.3.2 N° N° of printed copies 2.3.3.3 N° of copies delivered 2.3.3.4 Qualification of quality management for technical guides.	13	topics	13 topics developed	
		43,000	Guides	43,000 guides elaborated and printed	
		2000	Guides	2000 guides elaborated on environmental risks topics	
		4,000	Guides	4000 guides elaborated on early warning systems topics	
		4,000	Guides	4000 guides elaborated on Adaptation and risks prevention topics in schools	
		4,000	Guides	4000 guides elaborated on installation of forage cereals topics	
		4,000	Guides	4000 guides elaborated on installation of improved grasses topics	
		4,000	Guides	4000 guides elaborated on pressurized irrigation systems topics	
		4,000	Guides	4000 guides elaborated on wetlands management topics	
		2,000	Guides	2000 guides elaborated on Animal Health topics	
		4,000	Guides	4000 guides elaborated on shelter construction topics	
		4,000	Guides	4000 guides elaborated on housing improvement topics	
		4,000	Guides	4000 guides elaborated on safe water management and consumption topics	

		2,000	Modules	2000 Modules for recovery of ancestral indicators
		1,000	Guides	1,000 guides about personal and family development and strengthening aimed primarily at women
		80	%	80% /100% in the value of product qualification, according to established qualification procedure (for this indicator a baseline will not be established, it will be measured starting with execution).
<p>Products 2.3.4: Training sessions about: 1. installation, management and operation of teaching modules on community early warning systems EWS, and strengthening of district and community civil defense platforms. 2. Adaptation to climate change, risk management and environmental protection (educational institutions). 3. Formation of basic semester evaluation and needs analysis teams at district level. 4. In disaster prevention (establishment of semester evaluation teams, climate change risk management, elaboration of long-term climate change risk management strategy and its dissemination), for municipal officials and community representatives. 5. Diagnostics of dangers and vulnerabilities, interactive risk maps, prevention plans, community attention, for heads of households. 6. Risk management and environmental protection, for educational institutions. 7. Transfer of techniques for Andean highland rural housing improvement: Trombe solar walls, rural electrification systems, composting latrines and improved stoves. 8. Training workshops on adaptation technologies (modern irrigation techniques, handling and upkeep of forage grains, associated grasses, clover in high altitude wetlands, animal care and health, shelter construction).</p> <p>(Products included in: Target population groups participants in awareness activities about adaptation and risk reduction).</p>	<p>2.3.4.1 N° workshops held. (indicator included in N° and types of actions or risk reduction strategies introduced at local level)</p> <p>2.3.4.2 N° of participants per workshop</p> <p>2.3.4.3 N° total of participants.</p> <p>2.3.4.4 % of women participants (30% for all activities, 40% housing improvements)</p> <p>2.3.4.5 Qualification of quality management of training sessions.</p>	72	Workshops	72 workshops
		36	Communities	36 Rural communities participate in the development of EWS teaching modules
		540	Participants.	540 Participants in the updating of community civil defense platforms
		05	Sessions	05 Schools develop plans for climate change adaptation, risk management and environmental protection
		05	Schools	Educational institutions participate in training programs on environmental topics
		1000	Students and teachers	1.000 students and teachers participate in training workshops about the environment and prevention plans
		4	Teams	Formation of 04 basic teams for evaluation of damages at provincial level
		08	Workshops	08 workshops held in five (5) provincial municipalities.
		36	Rural Communities	36 Communities participate in the process for the elaboration of Prevention Plan
		540	Households	540 beneficiary households with training programs.
		72	Sessions.	72 training sessions developed
		18	Workshops	18 workshops on disaster prevention, for officials
		72	Officials	72 municipal official and community representatives, are trained in prevention workshops,
		72	Solar Walls	72 training sessions are developed for transfer of technique for the improvement

			of Andean, highland rural housing: Trombe solar walls
	72	Composting latrines..	Training topic: Construction of composting latrines
	72	Improved Stoves	Training Topic: Construction of improved stoves
	72	Photovoltaics Panels	Training Topic: Installation of Photovoltaic Panels
	36	Rural Communities.	36 Rural communities prioritized for the rural housing improvement program
	144	Workshops	144 training workshops on adaptation technologies offered to 36 rural communities
	3,750	Trainees	3,750 household members are trained in different adaptation technologies that the project offers
	30	%	% minimum of women participants: 30% for all the activities except for household improvement activities. (goal to be confirmed after the establishment of baseline).
	40	%	% minimum of women participants: 40% for housing improvement activities (goal to be confirmed after the establishment of baseline).
	80	%	80% /100% in the value of the product qualification, according to established qualification procedure.
NOTE 1: THE CELLS MARKED WITH THIS COLOR CONTAIN OUTCOMES OR PRODUCTS (OR THEIR INDICATORS) RELATED TO THE ADAPTATION FUND RESULTS FRAMEWORK.			
NOTE 2: The text highlighted with this color makes reference to criteria defined with gender orientation.			
Sources and verification mechanisms: Progress and technical reports, surveys, Commitments Agreement (including beneficiaries' selection); attendance rolls for participants; Training agreements; Activity/materials/tools and inputs/products/seeds and inputs receipt memoranda; photographic registries; Audio-visual registries; SENAMHI reports; camelid production registers, laboratory tests (water human consumption)			
Responsible for Monitoring: COPASA team, coordinated by the Project Director.			

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

Project Objective(s) ⁴³	Project Objective Indicator	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
<p>Project Objectives: 1. Strengthen livelihoods in the rural communities of 5 Andean highland provinces in the Arequipa Region through local processes of adaptation and climate risk reductions;</p>	<p>1.1. % of households and communities whose livelihood is most resilient due to implementation of livelihood strengthening actions.</p>	<p>Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas</p>	<p>6.2. Percentage of targeted population with sustained climate-resilient livelihoods</p>	<p>See product below 1.1</p>
<p>Project Objectives: 2. Strengthen skills of rural communities in 5 Andean highland provinces in the Arequipa Region in order to reduce climate risks</p>	<p>2.1 % of target population aware of the adverse climate change effects and adequate responses</p>	<p>Outcome3: Strengthened awareness and ownership of adaptation</p>	<p>3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses</p>	<p>See product below 2.2</p>
<p>(OUTCOME) Secondary Result 1.2: Greater capacity for resilience in the ecosystem in response to pressures caused by climate change and variability.</p>	<p>Sec 1.2.1 # of improved and recovered wetlands through expanded irrigation with rustic canals that best support the conditions resulting from variability and climate change</p>	<p>Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress</p>	<p>5.1 Ecosystem services and natural assets maintained or improved under climate change and variability-induced stress</p>	<p>See product below 1.2.2</p>

(i) ⁴³ The FA utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principles should still apply.

Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)
Products 1.1: Specific livelihood strategies strengthened in relation to the impacts of climate change.	Product indicators 1.1.1: of number and type of adaptation assets created in support of individual or community specific livelihood strategies: 1.1.1.1 # of shelters built. 1.1.2.1 # of installed fences. 1.1.3.1 Ha of high altitude forage cereals planted. 1.1.4.1 Ha of improved grasses planted. 1.2.1.1 # of pressurized irrigation modules installed. 1.2.4.1 # of reservoirs built. 1.2.5.1 # of rustic reservoirs built.	Output 6: 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	1,495,986
Result (OUTCOME) 2.2: Greater awareness and ownership concerning local processes of adaptation and climate change risk. Products 2.2.: Awareness activities about adaptation and risk reduction with the participation of groups from target population.	Product indicators 2.2.: number and type of actions or risk reduction strategies introduced at local level: 2.2.1.1 # de drills 2.2.2.1 # of implementation events of EWS module dissemination. 2.2.3.2 # of plans its elaborated prevention plans and disaster attention in educational institutions. 2.2.4.2 # of civil defense platforms formed at district level. 2.2.4.4 # of civil defense platforms formed at community level.	Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities	3.1.1 No. and type of risk reduction actions or strategies introduced at local level	41,445

<p>Product 1.2.2: Vulnerable social, natural, physical assets strengthened in response to climate change impacts, including variability.</p>	<p>1.2.2.1 N° of wetlands with improved irrigation through rustic canals that can best withstand to conditions resulting from the variability and climate change</p>	<p>Output 5: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability</p>	<p>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)</p>	<p>20,598</p>
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G. Include a detailed budget with budget notes, a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs.

FINAL BUDGET WITH AXES OF THE FRAMEWORK EXPRESSED IN USD (US DOLLARS)

RESULTS	INDICATOR	ACTIVITY	GOAL			TOTAL COSTS	AMOUNT REQUESTED YEAR 1	AMOUNT REQUESTED YEAR 2	AMOUNT REQUESTED YEAR 3	Total year 1+2+3
			QTY.	U.M.	P.U.	2,941,446				TOTAL AMOUNT REQUESTED
I.- DIRECT COSTS, USD										
COMPONENT 1: APPLICATION OF MEASURES AIMED AT STRENGTHENING MEANS OF SUBSISTENCE AND SOURCES OF INCOME FOR VULNERABLE COMMUNITIES IN THE SELECTED AREAS										
ANIMAL NOURISHMENT AND PROTECTION AXIS						1,376,600	438,058	402,828	535,714	1,376,600
Products 1.1.1: shelters built for animal protection (in particular alpaca dams and offspring)	1.1.1.1. 270 shelters built.	270 shelters built, with a capacity of 70 vulnerable animal in each shelter	270	Shelter	1,500	405,000	126,563	126,563	151,875	405,000
Products 1.1.2: Protective fences, with livestock netting, installed.	1.1.2.1. 72 fences installed	72 fences installed	72	Fences	1,500	108,000	49,091	0	58,909	108,000
Products 1.1.3: Seeding and cultivation of high altitude forage cereals.	1.1.3.1. 900 Ha high altitude forage cereals planted. Ha of high altitude resistant forage cereals planted, preserved available for grazing (starting the 13th week of the seeding). (Indicator included in Number and type of adaptation assets created in support of subsistence strategy).	Ha of high altitude forage cereals planted.	900	Ha	800	720,000	225,000	225,000	270,000	720,000
Products 1.1.4: Seeding and cultivation of improved grasses.	1.1.4.1. 72 Ha of improved grasses seeded. Ha of improved grasses seeded, preserved, available for grazing (starting the 13th week of the seeding) (Indicator included in Number and type of adaptation assets created in support of subsistence strategy).	Ha of improved grasses seeded.	72	Ha	600	43,200	2,880	23,040	17,280	43,200
Products 1.1.5: Installation of clover in wetlands for improving forage cover	1.1.5.1. 72 Ha of wetlands improved with clover.	Ha of wetlands improved with clover.	72	Ha	700	50,400	18,900	12,600	18,900	50,400
Products 1.1.6: Animal health campaigns in selected rural communities	1.1.6.1. 10,000 dosed animals	10,000 dosed animals	10,000	Animals	5	50,000	15,625	15,625	18,750	50,000
WATER RESOURCE MANAGEMENT AXIS						380,600	52,465	170,003	158,133	380,600
Products 1.2.1: Pressurized irrigation modules installed in selected communities.	1.2.1.1. 72 Ha of modules installed. Ha of improved grasses. (Indicator included in number and type of adaptation assets created in support of subsistence strategy).	72 modules of pressurized irrigation installed	72	Modules	3,200	230,400	15,360	122,880	92,160	230,400
Product 1.2.2.: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability.	1.2.2.1. N° of wetlands with improved irrigation through rustic canal that can best withstand the conditions resulting from variability and climate change.	36 wetlands with improved irrigation through rustic canal (in order to increase vegetal matter production) that can best withstand the conditions resulting from variability and climate change.	36	Wetland / community	600	21,600	7,855	1,964	11,782	21,600
Products 1.2.3: Construction and improvement of canals to optimize the water resource management in wetlands.	1.2.3.1. 10,000 meters of improved canals	10,000 meters of built and improved canals.	10,000	LM	4	35,000	0	15,909	19,091	35,000
Products 1.2.4: Construction of reservoirs for storage of rainfall, runs or natural sources (springs).	1.2.4.1. 36 de reservoirs built (rustic ponds)	36 Rustic ponds (Rustic Reservoirs built)	36	Unit	2,600	93,600	29,250	29,250	35,100	93,600
ATTENTION TO HUMAN HEALTH AXIS						280,400	93,467	93,467	93,467	280,400
Products 1.3.1: Water Purification Systems installed in the most vulnerable communities, in order to reduce the incidence of diarrheal diseases	1.3.1.1. 05 safe water purification systems installed	05 of safe water/purification systems installed.	5	Systems	10,000	50,000	16,667	16,667	16,667	50,000
Products 1.3.2: Campaigns for improvement of "rural healthy housing": through heating via solar walls; rural electrification (autonomous photovoltaic systems), composting latrines and improved stoves	1.3.2.2. 72 Composting Latrines Built	72 Composting Latrines Built.	72	Latrines	1,500	108,000	36,000	36,000	36,000	108,000
	1. 3.2.3. 72 of Improved Stoves built.	72 of Improved Stoves built.	72	Stoves	100	7,200	2,400	2,400	2,400	7,200
	1.3.2.4. 72 photovoltaic panels installed	72 photovoltaic panels installed	72	Panels	1,000	72,000	24,000	24,000	24,000	72,000
	1.3. 2.5. 72 Solar walls	72 of Solar walls built.	72	Walls	600	43,200	14,400	14,400	14,400	43,200
SUBTOTAL OF COMPONENT 1	-	-	-	-	-	2,037,600	583,990	666,297	787,313	2,037,600

COMPONENT 2: IMPLEMENTATION OF MEASURES AIMED AT STRENGTHENING INSTITUTIONAL AND COMMUNITY CAPACITIES TO REDUCE RISKS OF LOSSES OCCASIONED BY CLIMATE CHANGE.										
GOVERNANCE AXIS						1,400	400	400	600	1,400
Products 2.1.1: Agreements and coordination with local and community authorities for the design and implementation of monitoring plans. Products 2.1.2: Commitments for selection of beneficiaries with the participation of various actors Products 2.1.3: Implementation of training modules for teamwork and leadership, field days.	2.1.1.1 N° of agreements (Covenants). 2.1.2.1. N° N° of commitments signed. 2.1.3.1 N° of Modules implemented.	04 provincial covenants; 18 district covenants. 36 commitments signed. 2 modules implemented in 36 communities.	2	projects	700	1,400	400	400	600	1,400
RISK AND CLIMATE CHANGE MANAGEMENT AXIS						33,200	12,836	8,379	11,986	33,200
Products 2.2.1: Staging of disaster drills, at provincial level.	2.2.1.1. 05 Drills	05 Drills staged	5	Drills.	1,000	5,000	0	3,000	2,000	5,000
Products 2.2.2: Implementation of teaching modules for early warning systems EWS in rural communities	2.2.2.1. 36 events for implementation and dissemination module. (indicator included in # and type of actions or risk reduction strategies introduced at local level)	36 teaching modules for EWS implemented	36	Motivational and awareness visits.	400	14,400	8,229	0	6,171	14,400
Products 2.2.3: Accompaniment to educational institutions, in elaboration of their prevention plans and disaster attention, as an adaptation measure to climate change.	2.2.3.1. 05 processes of accompaniment to project execution.	05 Schools Elaborate their prevention plans and disaster attention, as an adaptation measure to climate change.	5	Processes in educational institutions.	600	3,000	750	750	1,500	3,000
Products 2.2.4: Advisories for formation and strengthening of community and district civil defense platforms (reconnoitering, and startup).	2.2.4.1 18 processes initiated and culminated	18 processes of accompaniment to formation and strengthening of district civil defense platforms	18	Processes in District Municipalities.	600	10,800	3,857	4,629	2,314	10,800
KNOWLEDGE MANAGEMENT AXIS						296,061	70,654	70,654	154,753	296,061
Products 2.3.1: Preparation of agreements, programs, projects that lend continuity to project activities and achievements. Products 2.3.2: Publication of lessons learned in COPASA's website and of the organizations that include a similar dissemination in their corresponding websites	2.3.1.1 N° of continuity actions prepared (agreements, programs, project) 2.3.2.1. 01 Publication	18 continuity actions prepared (agreements, programs, project) 01 publication of lessons by type, at mid-term and at end	1	Edited Document	44,833	44,833	0	0	44,833	44,833
Products 2.3.3: Elaboration of technical guides about: 1. adaptation to climate change and environmental risk management. 2. Management and operation of early warning system. 3. adaptation and risk prevention in educational institutions. 4. Seeding of forage cereals and cultivated grasses, installation of modern irrigation pilots, wetlands management, animal health, construction of shelters, family housing improvement.	2.3.3.1. 13 guides developed	13 topics developed	13	Topics	700	9,100	2,600	2,600	3,900	9,100
	2.3.3.2 . 43,000 copies printed	43,000 guides elaborated and printed	43,000	Guides	5	215,000	61,429	61,429	92,143	215,000
Products 2.3.4: Training sessions about: 1. installation, management and operation of teaching modules for community early warning systems EWS, and strengthening of district and community civil defense platforms. 2. adaptation to climate change, risk management and environmental protection (educational institutions). 3. formation of basic biannual evaluation and needs analysis teams at district level. 4. in disaster prevention (establishment of biannual evaluation teams, climate change risk management, elaboration of climate change risk management strategy) long-term and its dissemination), for municipal officials and community representatives. 5. diagnostics of dangers and vulnerabilities, interactive risk maps, prevention plans, community attention, for heads of household. 6. Risk management and environmental protection, for educational institutions. 7. Transfer of techniques for the improvement of Andean highland rural	2.3.4.1 180 participants per workshop (5 per community)	180 Participants for the installation of early warning EWS teams	180	Participants.	4	720	90	90	540	720
	2.3.4.2 . 540 of participants per workshop	540 Participants in the upgrading of the community civil defense platforms	540	Participants.	4	2,160	270	270	1,620	2,160
	2.3.4.3. 1000 students per workshop	1000 students and teachers participate in training workshops about environment and prevention plans	1,000	Students and teachers	4	4,000	500	500	3,000	4,000
	2.3.4.4. 8 participants per workshop	08 workshops held in 05 provincial municipalities for EDAN teams	64	Workshops	4	256	51	51	154	256
	2.3.4.5. 540 participants per workshop	540 beneficiary households participate in the process of elaboration of prevention plans through training programs.	540	Households	4	2,160	432	432	1,296	2,160
	2.3.4.6. 72 participants per workshop	72 municipal official and community representatives are trained in prevention workshops,	142	Officials.	4	568	142	142	284	568

housing: Trombe solar walls, rural electrification systems, composting latrines and improved stoves. 8. Training workshops on adaptation technologies (modern irrigation techniques, handling and upkeep of forage grains, associated grasses, clover in high altitude wetlands, animal care and health, shelter construction).	2.3.4.7. 72 participants per workshop	02 Training sessions for the transfer of techniques for improvement of rural Andean highland housing: Trombe solar walls,	140	Participants.	4	560	112	112	336	560
	2.3.4.8. 72 participants per workshop	Training topic: Construction of composting latrines	141	Participants.	4	564	113	113	338	564
	2.3.4.9. 72 participants per workshop	Training topic: Construction of improved stoves	142	Participants.	4	568	114	114	341	568
	2.3.4.10. 72 participants per workshop	Training topic: Installation of photovoltaic panels	143	Participants.	4	572	114	114	343	572
	2.3.4.11. 26 participants per workshop (144 workshops)	3750 households members are trained in different adaptation technologies that the project offers	3,750	Trainees	4	15,000	4,688	4,688	5,625	15,000
COMPONENT 2 SUBTOTAL		-	-	-	-	330,661	83,890	79,433	167,339	330,661
TOTAL DIRECT COSTS = (COSTS SUB COMPONENTS 1 +2 OF THE PROJECT), USD						2,368,261	667,879	745,730	954,652	2,368,261
II.- INDIRECT COSTS (ADMINISTRATIVE EXPENSES) = PROJECT EXECUTION COSTS, USD										
ADMINISTRATIVE EXPENSES										
A.- PROFESSIONAL SERVICES										
1.- Project Director			30	Month	3,383	101,490	40,596	40,596	20,298	101,490
2.- Field Coordinator			30	Month	2,100	63,000	25,200	25,200	12,600	63,000
3.- Administrative Assistant			30	Month	1,517	45,510	18,204	18,204	9,102	45,510
B.- TICKETS AND PER DIEMS										
Airline Tickets Lima-Arequipa-Lima :			6	Trips	300	1,800	360	720	720	1,800
National Per Diems Per Diems Lima-Arequipa-Lima			6	Per Diems	150	900	180	360	360	900
Tickets and Local Per Diems			240	Per Diems	25	6,000	2,400	2,400	1,200	6,000
C.- VISIBILIZATION /DISSEMINATION										
Visibility activities			5	Visibilization	500	2,500	1,250	1,250	0	2,500
Internships			5	Internships	1,000	5,000	0	5,000	0	5,000
Regional Forum/Press Conference			1	Regional Event	5,000	5,000	0	0	5,000	5,000
D.- ACQUISITION OF TOOLKITS FOR WORKS										
Manual Tool Kits			36	Kit	450	16,200	16,200	0	0	16,200
E.- TRANSPORT AND MOVES										
Motorcycle Transport			1	Various	10,100	10,100	4,040	4,040	2,020	10,100
Transport of rustic equipment			1	Various	32,000	32,000	12,800	12,800	6,400	32,000
Transport of materials to work zone			1	Various	800	800	320	320	160	800
F.- ENVIRONMENTAL MANAGEMENT MONITORING AND EVALUATION										
Project's Environmental Management			1	Est.	18,000	18,000	18,000	0	0	18,000
Monitoring and Evaluation			1	Est.	47,000	47,000	47,000	0	0	47,000
TOTAL INDIRECT COSTS = PROJECT EXECUTION COSTS, USD						355,300	186,550	110,890	57,860	355,300
TOTAL DIRECT + INDIRECT COSTS, USD						2,723,561	854,429	856,620	1,012,512	2,723,561

III.- PROJECT IMPLEMENTATION COSTS, USD				217,885	217,885	0	0	217,885
Project/Programme Cycle Management Fee charged by the Implementing Entity, CAF	1	Est.	217,885	217,885	217,885	0	0	217,885
TOTAL FINANCING REQUESTED (DIRECT COSTS + EXECUTION COSTS + IMPLEMENTATION COSTS), IN USD				2,941,446	1,072,314	856,620	1,012,512	2,941,446

H. Include a disbursement schedule with time-bound milestones.

	Upon Agreement signature	One Year after Project Start ^{a/}	Year 2 ^{b/}	Year 3	Total (USD)
Scheduled Date	February 1st 2017	February 1st 2018	February 1st 2019		
Project Funds (USD)	839,848	874,187	1,009,526		2,723,561
Implementing Entity Fee (USD)	87,100	87,100	43,685		217,885
Total (USD)	1,072,314	856,620	1,012,512		2,941,446

^{a/}Use projected start date to approximate first year disbursement

^{b/}Subsequent dates will follow the year anniversary of project start


^{c/}Add columns for years as needed

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

- A. Record of endorsement on behalf of the government⁴⁴** *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:*

<p><i>Viviana Grissel Zaldívar Chauca</i> <i>Advisor</i> <i>Advisory Cabinet</i> <i>Ministry of the Environment of Peru</i></p>	<p>Date: July, 11, 2016</p>
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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*

<p>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 (General Law of the Environment, Law No. 28611; Bicentennial Plan, Peru 2021; National Environmental Action Plan - Peru 2011-2021 PLANAA); The Regional Strategy for Adaptation to Climate Change in the Arequipa region 2008-2018; The Concerted Development Plan 2013-2021 of the Arequipa Region; and subject to the approval by the Adaptation Fund Board, <u>commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund</u> and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.</p>	
<p style="text-align: center;"></p> <p><i>Ligia Castro</i> <i>Office of Environment and Climate Change</i> <i>Implementing Entity Coordinator</i></p>	
<p>Date: July, 11, 2016</p>	<p><u>lcastro@caf.com</u> +57.1.743.7355</p>
<p>Project Contact Person: María Carolina Torres</p>	<p><u>mctorres@caf.com</u> +52 55 11026904</p>

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

**ANNEX A - COST COMPARISON FOR COST-EFFECTIVENESS ANALYSIS AYNINACUY
PROJECT**

EVALUATION OF PROJECT COSTS EXPRESSED IN US DOLLARS

COST-EFFECTIVENESS AYNINACUY PROJECT

DESCRIPTION OF THE COMPONENT	U.M.	QTY	P.U.	TOTAL COST (MATERIALS)	Labor Requirement /activity		EXECUTION MODALITY (M.O.)			TOTAL PROJECT COST IN ITS DIFFERENTS MODALITIES		
					QTY. SESS.	TOTAL	Ayni Type Labor (Ayninacuy) (1)	Rural Labor (2)	Urban construction labor Included 15 % of CG + Utl. (3)	ALTERNATIV E N° 1 Ayni (Ayninacuy) (1)	ALTERNATIV E N° 2 Rural Labor (2)	ALTERNATIV E N° 3 Urban construction labor (3)
				2,428,733					50			
A.- COSTOS DIRECTOS												
Construction of 270 shelters	Unit	270	1,591	429,680	20	5,400	Ayni	Z	567,000	429,680	699,680	996,680
Animal Health Campaigns	Animals	10,000	5	45,000	0	2,500	Ayni	125,000	262,500	45,000	170,000	307,500
Construction of protective fences	Unit	72	2,010	144,720	10	720	Ayni	36,000	75,600	144,720	180,720	220,320
Installation of forage cereals	Ha	900	900	810,000	10	9,000	Ayni	450,000	945,000	810,000	1,260,000	1,755,000
Installation of clover	Ha	72	550	39,600	40	2,880	Ayni	144,000	302,400	39,600	183,600	342,000
Installation of cultivated grasses	Ha	72	800	57,600	40	2,880	Ayni	144,000	302,400	57,600	201,600	360,000
Recovered Wetlands	Unit	36	600	21,600	50	1,800	Ayni	90,000	189,000	21,600	111,600	210,600
Construction of ponds	Unit	36	2,900	104,400	200	7,200	Ayni	360,000	756,000	104,400	464,400	860,400
Improvement and Construction of Rustic Canals	Mts	10,000	5	50,000	0	2,000	Ayni	100,000	210,000	50,000	150,000	260,000
Installation of pressurized irrigation systems	Unit	72	3,500	252,000	50	3,600	Ayni	180,000	378,000	252,000	432,000	630,000
Installation of water purification systems for human consumption	Unit	5	10,000	50,000	50	250	Ayni	12,500	26,250	50,000	62,500	76,250
Installation of Trombe walls	Unit	72	500	36,000	20	1,440	Ayni	72,000	151,200	36,000	108,000	187,200
Installation of composting latrines	Unit	72	1,200	86,400	20	1,440	Ayni	72,000	151,200	86,400	158,400	237,600
Installation of Photovoltaic Systems	Unit	72	800	57,600	10	720	Ayni	36,000	75,600	57,600	93,600	133,200
Installation of Improved Stoves	Unit	72	101	7,240	10	720	Ayni	36,000	75,600	7,240	43,240	82,840
Installation of Early Warning Systems	Unit	36	600	21,600	5	180	Ayni	9,000	18,900	21,600	30,600	40,500
Advisory and follow-up to strengthening processes of district and community civil defense committees, for their recognition and startup	Committee	18	1,000	18,000	18	324	Ayni	16,200	34,020	18,000	34,200	52,020

Educational innovation competitions in environmental and climate change subjects, coordinated with local educational management units and schools.	Competitions	5	1,000	5,000	5	25	Ayni	1,250	2,625	5,000	6,250	7,625
Teach and train heads of households in elaborating danger and vulnerabilities diagnostics; interactive risk maps, prevention plans, community attention	Participants/ Sessions	540	3	1,620	1	540	Ayni	27,000	56,700	1,620	28,620	58,320
Training sessions for the installation, management and operation of community early warning systems EWS, for strengthening community and district civil defense committees	Participants/ Field Days	540	3	1,620	1	540	Ayni	27,000	56,700	1,620	28,620	58,320
Fields days for the transfer of knowledge about installation techniques, management and maintenance of forage cereals	Participants/ Field Days	600	3	1,800	1	600	Ayni	30,000	63,000	1,800	31,800	64,800
Field days for the transfer of installation techniques, management and maintenance of clover in wetlands.	Participants/ Field Days	360	3	1,080	1	360	Ayni	18,000	37,800	1,080	19,080	38,880
Field days for the transfer of installation techniques, management and maintenance of modern irrigation teams.	Participants/ Field Days	360	3	1,080	1	360	Ayni	18,000	37,800	1,080	19,080	38,880
Field days for the transfer of installation techniques, management and maintenance of associated grasses, in selected communities	Participants/ Field Days	600	3	1,800	1	600	Ayni	30,000	63,000	1,800	31,800	64,800
Field days for the transfer of installation techniques, management and animal health for beneficiary producers in rural communities	Participants/ Field Days	600	3	1,800	1	600	Ayni	30,000	63,000	1,800	31,800	64,800
Field days for the transfer of construction techniques of livestock shelters,	Participants/ Field Days	600	3	1,800	1	600	Ayni	30,000	63,000	1,800	31,800	64,800
Field days for the transfer of construction techniques for rural Andean highland housing, in: installations of heating systems with solar walls, rural electrification systems, autonomous photovoltaics, composting latrines and improved stoves.	Participants/ Field Days	480	3	1,440	1	480	Ayni	24,000	50,400	1,440	25,440	51,840
Elaboration of technical guides about adaptation to climate change in environmental risk contexts.	Guides	10,000	3	30,000	1	1	Ayni	50	105	30,000	30,050	30,105
Elaboration of technical guides about management and operation of the early warning system, as a measure of climate change adaptation.	Guides	5,000	3	15,000	1	1	Ayni	50	105	15,000	15,050	15,105
Elaboration of technical guides on adaptation and risk prevention topics in educational institutions,	Guides	5,000	3	15,000	1	1	Ayni	50	105	15,000	15,050	15,105
Elaboration of practical guides for adaptive practices oriented at topics covering the seeding of forage cereals, of cultivated grasses, installation of modern irrigation pilots, wetlands management, animal health, construction of shelters, improvement of family housing, as an adaptation measure and risk management in the face of climate change	Guides	23,000	3	69,000	1	1	Ayni	50	105	69,000	69,050	69,105
Workshops for the formation of 05 basic damage assessment and needs analysis teams at district level,	Participants/ Workshops	5	600	3,000	1	1	Ayni	50	105	3,000	3,050	3,105

Prioritized educational institutions receive training in adaptation to climate change, risk management and environmental protection topics	Participants/ Workshops	5	600	3,000	1	1	Ayni	50	105	3,000	3,050	3,105
Educational institutions elaborate their prevention and disaster attention plans, as an adaptation measure to climate change.	Risk Management Plans	5	600	3,000	1	1	Ayni	50	105	3,000	3,050	3,105
Training workshops directed at municipal officials and community representatives,	Risk Management Plans	5	1,000	5,000	1	1	Ayni	50	105	5,000	5,050	5,105
Staging disaster drills, in districts	Drills	5	1,000	5,000	1	1	Ayni	50	105	5,000	5,050	5,105
Dissemination of experiences	Doc.	1	30,253	30,253	0	0	Ayni	0	0	30,253	30,253	30,253
TOTAL				2,428,733				2,388,400	5,015,640	2,428,733	4,817,133	7,444,373
PERCENTAGES								0%			201%	336%
B.- INDIRECT COSTS												
B.1. PROJECT ACTIVITIES				278,224								
B.2. PROJECT IMPLEMENTATION COSTS				214,597								
Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)	Est.	1	214,597	214,597						214,597.00	214,597.00	214,597.00
TOTAL PROJECT IMPLEMENTATION COSTS				2,921,554						2,921,554	5,309,954	7,937,194
COMPARATIVE EVALUATION OF LABOR COSTS										LOWEST COST	MID COST	HIGHEST COST

ANNEX B

ENVIRONMENTAL MANAGEMENT PLAN (EMP)

COPASA – Cooperation for the process of Arequipa's Sustainable Self-Development, will act as the executive and responsible organism for verifying and assuring the fulfillment of the current Environmental Management Plan (EMP). COPASA is a decentralized entity of the Regional Government of Arequipa, created by E.O. 002-97-PRES on January 30th, 1997. In order to comply with its mandate, it has an executive director who answers to the Governor of Arequipa's Regional Government, and has technical, administrative and financial autonomy.

In this sense, COPASA will have for the assurance of the current EMP and fulfillment of the project: 01 Field Engineer, 05 Coordinators (01 for each province), and 1 Project Director. Both field work and reporting will be supervised. The designated staff will be specific to this project.

COPASA will report to CAF, on the progress and status of the current Environmental Management Plan (EMP), on a semester basis, in a format established by CAF.

CAF will see to the complete fulfillment and execution of the Project, as well as the measures for environmental and social management, and the AF's safeguards.

1. OBJECTIVES:

General:

- Establish measures for prevention, mitigation, and control of negative environmental impacts and the optimization of the positive impacts, caused by the Project's execution, in a manner that entails sustainable development and environmental conservation in the Project's area of influence.

Specifics:

- Propose prevention, mitigation and control measures for the negative environmental impacts aligned AF and CAF safeguards.
- Propose conservation measures for all stages of the Project.

2. APPLICABLE REGULATIONS

Among the principal regulations taken into account for the present EMP's elaboration are:

- Law N° 28611, General Law of the Environment
- Law N° 29338, Law of Water Resources
- Law N° 27314, General Law of Solid Waste
- Executive Order N° 019-2009-MINAM, Regulations for Law N° 27446, Law for the National System for the Evaluation of Environmental Impacts.

3. PROGRAMS FOR ENVIRONMENTAL MANAGEMENT

The EMP's activities and programs have been elaborated to satisfy:

- i. The requirements of the environmental regulations in force in Peru;
- ii. Environmental and social principles of the Adaptation Fund's environmental and social policy.

The EMP is made up of programs that must be implemented during the different stages of the Project (implementation and close of project activities), with the end of conserving and protecting the environment where it takes place, contributing to improving the quality of life of the participating population and to maintaining a good relationship with it and with local authorities. Likewise, these actions will allow us to achieve the project objectives that seek to reduce vulnerability and to increase the response capacity of the communities to climate change impacts in the provinces of Arequipa, Caylloma, Castilla, La Union, and Condesuyos.

Below is presented the correlation between AF's safeguards and the components of the Environmental Management Plan (EMP).

(i) Table 1: AF - EMP Safeguards

AF Principles					
No.	Environmental and Social Principles (AF)	No.	Applicable Components of the Environmental Management Plan (EMP)	Fulfills	
				Yes	No
i.	Principle 1: Compliance with the Law	a (i)	Measures for Control of Air Quality	X	
		a (ii)	Measures for Soil Conservation	X	
		a (iii)	Measures for Water Conservation	X	
		a (v)	Program for handling solid waste	X	
		b	Measures for managing biotic component	X	
		c (i)	Measures for conservation of archaeological remains	X	
		c (iii)	Measures for guaranteeing health and safety	X	
ii.	Principle 2: Access and Equity	c (ii)	Program for participation and community relations	X	
iii.	Principle 3: Marginalized and Vulnerable Groups.	c (ii)	Program for participation and community relations	X	
iv.	Principle 4: Human Rights	c (ii)	Program for participation and community relations	X	
		c (iii)	Measures for guaranteeing health and safety	X	
v.	Principle 5: Gender Equity and Women's Empowerment	c (ii)	Program for participation and community relations	X	
vi.	Principle 6: Core Labour Rights	c (ii)	Program for participation and community relations	X	
		c (iii)	Criteria for contracting.	X	
vii.	Principle 7: Indigenous Peoples.		No applicable to the project	X	
viii.	Principle 8: Involuntary Resettlement.		No applicable to the project	X	
ix.	Principle 9: Protection of Natural Habitats	a (i)	Measures for Control of Air Quality	X	
		a (ii)	Measures for Soil Conservation	X	
		a (iii)	Measures for Water Conservation	X	

AF Principles					
No.	Environmental and Social Principles (AF)	No.	Applicable Components of the Environmental Management Plan (EMP)	Fulfills	
				Yes	No
		a (iv)	Measures for Landscape Conservation	X	
		a (v)	Program for handling solid waste	X	
		b	Measures for managing biotic component	X	
x.	Principle 10: Conservation of Biological Diversity	b	Measures for managing biotic component	X	
xi.	Principle 11: Climate Change	c (iv)	Program for prevention of environmental emergencies	X	
		a (i)	Measures for Control of Air Quality	X	
		a (ii)	Measures for Soil Conservation	X	
		a (iii)	Measures for Water Conservation	X	
		a (iv)	Measures for Landscape Conservation	X	
		a (v)	Program for handling solid waste	X	
		b	Measures for managing biotic component	X	
xii.	Principle 12: Pollution Prevention and Resource Efficiency.				
xiii.	Principle 13: Public Health.	c (iii)	Measures for guaranteeing health and safety	X	
xiv.	Principle 14: Physical and Cultural Heritage	c (i)	Measures for conservation of archaeological remains	X	
		a (ii)	Measures for Soil Conservation		
xv.	Principle 15: Lands and Soil Conservation.	a (v)	Program for handling solid waste	X	

3.1. Measures related to AF Principle 1: Compliance with the Law

With the goal of ensuring compliance with the aforementioned applicable environmental regulations, the Ayninacuy Project relies on the present Environmental Management Plan (EMP).

Given that the Project involves livestock activities, the applicability of the requirements of Executive Order N° 013-2013 of the Ministry of Agriculture have been taken into account. This E.O. requires the presentation of an Environmental Management Report (EMR) at the beginning of the project, for projects in Agriculture that can have environmental impacts and that are not included in the categories of projects that require the presentation of an Environmental Impact Study and that must follow the corresponding procedures. In accord with a preliminary consultation with the Ministry of Agriculture's representative in Arequipa, in order to verify the applicability of the Environmental Management Report (EMR), a non-requirement response was obtained, because it deals with economic activities specific to raising alpacas. This Management Plan foresees that the response will be confirmed at the start of the project, with the corresponding authority.

If indeed the project's activities present a low probability of finding archaeological remains, given that these areas traditionally have been used for alpacas raising and because the planned excavations will be shallow and small scale, section 3.1.7 of the present Management Plan states the guidelines to be followed in accord with the provisions that Peruvian law demands with respect to the conservation of archaeological remains, in the eventuality that a finding presents itself.

3.1.1. Measures for Control of Air Quality (emission of dusts, Gases from vehicle exhaust, noise)

Related Impact	: Alteration of air quality
Impact Level	: Low
Relation with Principles	
Of AF Safeguard	: Principles 1, 9, 12

Project activities will generate emissions of particulate matter, noise, exhaust due to the movement of vehicles in the work areas, during the planning and implementation stages (canals and micro-dams), which may alter air quality temporarily. If in fact the air quality impacts are low, the following measures aimed at preventing, mitigating and/or controlling the effects in air quality will be applied:

- i. Programs for inspection and preventive maintenance of motor vehicles.
- ii. Keep vehicle ignition to the minimum
- iii. Vehicle speed in and outside of the project's work areas and access roads will be limited.
- iv. Any vehicle with high opacity will be repaired or adjusted before reinitiating tasks.
- v. Carry out earth-moving efficiently and cover with tarpaulins material during transport, when transport is necessary.
- vi. Sounding of vehicle horns will be entirely prohibited, in particular in areas with populations near the project's area of influence.

3.1.2. Measures for Soil Conservation

Related Impacts	: Effects on soil quality
Impact Level	: Low
Relation with Principles	
Of AF Safeguard	: Principles 1, 9, 12, 15

The following are the measures to implement for soil protection.

- i. Vehicle must limit their movements solely to access roads established in the project area
- ii. Do not dump excessive material on ground or in nearby terrain.
- iii. When earth must be moved, topsoil must be conserved.
- iv. The burning of generated solid waste will be prohibited; they will be managed in accord with the Solid Waste Management Plan.
- v. The soil affected by removal and/or placement must be left in equal or similar conditions.
- vi. Vehicles must be equipped with tools and materials for cases of fuel and/or lubricant spills.
- vii. Carry out periodic maintenance on the vehicle and/or equipment to be used in order to avoid accidental spills of oils, greases or fuel.
- viii. In case that an accidental fuel spill occur, the contaminated soil will be removed and placed in adequate receptacles for that purpose.

3.1.3. Measures for Water Conservation

Related Impacts	: Effects on Water Quality
Impact Level	: Low
Relation with Principles	

Of AF Safeguard : Principles 1, 9, 12

The project establishes the implementation and/or adaptation of micro reservoirs of approximately 10m x 10m, activity that generates a low impact both on demand and resource use, as well as on the effects on bodies and sources of water. Likewise, the water canals to be implemented will be rustic, with material from the area. The protective measures related to the protection of the water resource and of its sources are the following:

- i. Periodic maintenance will be done on the vehicles, with the intent of guaranteeing their good state and reducing the occurrence of accidental fuel spills.
- ii. Dumping waste or any other material into surface waters in the rivers, wetlands or ravines will be prohibited.
- iii. In case of an accidental spill that involves a water source, work will be suspended and actions will be taken in accord with the contingency plan.

3.1.4. Measures for Landscape Conservation

Related Impacts : Landscape Alteration

Impact Level : Low

Relation with Principles

Of AF Safeguard : Principles 9, 12

The impact on the landscape will be related principally to the establishment and improvement of canals and the adaptation of small 10m x 10m micro-dams. Given that it deals with rustic type work, using materials from the area, the anticipated impact is minimal.

Among the principal measures to be developed for landscape protection are found:

- i. Clearing and using only the minimum area required for the implementation of micro-dams and/or canals.
- ii. Withdraw materials from the work area upon completion
- iii. Adequate management of waste material (conditioning, storage, collection, transport and final disposal).

3.1.5. Solid Waste Management Program

Related Impacts : Effects on water and soil

Impact Level : Low

Relation with Principles

Of AF Safeguard : Principles 1, 9, 12, 15

In the implementation stage, principally domestic type waste will be generated (paper, plastic, food waste, glass, among other) and some remains and excess of construction material, due to the installation of shelters, Trombe walls, canals and micro-dams. Waste management will be done following the principles of prevention, minimization, reuse, treatment and final disposal.



Source: Elaborated with a basis in M.A.V.D.T., 2005

Among the principal measures to be developed in the project are found:

- i. Solid organic and inorganic waste will be stored temporarily in bags or barrels, to be disposed of later in an authorized place.
- ii. Areas for temporary storage of waste generated in the project's work areas will be defined.
- iii. Recyclable wastes, such as plastic containers, cardboard, glass and other waste that may be re-used, will be stored in a separate way.
- iv. In case danger waste is generated, due to the use of paint in the Trombe walls or other uses, they will be stored in separate receptacles and will be disposed by an authorized company for this purpose. If none are generated, no special measures will be taken.
- v. Training and awareness raising of the staff and the community on proper handling of waste in all its stages: conditioning, storage, collection, transport and final disposal.

3.1.6. Measures for managing the biotic component

Related Impacts	: Effects on fauna and flora in the area
Impact Level	: Low
Relation with Principles Of AF Safeguard	: Principles 1, 9, 10, 12

The impact on the fauna and flora of the area will be minimum, given that the components will not be located in sensitive areas or protected natural areas, and the areas slated for intervention, beside corresponding to areas already intervened by productive practices, do not correspond to significant extensions. For impact prevention, emphasis will be placed on the care for species of area fauna and flora. Among the principal measures to be implemented are found:

- i. Presentation to the community and the staff that participate in the project regarding the importance of conserving the area's fauna and flora
- ii. Emphasis will be placed on the prohibition of hunting and animal trafficking by project collaborators and the participating community, to which end, the importance of their conservation will be explained.
- iii. Optimize the operational use of vehicles, and do only strictly necessary earthmoving, hewing to the project's established component.
- iv. Instruct project staff so that the clearing that may be done during the establishment and/or adaptation of canals, be done strictly within the sectors encompassed by the Project.

- v. In case there is damage to grasses and/or vegetation by the activities, the disturbed and/or nearby the work zone must be replanted, taking into consideration species indigenous to the Project area.

3.1.7. Measures for Conservation of Archaeological Remains

Related Impacts : Effects on Archaeological Sites
 Impact Level : Low
 Relation with Principles
 Of AF Safeguard : Principles 1, 14

In the project small excavations will be done, principally for the establishment of canals, and adaptation of terrain for agricultural use. In this sense, the following measures must take into account:

- i. In case remains or another archaeologically important site is found, coordination will be done with the Ministry of Culture (MC), for rescue if necessary and according to the characteristics of the find.
- ii. In case of a find, any work on site will be paralyzed and the MC will be notified immediately.
- iii. The remains must not be removed nor collected for any reason.
- iv. The place of the find must be protected and fenced off, until officials from the Ministry of Culture can arrive.
- v. Training will be offered to the staff that will be doing the excavation, with the intent of keeping these guidelines in mind.

3.1.8. Measures for guaranteeing workplace safety and occupational health

Related Impacts : Harm to persons
 Impact Level : Low
 Relation with Principles
 Of AF Safeguard : Principles 1, 4, 6, 13

The work to be done is low risk with regard to safety and/or accidents that project component activities might generate. The measures to be implemented to guarantee workplace safety and occupational health are the following:

- i. The staff must have adequate protective items, in accord with the activity to be carried out.
- ii. Provide immediate medical attention in case of accidents, have the nearest medical centers and posts identified in the provinces of Arequipa, Caylloma, Castilla, La Union, and Condesuyos
- iii. Training workers in accident prevention
- iv. Instruct workers in good hygienic and cleanliness habits

3.2. Measures related to AF2 Principles: Access and Equity, AF3: Marginalized and Vulnerable Groups, AF4: Human Rights, AF5: Gender Equity and Women's Empowerment

With the intent of ensuring equitable access to project activities and benefits, of protecting relations between the project, the communities, and involved authorities, the EMP includes the following Program for participation and community relations.

The Ayninacuy Project in of itself is an intervention aimed at facing and reducing vulnerability in the communities of alpaca breeders at greatest risk and to establish a benchmark for integrated management in response to the threats to its sustainability.

3.3. Program for participation and community relations

Related Impacts	: Positive
Impact Level	: Positive
Relation with Principles	
Of AF Safeguard	: Principles 2, 3, 4, 5, 6, 7

The project presents a very strong social component and depends on this for the attainment of its objectives. Additionally, the beneficiary communities will be the actors active in the implementation of project actions. It should be noted that the project has prioritized the most vulnerable target communities in the area of interest. What is more, in the participation, in the election of representatives and beneficiaries, gender equity will be safeguarded in accord with planned activities and indicators starting from the project's cross-topic focus on gender.

Very low or no risk is expected as regards effects on human rights as a consequence of project activities. No indigenous communities have been identified in the project area.

With the intent of guaranteeing participation and community relations in keeping with AF's safeguards, the following activities will be developed:

- i. Verify convocation activities, prior to its implementation, with the intent of confirming that the risks of unequal access to the convocation are controlled.
- ii. Document convening activities, attendance at meetings and project activities, establishment of agreements relative to participation, to the selection of beneficiaries, to the prioritization of beneficiaries according to gender criteria.
- iii. Socialize the project, through the use of citizen participation mechanisms (workshops, meetings, talks, among others), prior to the implementation and during it. Inform the participating communities about the project particularities, scopes and progress.
- iv. Promote the participation, equally, of women and men in the meetings and decision-making.
- v. Disseminate human rights and train on topics related to gender equality, labor rights among others related to AF safeguards, through talks with communities and workers.
- vi. Promote and verify beneficiary access and equity in all project stages.
- vii. Prior to the start of Project activities, Project leadership will establish ahead of time and in writing criteria and preventive guidelines for the project team, with the intent of foreseeing and respecting the population's habits and customs. Project leadership will track compliance with said criteria and preventive guidelines.
- viii. Once the Project's financing has been confirmed by the Adaptation Fund, the project's leadership will agree with CAF on the procedure for dissemination of and consultation on the Project's Social and Environmental Report and on the present Environmental Management Plan. The procedure will establish the measures for said consultation to be

done in a timely, effective, inclusive, uncoerced and appropriate manner for the alpaca raising communities related to the project, for the local producers' organizations and for the local authorities.

With the goal of reducing fatigue due to excessive meetings related to the project, the process for dissemination of and consultation on the Project's Social and Environmental Report and on the present Environmental Management Plan will be developed preferentially, in a parallel way with the conformation of the agreements for the selection of beneficiaries. At the moment of the conformation of said agreements, the Project team will have gathered the feedback relative Project's Social and Environmental Report, the present Management Plan, on the part of the members of the alpaca raising communities, of the local producers' organizations and the local authorities, related to the project.

The aforementioned procedure will establish measures for dissemination of the following version of one of the documents, or of both, if the following version becomes necessary, in function of the consultation's results.

- ix. The reports on the Project's performance, including the state of implementation of the environmental and social management measures, will be publicly disseminated, in coherence with the aforementioned procedure for the dissemination of and consultation on the Project's Social and Environmental Report and on the present Environmental Management Plan.
- x. In the case that the Project propose significant changes to its objectives or activities previously established, the Project team, prior to the implementation of said significant changes, will hold a consultation with the communities and local authorities involved. The Project team will document the timely and effective consultation.
- xi. Once the Project's financing has been confirmed by the Adaptation Fund, the project's leadership will agree with CAF (Implementing Entity) on the grievance mechanism to be followed during the project's development.

The procedure will provide solutions the following instances:

- Target communities do not have daily access to the internet and the use of cell phones is not generalized.
- The members of the target communities are bilingual, with Quechua as their first language; the literacy levels are not uniform in the communities.
- Local authorities can be strategic allies in the communication required so that the flow of information relative to a complaint be captured by CAF, as the Implementing Entity⁴⁵.

⁴⁵ The following information related to the Mechanism for Handling Complaints, for Adaptation Fund projects, will be incorporated into such procedure:

CAF (Venezuela)

José Bellido

Ethics Committee Secretary

Email: cdeetica@caf.com

Phone: +58 (212) 209-2330

The procedure will be placed under consideration of the project's target communities and local authorities.

The procedure will be reviewed by the Project leadership, COPASA executive director and by CAF, with the intent of guaranteeing that the complaints mechanism:

- Is supported by an accessible, transparent, fair and effective process;
- Allows for receiving, handling, resolving and responding to complaints about damage or environmental and/or social problems related to Project activities and objectives.
- Is available for review and commentaries, prior to the implementation of the project startup workshop.

3.4. Measures related to Principles AF6: Core Labor Rights, AF7: Indigenous Peoples, AF8: Involuntary resettlement, AF9: Protection of Natural Habitats, AF10: Conservation of Biological Diversity, AF11: Climate Change, AF12: Pollution Prevention and Resource Efficiency, AF13: Public Health, AF14: Physical and Cultural Heritage, AF15: Lands and Soil Conservation.

3.3.1. Principle AF6: Core Labor Rights,

The only persons from the communities involved in the project that will be under a labor relationship will be 3 community experts who will be contracted under the title of *Yachachiqs*. Under COPASA orientation for the process of candidate selection, in accord with the contracting terms to be implemented, CAF will be responsible for all the activities related to their contracting and will assure compliance with all pertinent labor rights, both for contracting as well as for the development of their activities. For the contracting of the project's technical staff, the approach will proceed in a similar manner.

Collective activities that the Project will carry out for the implementation of some of its products (for example, construction of shelters for alpacas, construction of water reservoirs, and others) will not involve any figures of contracted or employee-employer relations. Said activities will be supported on ancestral figures of mutual action-participation. In the context of these relationships, labor protection obligations based on Peruvian law OIT standards (International Labor Organization) are not pertinent.

3.3.2. Principle AF7: Indigenous Peoples,

This principle is not applicable to the project because no indigenous communities reside within the project area.

3.3.3. Principle AF8: Involuntary resettlement,

This principle is not applicable to the project because none the project activities lead to any kind of displacement or resettlement.

3.3.4. Principle AF9: Protection of Natural Habitats,

The Project will not have any interaction with critical natural habitats, whether they be legally protected, officially proposed for protection, or recognized for their singular conservation value, or protected by the local communities. The highland wetlands with which the project will have interaction are used traditionally for raising alpacas. As such, the Project activities offer low risk of impacts on natural habitats. Protection and management activities pertinent to the protection of wetlands, in particular, and of the vegetal cover in general have been described in sections 3.1.1 (Measures for Air Quality Control), 3.1.2 (Measures for Soil Conservation), 3.1.3 (Measures for Water Conservation), 3.1.4 (Measures for Landscape Conservation), 3.1.5 (Program for Solid Waste Management), 3.1.6 (Measures for managing the biotic component).

3.3.5. Principle AF10: Conservation of Biological Diversity,

Project activities offer low risk of impact on biodiversity. The protection and management activities have been described in section 3.1.6 (Measures for management of biotic component).

3.3.6. Principle AF11: Climate Change,

The Contingency Plan is considered one of the special programs for acting in the face of emergency incidents in the Ayninacuy Project's scope. Among the potential events that can produce an emergency, are identified principally:

- Potential spill: Produced by the different activities executed during the construction stage (general work on Trombe walls, vehicle use).
- Quakes
- Fires
- Natural Phenomena

The measures to be implemented are as follows:

- i. Train staff for timely response to an emergency in the project's area of influence, with risk to human life, health or environment.
- ii. Reduce the potential for accidental spills and environmental contamination through preventive maintenance of vehicles and training in the use of chemical materials used for the project (paints, oils).
- iii. In the case of an accidental spill, the contaminated soil will be removed immediately, gathering all the material, and storing it in places identified for that use. The use of hazardous materials in the project is task specific, and will be in small limited amounts.
- iv. In the case of natural phenomena, the project contemplates in component N°1 an early warning system (EWS), in order to face these events in a timely manner. Training will be provided for the measures for acting in the face of these events related to climate change.

3.3.7. Principle AF12: Pollution Prevention and Resource Efficiency,

Project activities present low risk of environmental contamination. Protection and management activities have been described in sections 3.1.1 (Measures for Air Quality Control), 3.1.2 (Measures for Soil Conservation), 3.1.3 (Measures for Water Conservation), 3.1.4 (Measures for Landscape Conservation), 3.1.5 (Program for Waste Management), 3.1.6 (Measures for the management of the biotic component).

3.3.8. Principle AF13: Public Health,

Project activities present a low risk of impact on public health and a positive impact due to the implementation of 5 water treatment units for human consumption. The corresponding pertinent and preventive activities for protection and management have been described in section 3.1.8 (Measures for guaranteeing Workplace Safety and Occupational Health).

3.3.9. Principle AF14: Physical and Cultural Heritage,

The corresponding preventive activities for protection and management have been described in section 3.1.7 (Measures for the Conservation of Archaeological Remains).

3.3.10. Principle AF15: Lands and Soil Conservation.

The corresponding preventive activities for protection and management have been described in sections 3.1.2 (Measures for the Conservation of Archaeological Remains), y 3.1.5 (Program for Waste Management).

3.5. Program for Follow-up and Verification

COPASA – Cooperation for the Process of Sustainable Self-development in Arequipa, will act as the executor and responsible entity for verifying and doing follow-up of compliance with the current Environmental Management Plan (EMP). COPASA is a decentralized entity of the Regional Government of Arequipa, created by E.O. 002-97-PRES on January 30th, 1997. The fulfillment of its purposes, COPASA has an executive office, reporting to the Governor's Office of the Regional Government, enjoying technical, administrative and financial autonomy.

In this sense, COPASA will report to CAF on the progress and status of the current Environmental Management Plan (EMP), on a semester basis, in the format to be established by CAF.

CAF will ensure the fulfillment and integral execution of the Project, as well as measures for environmental and social management and AF safeguards.

ANNEX C - CONSULTATIVE PROCESS DOCUMENTATION

C.1. First phase of the consultation

C.1.1. Attendance Lists of the first cycle of Project Dissemination (original documents, with signatures, in COPASA's archives)

Ayninacuy Project Presentation Workshop, Caylloma Province, March 2015

N°	NAME	REPRESENTATIVE	SIGNATURE
1	Fredy ApazaLlasa	Public School 40127 "S.E.S"	
2	Oscar Moscoso Llasa	Resident	
3	Filomena vilca de Calisaya	Governor	
4	Adela Flores Cayo	Nurse in Health Center	
5	Mateo Macedo	President of the Housing Association	
6	Rogelio Lagos C.	Community President	
7	Mario Quispe S.	President of the Cari Cari Sector	
8	José Ushiñahua	Representative of the Municipal Office of Public Works	
9	Oscar Cayro Suaña	Municipal Councilman	
10	Yoselin Bernal Coaquira	Educational Assistant	
11	Gregorio Corrales D.	Representative of the Mayor's Office	
12	Juan Talavera R.	Irrigation Committee	
13	Arturo Tomas Rivera Vigil	COPASA	

Ayninacuy Project Presentation Workshop, Castilla Province, April 2015

N°	NAME	REPRESENTATIVE	SIGNATURE
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1	Gladis Molina Huaman	School Principal	
2	MayraDelgado Rivera	District Governor	
3	Pedro Pablo Steven Neyra	Parish Priest	
4	Morelia Perez Vargas	Representative Health Post	
5	Leonor Acuña Yucra	School Professor. 40209	
6	AnnyFiorela Loayza Paredes	Resident	
7	Kelly Coaguila Tarija	Resident	
8	Milagros Coaguila Centeno	Resident	
9	KarolQuequezanaLopez	Resident	
10	MoifelCodoriOlazabal	Resident	
11	Humberto Romani V.	Municipal Worker	
12	Alexander Sosa	Municipal Worker	
13	Esther Cruz Málaga	Resident	
17	Arturo Tomas Rivera Vigil	COPASA	

Ayninacuy Project Presentation Workshop, La Union Province, March 2015

N°	NAME	REPRESENTATIVE	SIGNATURE
1	LilithAlvarez Sueros	Municipal Worker	
2	Karol N. Quequezana López	Intern	
3	Manuela Vilma Sarmiento Choque	Municipal Worker	
4	Walter Gil Quispe Ancalle	Community member	

5	Edgar Florea A.	Worker	
6	Kelly Luz Coaguila Tarifa	Medical Post	
7	Angel Bautista Rambo	School Employee	
8	Arturo Tomas Rivera Vigil	COPASA	

Ayninacuy Project Presentation Workshop, Condesuyos Province, April 2015

N°	NAME	REPRESENTATIVE	SIGNATURE
1	Juan Jose Calizaya Marin	Representative - Provincial Council	
2	Hamilton Barionuevo Cordoba	Irrigation Committee	
3	Romulo Nuñez Salar	Municipal Manager	
4	Adelina Becerra Valdivia	Social Worker	
5	Eduardo Julio Huamani Rodolfo	Health Post	
6	Vilma Belido Téllez	Public School 40190	
7	Jorge Rivaldo Gallegos Condori	Councilman	
8	Rodolfo Quispe Paucara	President - Villa Florida	
9	Evaristo Fernández Rojas R	Resident	
10	Melisa Mendoza Puma	Local technician	
11	Ximena A. Marroquin P.	A.S.P.E.Q.M.	
12	Jesús Esteban Neyra Castillo	Priest	
13	Arturo Tomas Rivera Vigil	COPASA	

Ayninacuy Project Presentation Workshop, Arequipa Province, April 2015

N°	NAME	REPRESENTATIVE	SIGNATURE
1	JoséAntonioPalominoAguilar	Municipality	
2	IngMatildeGarcíaGodosPeñaloza	Municipality	
3	Enf.NellyAngélicaPachecoRomero	Health Post - Quequeña	
4	Ober Salvatierra Kume	Commissary - Yarabamba	
5	YeniHermosinaCabreradePortugal	Governor's office - Quequeña	
6	Hamilton Córdoba	President Irrigation Committee	
7	Silvana Bellido Telles	School Principal	
8	Rafaele Quinto Paucara	President DD.CC. Committee	
9	Cecilia PAntoaja Rojas	Audit Committee	
10	Raul Medina Cayo	President - Valle Grande	
11	Amanda Marroquin Portugal	Resident	
12	Candi Parra Olazabal	Neighborhood President	
13	Augusto Santilla Tiro	Legal Advisor	
17	Ana Maria Quispe Zalas	Neighborhood President	
18	Arturo Tomas Rivera Vigil	COPASA	

C.1.2. Two (2) samples of the meeting minutes: Andagua District, Castilla Province, April 10th, 2015, and Huaynacotas District, La Union Province, May 27th, 2015.



ACTA DE REUNION DEL 10 DE ABRIL 2015

10/04/15

EN EL DISTRITO DE MADALEA, PROVINCIA DE CASTILLA
LOS DONDO FIRMANTES NOS REUNIMOS EN EL SALON COMUNAL
DE LA COMUNIDAD CAMPESINA DE ANDALUZA, PARA RECIBIR A LOS
REPRESENTANTES DEL GOBIERNO REGIONAL, DEL PROYECTO COMPA
PARA ESCUCHAR A SU DIRECTORA, LA ERA MARIA ANGELES SALINAS
VALLEJA SOBRE LA POSIBILIDAD DE NECESIDAD POR PARTE DEL
GOBIERNO REGIONAL Y LA COOPERACION INTERNACIONAL PARA
PODER ESTAR MEJOR PREPARADOS Y ADAPTARLES MAS EFECTI
VAMENTE AL CAMBIO CLIMATICO.
IGUALMENTE NOS COMUNICO QUE LOS QUE RESULTARON
DEFERENCIADOS DEL MISMO, SOLO PENDRIAMOS COMO CONTRA
PARTE LA MANO DE OBRA NO CALIFICADA NECESARIA PARA
PODER EJECUTAR LOS DEFERENTES PROYECTOS QUE PODRIAN
EJECUTARSE.
IGUALMENTE INFORMO QUE LAS AUTORIDADES LOCALES, SERIAN
RESPONSABLES DE MONITOREAR EL AVANCE DE LAS OBRAS QUE
LAS COMUNIDADES SELECCIONADAS EJECUTARIAN, DE SER
SELECCIONADAS INCENTIVADAS EN EL PRESUPUESTO PARTICIPATIVO.
TAMBIEN NOS COMUNICO QUE EL PROYECTO CAPACITARIA A LAS
AUTORIDADES LOCALES Y COMUNALES EN LO QUE ES LA EVALUACION
DE PLANOS Y CONFIRMACION DE LOS COMITES DE DEFENSA CIVIL. EN EL
CASO DE LAS COMUNIDADES SE CONSTRUIRIA O MEJORARIA
ESCUELA DE BARRIO, SIEMBRA DE FERRAJES, MESORRIENTADO
DE VIVIENDAS, CONSTRUCCION DE COBERTIZAS, CAMPAÑAS DE SALUD
ANIMAL Y MEJORAMIENTO DEL NEVA DE CONSEJO.
EL SR. MANUEL QUINTANA EN REPRESENTACION DE LA COMUNIDAD
SEÑALO QUE ESTABAN PLENAMENTE DE ACUERDO CON EL MISMO
Y QUE LO ESPERABAN LOS CALIFICARAN PARA FIRMAR LOS ACUERDOS.
ESSI REYNALDO FERNANDEZ REPRESENTANTE DE LA MUNICIPAL
IDAD DISTRITAL DE CASTILLA MEDIA Y ALTA SEÑALO QUE EL MUNICIPIO
ESTABA PLENAMENTE DE ACUERDO Y QUE EN REUNION DE
RECORDAR LO COMUNICARIA PARA QUE FUESE APROBADO
ADEMAS LLEGASE.
SIENDO LAS 6:00 PM SE DIO POR TERMINADA LA REUNION
FIRMANDO LOS PARTICIPANTES EN SEÑAL DE APROBACION





000-2

Acta de reunion y trabajo 27 de Mayo 2015

Los abajo firmantes Reunidos en el local del salon consistorial de la municipalidad distrital de Huaypacos, provincia de La Unión, Apgo. Para recibir a los integrantes del Equipo Técnico del Gobierno Regional, que a través del P.E. Copasa nos explicaron la posibilidad de un apoyo de la Cooperación Internacional.

Informaron que Arequipa era una de las ciudades que más iba a sufrir por el efecto del Cambio Climático y que en nuestra provincia era donde se van a dar los peores efectos, por lo que deberíamos estar preparados para poder adaptarnos de alguna manera a estos efectos.

Por ello dijeron que era de suma importancia para la nueva Gestión del Gobierno Regional el que podamos capacitarnos en estos temas en forma conjunta con nuestras autoridades, representantes comunales y población en general.

Expusieron que habían presentado una propuesta a la Cooperación Internacional, para que luego de ser aprobada se realizaran talleres que permitieran estar mejor preparados, como en el caso de la construcción de cobertizos y Campañas de identificación para que nuestros animales estén mejor preparados.

Con respecto a la alimentación nos explicaron que nos apoyarían en la búsqueda de cereales forrajeros así como en temas de abastecimiento del mismo, con referencia a los pechos y mejoramiento de pasturas, así como los proyectos de cosecha y sistema de agua, siendo cada uno previamente con las autoridades locales y/o mundas, para luego que sean ellos los que elijan y los que pueden ser seleccionados. Para las familias se apoyará con el mejoramiento de las viviendas, así como mejorar el suministro de agua potable, para ello los Comedores y las autoridades deberían poder cooperar entre, en apoyo con la mano de obra y seguimiento de los mismos para garantizar se terminen y después se continúe con las mismas y que además para garantizar esto se desarrollaría fuertes campañas de capacitación, también solicitaron que para poder continuar con estos proyectos, las autoridades deberían involucrarse en los presupuestos participativos.

Terminada la presentación todos los participantes manifestaron estar de acuerdo con ella, comprometiéndose a desarrollarlo cuando se haga realidad, indicando que de luego el momento, todo se ejecutará en armonía y hermandad. Siendo las 11 de de mañana, se dio por concluida la reunión agradeciendo a los invitados por su participación, se dio por terminada la reunión, siendo firmado el libro de actas por los participantes en Apuración.



C.1.3. Two (2) samples of attendance lists for Ayninacuy Project consultation: Various Districts, Caylloma and Castilla Provinces, March 2015; Arabamba District, Arequipa Province, May 22nd, 2015.



AÑO DEL BICENTENARIO DE LA GESTA PATRIÓTICA DE MARIANO MELGAR VALDIVIESO

PLANILLA DE ASISTENCIA

TALLER... *Presentación Proyecto Ayninacuy* LOCALIDAD... *Caylloma*
 FECHA... *Mayo 2015*

<i>Fredy Apaza Paz</i>	<i>IE. 4027 "S.E.S."</i>	<i>[Signature]</i>
<i>Oscar Marcelo Llano</i>	<i>PAR</i>	<i>[Signature]</i>
<i>FLORENA Ulca de Ariza</i>	<i>GOBERNADORA</i>	<i>[Signature]</i>
<i>Centro de Salud Chiguata</i>	<i>Asistente Social</i>	<i>[Signature]</i>
<i>Mateo macede</i>	<i>presidente AS. ayninacuy</i>	<i>[Signature]</i>
<i>Regencia Legos</i>	<i>Presente Huata</i>	<i>[Signature]</i>
<i>MARIO Quispe S.</i>	<i>casicari</i>	<i>[Signature]</i>
<i>Jose Ushincho</i>	<i>RED Obras Publicas Municipi Chiguata</i>	<i>[Signature]</i>
<i>Oscar Cayro Suarez</i>	<i>Regidor Municipalidad Chiguata</i>	<i>[Signature]</i>
<i>Bernal Coaquira Yselin</i>	<i>Asistente CDUR</i>	<i>[Signature]</i>
<i>GREGORIO Coronado D.</i>	<i>Alcalde</i>	<i>[Signature]</i>
<i>Juan Talavera R.</i>	<i>C. Regente</i>	<i>[Signature]</i>
<i>Antony Pison V.</i>	<i>BRA - Copasa</i>	<i>[Signature]</i>



AÑO DEL BICENTENARIO DE LA GESTA PATRIÓTICA DE MARIANO MELGAR
VALDIVIESO

PLANILLA DE ASISTENCIA

TALLER *Preparación Proyecto Ayarimankuy* LOCALIDAD *Castilla*
FECHA *Abril 2015*

Glady's Molina Huamán	Directora	<i>Glady's Molina</i> 22-05-2015
Mayra Delgado Rivera	Gobernadora Yumbato	MINISTERIO DEL INTERIOR <i>Mayra M. Delgado Rivera</i>
Rubén Poma Steven Negre C.	Sacerdote encargado	<i>[Signature]</i>
Moranda Pérez Uarques	Responsable P.S. Yumbato	<i>[Signature]</i> COP 23312
Leonor Acuña Yusta	Prof. I.E N° 40209 "Héroes de Yumbato"	<i>[Signature]</i> 29423135
Anny Francisca de la Cruz Paredes	Pobladora	<i>[Signature]</i> 4036046
Kelly Conquiza Larrea	Pobladora	<i>[Signature]</i> 11071502
Milagros Coaguila Centeno	Pobladora	<i>[Signature]</i> 44356386
Karol Quevedo López	Pobladora	<i>[Signature]</i> 71949263
Moriel Condori Olazábal	Poblador	<i>[Signature]</i> 40231191
Humberto Romani V.	Trabajador	<i>[Signature]</i> 29589169
Alexander Soza	Trabajador	<i>[Signature]</i> 29549062
Esther Cruz Holazo	Poblador	<i>[Signature]</i> 71316589
FREDDY VERA ZEGARRA	TRABAJADOR	<i>[Signature]</i> 29514573
ERICK BIEDA ARMIÑA	TRABAJADOR	<i>[Signature]</i> 30302375
Zoila Chacón Escobar	Trabajador	<i>[Signature]</i> 20911486

A. Rivera U GRM COPASA

no vino?

C.1.4. Two (2) samples of photographic records of meetings for the Ayninacuy Project consultation:



Photograph: Meeting held in the District of Huaynacotas in the Province of La Union. **Source:** COPASA Archives (2015)



Photograph: Meeting held the offices of the Regional Department of Agriculture in Arequipa, to present the proposal **Source:** COPASA Archives (2015)

C.1.5. Photographs of the women consultation surveys (February 2015):



C.1.6. Women consultation survey questionnaire

QUESTIONNAIRE USED IN INTERVIEWS WITH WOMEN IN PROVINCES OF THE AREQUIPA REGION DURING THE MONTHS OF JANUARY AND FEBRUARY OF 2015

SOCIOECONOMIC ACTIVITY

- Socio-familiar situation
- Types of family
- Total of benefitting families
- Family leadership
- Population graph according to gender and age group of heads of households
- Parents' educational level
- Population by gender and age group of children
- School Attendance
- Educational level of children

FAMILY ECONOMIC SITUATION

- Principal and secondary family income
- Family Economic Income

ANIMAL HEALTH IMPROVEMENT

- Livestock Aspect
- Livestock Population existing in the area:
- Epidemiological Data: Animal Health according species
- Animal mortality due to COLD
- Animal Miscarriages due to COLD
- Need for remedies
- Composition of livestock herd

GENERAL CENSUS OF COMMUNITY POPULATION AND ANIMALS

- Breeding style
- Characterization of breeding style
- Herd's Health Situation:
- Situation of natural pastures
- Families' Agricultural Knowledge of Forage Crops
- Families' Knowledge of Techniques for Expanding Highland Wetlands

IMPROVEMENT OF ANIMAL NUTRITION

RISK MANAGEMENT

- Knows how to identify dangers existing in his/her community
- Categorize the dangers that affect his/her community in order of importance
- Knows how to identify vulnerabilities that affect his/her community
- Knows how to minimize the vulnerabilities of his/her community
- How he/she would reduce his/her community's risks

C.2. Second phase of the consultation

C.2.1. Consultation Meetings in the communities of Janansaya and Condorcuyo, May 16th and 17th, 2016.



Consultation Meeting in the community of Janansaya, May 16th, 2016 Consultation Meeting in the community of Condorcuyo, May 17th, 2016

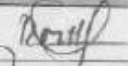
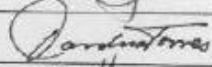





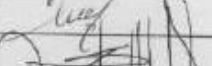

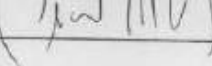
C.2.2. Attendance Lists for the Results Framework Workshop for the project, COPASA offices in the city of Arequipa, on the 18th and 19th of May, 2016.

Registro Asistencia Taller GBR Proyecto: AVNINACUY Fecha: 2016.05.18 Lugar: Oficina COPASA AREQUIPA, PERU

	Nombres y Apellidos	Entidad, Organización, Comunidad	Responsabilidad	Firma	Comentarios
1	Roger Mondes H.	MINAM-DECDH	Especialista		
2	Arcadio Puma Chicaña	Sibaya	Regidor		
3	Timotea Cevallosa Cruz	M.p. Caylloma	Regidor		
4	Mario Cardona Torres	CAF	Ejec. DACC		
5	Yncos Mejía Jico	CAF	Ejec. DACC		
6	Walter Espinoza Guzmán	COPASA	Dir. Ejec		
7	Carlos Florio Capcha	Gerencia Regional de Agricultura	Jefe Área de Caméidos		
8	Arturo Rivere Vigil	COPASA	Proyectos		
9	Roger I. Flendez Cabero	GRA-Agricultura	Subgerente		
10	HILARIOS SACCCO ZAVALA	COPASA	SECRETARIA		
11	Mildred Rosas Bellido	COPASA	Asst. ADH		
12	Oscar D. Villalobos	CAF	Facilitador		
13					
14					
15					
16					

Entidad Implementadora: CAF Entidad ejecutora: COPASA Facilitador: Oscar Villalobos

Registro Asistencia Taller GBR Proyecto: AYNINACUY Fecha: 2016.05.19 Lugar: Oficina COPASA AREQUIPA, PERU

	Nombres y Apellidos	Entidad, Organización, Comunidad	Responsabilidad	Firma	Comentarios
1	Rosor Hordos H	MUNICIPIO JACOBARI	Ejecutiva		
2	María Carolina Torres	CAF	Ejecutiva DACC		
3	Arcadio Puma Chicaña	Sibayo	Regidor		
4	Arturo Rivera Vigil	COPASA	proyectos		
5	MILAGROS SACCAO ZAVALA	COPASA	SECRETARIA		
6	Mildred Rosas Bellido	COPASA	Asist. ADM		
7	Walter Espinoza Guerman	COPASA	Dir. Ejec.		
8	Timoteo Cambachan Quispe	M. P. Caylloma	Regidor		
9	Wences Mejía Arias	CAF	ES. Ambiental		
10	Oscar Darío Villalobos C	CAF	Facilitador		
11					
12					
13					
14					
15					
16					

Entidad Implementadora: CAF Entidad ejecutora: COPASA Facilitador: Oscar Villalobos

C.2.4. Validation Workshop for the project's Results Framework Development Workshop: transcript of the attendance lists, workshop minutes, and event photographs.

AYNINACUY PROJECT PRESENTATION MEETING DATE: 16TH OF JUNE, 2016

DISTRICT MUNICIPALITY OF SIBAYO/AREQUIPA REGIONAL GOVERNMENT/COPASA

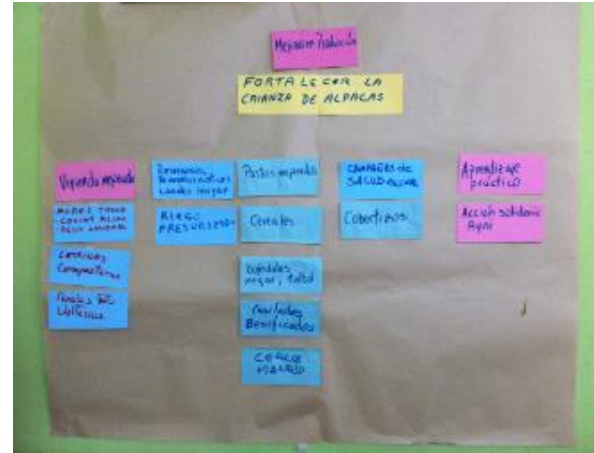
No.	Surnames and Names	ID	Position	Signature
	Mamani Puma Nely Alfonsa	44424683	ASETUR	
	Valdivia Valdivia Ruth	45259424		
	Ramos Panibra Silvia Nancy	30647540		
	Santusa Zaco Mamani	30646716		
	Fernanda Churata Calcine	30647717		
	Agrepina Hanco Suico	24867906		
	Gloria Aneo Taco	43497663		
	Milagros Fanny Calla Martinez	47412324	M.O.S	
	Cay Nahua Tauo Joel	46670232		
	Benavides Sulla Melchor	41668465	Ascad Calladi	
	Supo Sawayani Domingo León	30663100	District Asst. Prefect	
	Picha Picha Margarita	30662974	Participant	
	Arturo Rivera Vigil	29220364	Copasa	

No.	Surnames and Names	ID	Position	Signature
	Cutipa Mamani Gloria	42050712	Participant	
	Marcelina puma Samayani	30663480	Participant	
	Sofía Samayani Puma	40566163	Participant	
	Resina Vilca Pacsi	30663086	Participant	
	Rosa Mercedes Quiño	44633615	Participante	
	Vilcazan Supo Fortunata	43048598	Participante	
	Noa Yanqui Gumerinda	30663502	Participante	
	Benigna Mamani Calachua	30642508	Participant	
	Lorenza Picha Puma	30663173	Participant	
	Supo Cutipa Eufemia	40289901	Participant	
	Noa Picha Julia Victoria	30663271	Participant	
	Chuctaya Yampi Regina	41562856	Participant	
	Juliana Margarita Huarca Quico	42961583	Participant	

No.	Apellidos y Nombres	DNI	Position	Signature
	Delia Capira Cutipa	30663494	Participant	
	Eufemia Picha Supo	30662885	Participant ay	
	Adelayda Picha Puma	43248510	Sumac Pallay	
	Elodia Samayani Picha	30663456	Participant	
	Rodendo Begazo Picha	30663198	Justice of the Peace	
	Glemendano Supo Chiceña	30662962	Participante	
	Picha Chicaña Julia	30663027	Alpaquira	
	Gladis Supo Cutipa	44341435	Sumac Pallay	
	Silvia F. Alhuirca Sarayasi	46877403	Participant	
	Fransisca Condo Huasta	30647109	Participant Callalli	
	Alejandrina Mamani Churata	30646833	Participant Callalli	
	Ruth Supo Machaca	30663195	(...) ASETUR	
	Faustina Julia Churcta	41821399	Councilman M.D. Callalli	

No.	Apellidos y Nombres	ID	Position	Signature
	Picha Supo Nila	41212384	Council woman	
	Puma Chicaña Arcadio	30663521	Councilman	
	(¿?) Sarayusi Supo	30662996	Participant	
	Federico Picha Chicaña	30663260	Participant	
	Margarita Picha Picha	30662974	Participant	
	Delia Supo Meheca (¿?)	30663499	Participant	
	Gloria Cutipa Mamani	42050712	Participant	
	Toribia Llacho Panibra	80160648	Participant	
	Victoria Supo Noa	30663459		
	Marleni Condori Supo	30663509		
	Clementena Supo Chicaña	30662962	(¿?)	
	Sulma Arias Picha	44095204	Sumac Pallay	
	Walter Espinoza Guzmán	29394400	COPASA	

C.2.5. Results Validation Workshop of the project's Results Framework workshop: event photographs



C.2.6. Results Validation Workshop of the project's Results Framework workshop: Sample of the encounter minutes and of the attendance list.

1/8

Sibayo, 16 de Junio 2016

En el local de la Municipalidad Distrital de Sibayo, a los 9:30 a.m., nos reunimos los representantes de las comunidades campesinas de Sibayo, de Callalli, acompañado de sus representantes comunales y autoridades, con el objetivo de socializar y validar el marco lógico del proyecto Ayninacuy, resultado de tres talleres previos, además de recoger sus opiniones y aportes.

En el taller igualmente se recogerán opiniones sobre el tema de género, para lo cual se han hecho presente mujeres de la comunidad.

El taller comenzó agradeciendo la presencia de las comunidades, hombres, mujeres y sus niños.


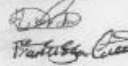







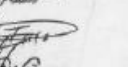

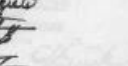

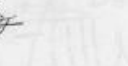








Se aclaró que el proyecto está en su fase de planificación, que aún falta la aprobación, para no generar expectativas, pero que necesitamos de sus opiniones e inquietudes.

Se explicó que el proyecto Ayninacuy busca solventar los problemas que ha ocasionado y que son consecuencia del cambio climático y los cambios del clima, además de hacer que la cría de alpacas sea una actividad más rentable.

Además de la muerte de crías de alpaca, mujeres expresaron que a causa del frío extremo las personas se han enfermado. Igualmente la comunidad expresó el frío que viven en sus casas, la falta de pasto, la poca lluvia.

Las mujeres manifestaron que sus niños sufrían de diarreas y malestar de estómago.

La comunidad solicitó abrigo para poder enfrentar las bajas temperaturas.

- | | |
|---|---|
| 1. Alejandrina Mamani Chorato |  |
| 2. Francisca Condo Uaita |  |
| 3. Victoria Supo |  |
| 4. Julia Picha |  |
| 5. Ruth Supo |  |
| 6. Ruth Valdivia |  |
| 7. Silvia Ramos |  |
| 8. Gloria Anco |  |
| 9. Agripina Harcco |  |
| 10. Fernanda Chunta |  |
| 11.  |  |
| 12. Adelaida Picha Puma |  |
| 13. Narcena Puma |  |
| 14. Margarita Samayoni |  |
| 15. Delia Supo |  |
| 16. Danitza Ramos |  |
| 17. Diani Toco Valero |  |
| 18. Eusepia Gonzalez Quispe |  |
| 19. Amelia Sarayasi |  |
| 20. Eupemia Supo |  |
| 21. Julia Nca |  |
| 22. Regina Chuqtaya | |
| 23. Lorenga Picha | |
| 24. Delia Capira | |

ANNEX D – SOCIAL AND ENVIRONMENTAL EVALUATION REPORT AYNINACUY PROJECT



Versión 1
Dirección Corporativa de Ambiente y
Cambio Climático

Proyecto Ayninacuy - Perú

<i>Name of the Operation</i>	Ayninacuy Project - Arequipa	
<i>Country</i>	Peru	
<i>Peru Evaluation Date</i>	15th to 20th of Mayo, 2016	
<i>Responsible for the Operation</i>	Marcos Mejía Arias	
<i>Executive / Evaluating Consultant</i>	Marcos Mejía Arias	
<i>Responsible Executive, DACC</i>	Marcos Mejía Arias	
<i>Coordinator UGAI</i>	Edgar Salas	

Executive Summary

The process of global climate change is determined by progressive changes in the global, national and local climates; these fluctuations cause changes in the frequency and intensity of extreme climate variability. Peru is one of the tropical countries that are more acutely affected by the retreat of glaciers in mountain ranges that were in previous years covered with snow. Within the Peruvian territory the effects of climate change also differ, by region and socioeconomic levels, and, in the distribution of negative climate impacts, the rural poor of highland mountain ecosystems will bear the brunt of these changes. In these areas, glacier retreat has reduced the availability of water and has led to the desertification and soil degradation.

This project constitutes an initiative focused on the endeavor to strengthen the activity of obtaining and selling alpaca fiber, an activity that is the main and almost exclusive means of livelihood and source of income for the vulnerable Andean highland communities in the provinces of Arequipa, Caylloma, Condesuyos, Castilla and La Union in the Arequipa Region of Peru. To strengthen this way of life, the project seeks to strengthen the activity of raising alpacas to obtain fiber among the enumerated communities, while improving resilience at the local level through the development of basic infrastructure for access to water drinking and by implementing a pilot activity to strengthen the assets of housing communities covered by the project. In this way, the project will contribute to the sustainability of the economic activities of marketing, use and export of alpaca in Peru, as well as the livelihood and ancestral cultural values they represent.

The project contemplates the implementation of the following components:

Project components

1. Implementation of measures aimed at strengthening subsistence means and income sources for vulnerable communities in the selected areas, and the implementation of complementary measures.
2. The strengthening and development of community and institutional skills in order to reduce risks associated with economic losses caused by adverse meteorological phenomena.

The project will allow for:

- Reducing vulnerability and increasing adaptation capacity in order to respond to climate change impacts in the rural Andean highland communities in the Provinces of Arequipa, Caylloma, Castilla, La Union and Condesuyos.

The total cost of the Project comes to US\$ 2,897,053, which will be financed by the Adaptation Fund (AF). The executive entidad will be the COPASA Special Project of Arequipa.

The project does not require an Environmental Impact Study (EIS), due to the fact that the works to be executed are minor and low impact, however, the elaboration de an Environmental Management Report (EMR), which must contain all the prevention, mitigation and remediation measures for the project's environmental impacts, which must be processed with the environmental authority prior to the start of any work.

In accord with the project's environmental evaluation, ambiental del Project, a negative impact can be noted principally in the construction stage, with the majority of the factors affected in a temporary and reversible manner, with low magnitude negative impacts. The impacts of this stage are associated principally with irrigation canal works, micro-dams and implementation of Trombe wall in households.

In the Operation stage, the final impact is highly positive, given that it deals with measures that will help to improve the quality of life in the communities and to reduce vulnerability in the face of climate change (CC).

The following aspects that can give rise to critical situations are:

1. Reduction of wetlands and/or reduction in the availability of water sources, which impede the implementation of micro-dams for its storage and distribution.
2. Extreme temperatures conditions can make the project's implementation difficult for a period of time.
3. Identification of archaeological sites in the project's area of influence can generate change in the initial components established.

With the purpose of guaranteeing an appropriate environmental and social management for the project; as well as compliance with the Environmental and Social Safeguards established for CAF, the Executive Entity, to CAF's satisfaction, must comply with the following commitments:

Prior to initiating any work project

1. Present the permits and/or environmental licenses required for the start of work and/or stage of the work (approved Instrument of Environmental Management, archaeological permits if necessary, among others).
2. Present an Environmental Management Plan for the project, which must include: i) Environmental Management Plan; ii) Prevention, Mitigation and Control Measures; iii)

Contingencies Plan; iv) social and environmental budgets; y v) human resources and those responsible for their execution.

During the construction stage

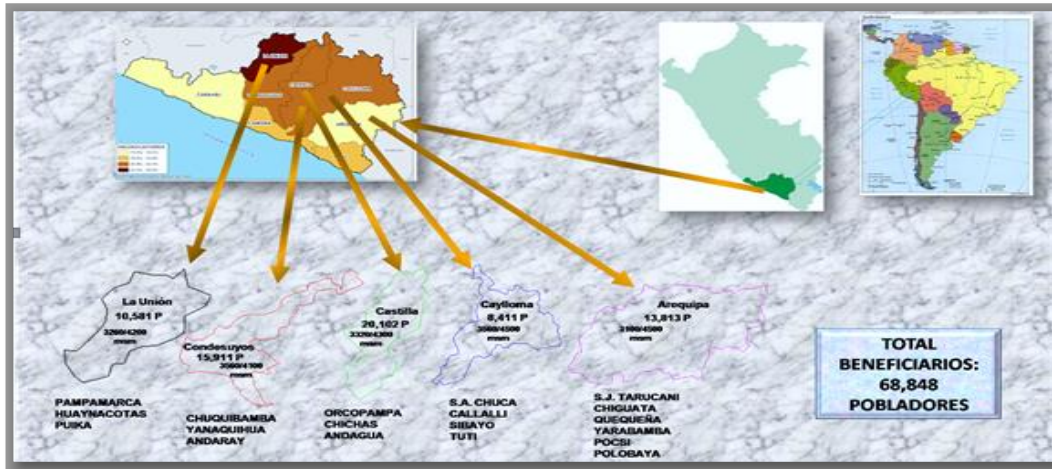
1. Present semestral reports, in electronic format, analyzing the following: (i) progress in the implementation of the project's Environmental Management Plan; (ii) la execution of the project's social and environmental budget; and (iii) the assignation of human resources to social and environmental management. Present the semester report about performance in the project's social and environmental management.
2. Inform when there arises some significant change in the project's characteristics or in the natural or social environment where it is unfolding, and that may generate new environmental and social impacts unforeseen in the evaluation originally carried out by CAF or drive those already existing, necessary actions and measures for their management to control, mitigar and/or remediate said impacts must be designed and implemented, so that the integridad of the communities is preserved, as well as that of the ecosystems or natural resources involved.
3. Present a Corrective Actions Plan to correct or remediate damages or attend to other adverse consequence due to any possible operational failure. This plan will include, as a minimum, the following: (i) the description and extent of the damage, environmental effects or failure; (ii) the actions proposed for their investigation para su investigation, correction, remediation, mitigation of damage and other adverse consequences; (iii) la assignation of responsibilities for the corrective measures to be implemented; (iv) the estimated costs for the application of corrective measures; and (v) the actions proposed in order to anticipate similar future events.

All reports must presented in a digital format to CAF.

I. Description of Service Provider, Executing Entity and the Operation

The Ayninacuy Project has as its object the reduction of vulnerability and increase of adaptation skills for responding to climate change impacts in the rural Andean highland communities in the Provinces of Arequipa, Caylloma, Castilla, La Union and Condesuyos. In Illustration 1 the project location is shown and the distribution of the project's beneficiary population.

Illustration 1: Project Location



The project presents two (2) components:

Project components

1. Implementation of measures aimed at strengthening means of subsistence and income sources for the vulnerable communities in the selected areas, the implementation of complementary measures.
2. The strengthening and development of community and institutional capacities for reducing the risks associated with economic losses caused by adverse meteorological phenomena.

The total cost of the Project comes to US\$ 2,897,053, which will be financed by the Adaptation Fund (AF). The executive entidad will be the COPASA Special Project of Arequipa, a decentralized entity of the Regional Government of Arequipa, created by E.O. 002-97-PRES on January 30th, 1997. In order to comply with its mandate, it has an executive director who answers to the Governor of Arequipa's Regional Government, and has technical, administrative and financial autonomy.

II. Description of social and environmental characteristics

The "Ayninacuy" Project possesses a preliminary Environmental Management Plan (EMP), for the execution of the activities, however, it necessary that an Environmental Management Report (EMR) be presented, prior to the start of work, before the competent authorities, in this instrument measures for prevention, mitigation and control of the project's environmental impacts must be included. The EMR must be elaborated on the basis of the preliminary Environmental Management Plan (EMP).

The surroundings of the project's area of influence are principally rural. The water resources in which the development is based in the Andean highland region originate from flows at 3800 to 4000 meters above sea level. The headwaters are very fragile and vulnerable to climate change and to environmental and social impacts, all of which lead to the gradual abandonment of camelid raising in the Andean highlands.

With respect to producers' organizations, there are at least 50 organizations of camelid fiber producers in Peru, with 9 of them in the Arequipa Region. The camelid breeders' groups traditionally organise themselves as non-profit civil associations (ACSFL, for its abbreviation in Spanish), if

indeed, recently, and especially in Arequipa, there has been a tendency to form Special Producers' Cooperatives.

No significant environmental risks have been identified in the project; the risks are of a limited extent and are generated principally in the work stage; among the principal ones are found:

- Deterioration of air quality due to particulate matter in the immediate area, principally due to vehicle use or transport of materials.
- Minor spills of chemical substances (paint, oil)
- Effects on vegetal cover due the displacements to work areas or excavations.

The project has a Preliminary Environmental Management Plan (EMP) for managing identified risks.

a. ***Physical environmental factor***

Below is presented a description of some of the anticipated climate change scenarios for the provinces of Castilla Media and Condesuyos in the Arequipa Region. The provinces of Castilla Media and Condesuyos can be used as representative of climate behavior in the highland provinces of the Arequipa Region, the studies carried out by the Pilot Program for Measuring Adaptation to Climate Change point to the probability that significant disturbances in the climate will happen in the next twenty (20) years in the Región.

Temperature variation (thermal oscillation): The projections for temperature changes for the year 2030 indicate that the minimum and maximum temperature variations will expand by almost 4 degrees centigrade, both upwards as well as downwards. Both winters as well as summers will tend to be atypical, with a predominance of heat waves and a reduction in the number of cold days and nights.

Precipitations: The tendencies in temperature and in precipitations indicate that climate change in the region will tend to become more acute in the coming years, both in rhythm as well as in intensity, manifesting itself principally in an increase in mid-range temperatures between 2 4 degrees centigrade in the areas immediately surrounding the Region's snow-capped peaks. This will be accompanied by a reduction in precipitations and an increase in the return cycle and the duration of critical periods. These scenarios are clearly subject to some uncertainty due to the confluence of unpredictable variables (variations in the emission of CO₂, natural climate variations, unpredictable geodynamic events, etc.). All of these, however, raise an alert concerning a high probability tendency that makes the task of taking preventive measures essential.

The entirety of the Andean tropical glaciers is suffering a visible process of retreat. The various studies point out that in the last 30 years Peru has lost 22% of its glacier surface area.

The glacier retreat in the coming years will bring catastrophic effects for diverse ecosystems and sectors, with the following consequences:

- Reduction in water availability.
- Increase in desertification and arid zones.
- Infestations and plagues in crops will increase.
- The distribution of some human diseases will change and others will expand.

The area of study is located in a zone highly vulnerable to the effects of climate change. One of the major risks is the presence of extreme temperature conditions, and the reduction of water availability, conditions that can see increases as a consequence of natural phenomena, with El Niño and La Niña.

b. **Environmental biotic factor**

Arequipa possesses five of Peru's eight ecological tiers, which allow for warm climates and glaciers. Camaná is the lowest district (at 12 meters above sea level) and Caylloma, the highest (3,635 meters above sea level). It has nine main rivers, of which the Majes River (Castilla) is the largest and the Colca River (Caylloma) is the highest (at 4,410 meters above sea level), as well as natural reserves and sanctuaries.

The project will not be executed within protected natural areas and/or conservation areas, however, measures for conservation of the area's flora and fauna will be established, through the establishment of "Measures for biotic component management", established in the Environmental Management Plan (EMP). It is worth noting that in areas neighboring the project's development are the Salinas-Aguada Blanca National Reserve and the Cotahuasi Scenic Watershed Reserve.

(ii) Illustration 2: Conservation Areas of Arequipa



Source: Geo servier – Ministry of the Environment - Peru (<http://geoservidor.minam.gob.pe/intro/>)

In the Salinas and Aguada Blanca National Reserve some species in danger of extinction are found, vicuñas and around 70 types of birds. There is a large variety of species of birds and mammals (flamingoes, parihuanas, taruca [Andean deer], vicuña, among others). Due to this, measures will be established for the conservation of the species in the areas neighboring National Reserve and in the area where the project will be developed or in the wetlands.

The project's area of direct influence is found in the rural areas with altered habitats, due to soil use for agricultural activities and alpaca raising, due to which, biological diversity in the area is low, with the parts closest to the reserves having the largest number of species.

c. Social, economic and cultural factors

Peru produces 80% of the supply of alpaca fiber in the world market. In 2014, exports of this product neared almost 60 million dollars (USD), which corresponds to 0.16% of total Peruvian exportations during the same period. Additionally, exports of garments made of alpaca alpaca were valued in a similar amount for the same period, representing 3% of total Peruvian exports. Although it does not occupy a dominant position, the manufacture of garments made of alpaca fiber, and other derived products, forms part of an important sector of the Peruvian economy (25% of Peruvian companies is dedicated to textiles and garments, a sector which represents 11% of manufacturing GDP and 2% of national GDP). In Peru's alpaca fiber production, the contribution of small breeders (small-scale production) forms the largest part, providing 85% of the factor market's supply.

With respect to producers' organizations, there are at least 50 camelid fiber producers' organizations in Peru, nine (9) of them in the Arequipa Region. The camelid breeders' groups traditionally organize themselves as non-profit civil associations (ACSFL, for its abbreviation in Spanish), although, more recently, and especially in Arequipa, there is a tendency to form Special Producers' Cooperatives.

The project's social impact is highly positive, given that it will contribute to reduction in vulnerability in the face of climate change for the project communities, as well as improving their quality of life, through an improvement in alpaca raising and strengthening their capacities.

d. Institutional and organizational aspects

The Executor Organism is COPASA, an autonomous entity of the Regional Government of Arequipa, created by E.O. 002-97-PRES on the 30th January, 1997. For the fulfillment of its purposes, it has an executive office, reporting to the Governor's Office of the Regional Government, enjoying technical, administrative and financial autonomy.

COPASA has at its disposal broad experience in the execution of projects and programs in the Arequipa Region, in irrigation, and programs related to preventing the effects of climate change. Likewise, it possesses advanced technical knowledge in order to move this project forward. During the Project's evaluation mission it has been possible to observe that there exists good inter-institutional coordination and relations, with the municipalities and the communities in the project's area of influence.

III. Evaluation of environmental and social impacts and risks

In accord with the Project's environmental evaluation, no significant negative environmental impacts have been identified. The negative environmental impacts will be generated principally in the project's construction and/or adaptation stage (component N°1), and it is estimated that they will be temporary, reversible and of limited extent. Among the potential activities are those related to housing adaptation, canals, micro-dams, and change in soil use.

In the Operation stage, the final impact is highly positive, given that it deals with measures that will help to improve quality of life in the communities and to reduce vulnerability in the face of climate change (CC).

a. Project impacts on the physical component

Soil:

The actions that will be carried out during the project's execution consist principally of initial earth-moving, displacement from the work area, canals (material from the area will be used, concrete will not be used), micro-dams (the terrain will be modified using geomembranes or similar products), implementation of Trombe walls and vehicle use. The impacts that can be anticipated are related to increased compaction, loss of vegetal cover in the work zones, contamination due to potential minor spills. Another potential source of effects on soil resources may arise from the handling and disposal of solid wastes, to which must be added possible accidental spills of hydrocarbons and chemical products.

It is estimated that the project's impacts of the soil component will be minimal and insignificant, being a temporary and reversible.

Air:

Among the environmental aspects that will produce effects on air quality can be found: emission gases from combustion, generation of particulate matter and noise. These changes will be temporary in nature and due principally to vehicle exhaust, earth-moving, transport, hauling and dumping of materials.

These activities will result in a temporary change in air quality in the project area. Another element to keep in mind is the increase in noise levels, due principally to the work activities, for example, the installation of Trombe walls. This sound increase is temporary and insignificant.

It is estimated that the project's impacts on the air component will be of an insignificant, low impact, being temporary and reversible.

Water:

The project establishes the implementation and/or adaptation of micro reservoirs of approximately 10m x 10m, of low impact on surrounding area. Likewise, the water canals to be implemented will be rustic, with material from the area. The impact on water resources occurs in a concentrated manner due to diverse tasks specific to the work stage, arising principally from dust and earth arising from earth-moving. Another potential source of contamination are possible accident or accidental spills.

It is estimated that the project's impacts on the water component will be of low and insignificant impact, being temporary and reversible in nature.

b. *Project impacts on the biotic component***Flora**

The loss of vegetal cover will be minimal, and specific principally during excavation for earth-moving and the establishment of canals. It is likely that the loss along the trajectory of the rustic canal will be permanent and localized, however, mitigation and/or compensation measures will be carried out.

Fauna

Human presence, noise associated with work activities will disturb the environment, giving rise probably to a temporary abandonment by some species of birds in the area.

The alteration of the habitat, product of the elimination of part of the vegetal cover will not produce meaningful changes in the ecosystem, based on which it is considered that there will not be any significant effect on the area's biodiversity.

The negative impacts on the flora and fauna are of low intensity, localized in a minor portion of the terrain and of brief duration, given that they are limited to the work stage.

c. *Project impacts on the socioeconomic component*

The final impact is highly positive, given that it deals with measures that will help to improve quality of life in the communities and to reduce vulnerability in the face of climate change (CC).

d. *Project impacts on the institutional and organizational component*

The Executor Organism is COPASA, an autonomous entity of the Regional Government of Arequipa, created by E.O. 002-97-PRES on the 30th January, 1997. For the fulfillment of its purposes, it has an executive office, reporting to the Governor's Office of the Regional Government, enjoying technical, administrative and financial autonomy.

COPASA has at its disposal broad experience in the execution of projects and programs in the Arequipa Region, in irrigation, and programs related to preventing the effects of climate change. Likewise, it possesses advanced technical knowledge in order to move this project forward. During the Project's evaluation mission it has been possible to observe that there exists good inter-institutional coordination and relations, with the municipalities and the communities in the project's area of influence.

IV. *Environmental and social management of the Operation*

The Ayninacuy Project possesses a preliminary Environmental Management Plan (EMP), for the execution of the activities, however, it is necessary that an Environmental Management Report (EMR) be presented, prior to the start of work, before the competent authorities, in this instrument measures for prevention, mitigation and control of the project's environmental impacts must be included. The EMR must be elaborated on the basis of the preliminary Environmental Management Plan (EMP).

a. *Preventive, mitigating and/or corrective measures*

The EMP is made up of programs that must be implemented during the different stages of the Project (construction, operation, and work closure), with the end of conserving and protecting the environment where it takes place, improving the quality of life of the participating population and to maintaining a good relationship with it. Likewise, these actions will allow us to achieve the project objectives that seek to reduce vulnerability to increase the response capacity of the communities to climate change impacts in the provinces of Arequipa, Caylloma, Castilla, La Union, and Condesuyos.

The Environment Management Plan consists of the following programs and measures:

a) *Measures for management of the physical component*

- Measures for Air Quality Control
- Measures for Soil Conservation
- Measures for Water Conservation
- Measures for Landscape Conservation
- Program for solid waste management

b) *Measures for management of biotic component*

c) *Socioeconomic Measures*

- Measures for conservation of archaeological remains
- Program for participation and community relations
- Training Program

- Measures for guaranteeing workplace safety and occupational health

d) Program for prevention of environmental emergencies

e) Programa for follow-up and verification

b. *Mechanisms for civic participation and communication strategy*

Among the mechanisms proposed for civic participation are included: programs for community awareness raising and communication, meetings, informative workshops, among others, which have as its object maintaining a good relationship with the population in the project's area of influence and avoid social conflicts.

V. *Principal risks and critical aspects*

a. *Principal risks and critical aspects*

The following aspects that can give rise to critical situations are:

- Reduction of wetlands and/or reduction in the availability of water resources, which impedes the implementation micro-dams for the storage and its distribution.
- Extreme temperatures conditions can impede Project implementation for period of time.
- Identification of archaeological sites in the project's area of influence can generate changes in the initial established components.

VI. *Principal environmental and social opportunities*

Among the environmental and social opportunities identified the following can be mentioned:

- Support for the generation of a strategy for replicating the knowledge acquired by the communities in other places that have similar problems.

VII. *Environmental and social measures established by CAF*

Among the measures established by CAF are found, within the Environmental Management Plan (EMP).

VIII. *Environmental and social budget*

The total cost for the project's execution, including environmental and social measures is US\$2,897,053.

IX. *Environmental and social viabilidad of the Operation*

In accord with the evaluation done based on the documented and field information, it is considered that the project is viable from the Environmental and social point of view.

In this sense, with the intent of compromising the project's environmental and social viability, the project must: (i) Elaborate an EMR, including management programs that allow for preventing, mitigating and controlling the negative impacts and for driving positive impacts; (ii) Implement the set of environmental and social conditions established by CAF in the present report; (iii) Implement the proposed Environment Management Plan (EMP); (iii) comply with the environmental and social regulations in force, as well as with the environmental and social Safeguards established by CAF and the AF.

Environmental and social safeguards				
No.	Aspect	Fulfills		Observations (*)
		Yes	No	
i.	National Legislation	x		<p>Among the principal applicable regulations are:</p> <ul style="list-style-type: none"> - Law N° 28611, General Law of the Environment - Law N° 29338, Law of Water Resources - Law N° 27314, General Law of Solid Waste - Executive Order N° 019-2009-MINAM, Regulations for Law N° 27446, Law of the National System for the Evaluation of Environmental Impacts. <p>The project establishes, within its Environmental Management Plan (EMP), measures and programs for compliance with environmental regulations.</p>
ii.	Evaluation of environmental and social impacts, risks and opportunities	x		<p>The project requires the elaboration of an Environmental Management Report (EMR), which must contain all of the project's environmental impact measures for prevention, mitigation, and remediation, which must be presented to the environmental authority prior to the start of work.</p> <p>In this sense, the project contemplates the elaboration of the environmental management instrument, prior to the start of work, which will be elaborated based on the preliminary EMP.</p>
iii.	Measures for environmental and social management and budgets	x		Includes a budget for the application of measures for environmental and social management.
iv.	Institutional strengthening, human resources training and information	x		COPASA has at its disposal broad experience in the execution of projects and programs in the Arequipa Region, in irrigation, and programs related to preventing the effects of climate change. Likewise, it possesses advanced technical knowledge in order to move this project forward. During the Project's evaluation mission it has been possible to observe that there exists good inter-institutional coordination and relations, with the municipalities and the communities in the project's area of influence.
v.	Conservation of Water Resources.	x		Within the Environmental Management Plan (EMP) for the proposed project measures for conservation of water resources are established.
vi.	Natural Parks and natural protected areas	x		Incursions or effects are not anticipated in the natural parks and protected natural areas.
vii.	Prevention of disaster risks	x		Within the EMP are included measures for attention to Emergencies.
viii.	Prevention of contamination	x		Measures for contamination prevention are based principally in the application of the Environmental Management Plan (EMP).
ix.	Regional Cultural Heritage	x		The project does not anticipate any effect on historical patrimony. However, once defined the specific location of the components, if necessary, the respective permits will be verified and presented.
x.	Ethnic groups and cultural diversity	x		No effect on ethnic groups and/or cultural diversity has been identified.

Environmental and social safeguards				
No.	Aspect	Fulfills		Observations (*)
		Yes	No	
<i>xi.</i>	<i>Participation and community development</i>	x		<i>Within the EMP, are included mechanisms for civic participation (encounters, meetings, training sessions), where project characteristics and impacts are conveyed.</i>
<i>xii.</i>	<i>Resettlement and/or forced relocations</i>	x		<i>The work projects will not require resettlements.</i>
<i>xiii.</i>	<i>Childhood Protection</i>	x		<i>The Peru's labor legislation prohibits child labor.</i>
<i>xiv.</i>	<i>Gender Equity</i>	x		<i>There is no evidence of any risk related to non-compliance of this safeguard.</i>

Note: (*) In case of total or partial non-compliance, upon the moment of evaluation, the No column must be marked and as such, in the observations column, the measures for reversing this situation must be established, measures that must be reflected in Section X. Plan of action. Environmental and social conditions is for the financing.

When the condition does not present itself, under observations it must be noted that there is no risk and no column should be marked (YES/NO).

AF Principles				
No.	Environmental and Social Principles (AF)	Fulfills		Observations (*)
		Yes	NO	
<i>i.</i>	<i>Principle 1: Compliance with the Law</i>	x		<i>Among the principal applicable regulations are: - Law N° 28611, General Law of the Environment - Law N° 29338, Law of Water Resources - Law N° 27314, General Law of Solid Waste - Executive Order N° 019-2009-MINAM, Regulation of Law N° 27446, Law of the National System for Evaluation of Environmental Impact. The project establishes, within its Environmental Management Plan (EMP), measures and programs for compliance with environmental regulations</i>
<i>ii.</i>	<i>Principle 2: Access and Equity</i>	x		<i>The project is focused and will be defined at all times considering equity, access, the benefits for the project participants. The project establishes, within its Environmental Management Plan (EMP), measures and programs for compliance with this principle.</i>
<i>iii.</i>	<i>Principle 3: Marginalized and Vulnerable Groups.</i>	x		<i>The project will contribute to improving the population's quality of life, as the project's components are established. As such, generating positive impacts for the vulnerable groups is expected.</i>
<i>iv.</i>	<i>Principle 4: Human Rights</i>	x		<i>No effect on human rights is anticipated.</i>
<i>v.</i>	<i>Principle 5: Gender Equity and Women's Empowerment</i>	x		<i>The project will be defined and developed taking into account at all times gender equity both in participation as well as in decision-making. Likewise, as regards the project's benefits. The project establishes, within its Environmental Management Plan (EMP), measures and programs for compliance with this principle.</i>

AF Principles				
No.	Environmental and Social Principles (AF)	Fulfills		Observations (*)
		Yes	NO	
vi.	<i>Principle 6: Core Labour Rights</i>	x		<i>No effects on labor rights are anticipated. In this sense, the project has, within the measures established in the EMP, guidelines for compliance with this principle.</i>
vii.	<i>Principle 7: Indigenous Peoples.</i>	x		<i>No indigenous communities were identified.</i>
viii.	<i>Principle 8: Involuntary Resettlement.</i>	x		<i>Does not apply to the project</i>
ix.	<i>Principle 9: Protection of Natural Habitats</i>	x		<i>The project will not be executed within protected natural areas and/or conservation areas, however, measures will be established for the conservation of the area's flora and fauna, through the establishment of "Measures for management of the biotic component", established in the Environmental Management Plan. It is worth noting that in areas neighboring the project's development are found the Salinas-Aguada Blanca National Reserve and the Cotahuasi Scenic Watershed Reserve.</i>
x.	<i>Principle 10: Conservation of Biological Diversity</i>	x		<i>The project has been developed focusing on the reduction of the population's vulnerability to the effects of climate change. In this sense, the project has taken into account at all stages the climate change component.</i>
xi.	<i>Principle 11: Climate Change</i>	x		<i>The project has a Preliminary EMP where measures for prevention, mitigation and control of environmental impacts, identified in the field and documented evaluation, are specified. Likewise, the elaboration of the Environment Management Report (EMR) is taken into account, for the project's implementation.</i>
xii.	<i>Principle 12: Pollution Prevention and Resource Efficiency.</i>	x		<i>The project establishes, within its Environmental Management Plan (EMP), measures and programs for compliance with this principle.</i>
xiii.	<i>Principle 13: Public Health.</i>	x		<i>The project does not anticipate any effects on historic patrimony. However, once defined the specific location of the components, if necessary, the respective permits will be verified and presented.</i>
xiv.	<i>Principle 14: Physical and Cultural Heritage</i>	x		<i>The Project's effects on soil are of low impact. The project establishes, within its Environmental Management Plan (EMP), measures for soil conservation.</i>
xv.	<i>Principle 15: Lands and Soil Conservation.</i>	x		

During the mission carried out in the project, the principles of AF safeguards were verified, in which no risk of non-compliance was identified.

In Annex N°1, photographic evidence of the area is attached where the project will be developed. It is worth noting that two (2) communities, representative of the project, were chosen, with the intent of verifying the AF safeguards.

X. Plan of action. Environmental and social conditions for the financing

With the goal of guaranteeing an adequate environmental and social management for the project; as well as compliance with the environmental and social Safeguards established by CAF, the Executing Entity must, to CAF's satisfaction, comply with the following commitments:

Prior to initiating any work project

1. Present the permits and/or environmental licenses required for the start of work and/or stage of the work (approved Instrument of Environmental Management, archaeological permits if necessary, among others).
2. Present an Environmental Management Plan for the project, which must include: i) Environmental Management Plan; ii) Prevention, Mitigation and Control Measures; iii) Contingencies Plan; iv) social and environmental budgets; y v) human resources and those responsible for their execution.

During the construction stage

1. Present semestral reports, in electronic format, analyzing the following: (i) progress in the implementation of the project's Environmental Management Plan; (ii) la execution of the project's social and environmental budget; and (iii) the assignation of human resources to social and environmental management. Present the semester report about performance in the project's social and environmental management.
2. Inform when there arises some significant change in the project's characteristics or in the natural or social environment where it is unfolding, and that may generate new environmental and social impacts unforeseen in the evaluation originally carried out by CAF or drive those already existing, necessary actions and measures for their management to control, mitigat and/or remediate said impacts must be designed and implemented, so that the integridad of the communities is preserved, as well as that of the ecosystems or natural resources involved.
3. Present a Corrective Actions Plan to correct or remediate damages or attend to other adverse consequence due to any possible operational failure. This plan will include, as a minimum, the following: (i) the description and extent of the damage, environmental effects or failure; (ii) the actions proposed for their investigation para su investigation, correction, remediation, mitigation of damage and other adverse consequences; (iii) la assignation of responsibilities for the corrective measures to be implemented; (iv) the estimated costs for the application of corrective measures; and (v) the actions proposed in order to anticipate similar future events.

All reports must presented in a digital format to CAF.

ANNEX E – PROFILES OF THE PROJECT TEAM

PROFILE OF DIRECTOR OF THE AYNINACUY PROJECT

PROJECT DURATION: 30 MONTHS

REQUISITES

- Experience in Project Leadership and Management.
- Experience Project Management in Andean highland areas.
- Experience in similar work with a minimum of 10 years
- Experience minimum of 8 years in Public Administration.
- Experience minimum of 10 years in Project Administration.
- Experience in elaboration of Studies and Projects in Rural Areas.
- Experience in Direction, Tracking and Control of Projects under international and national norms.
- Basic knowledge of computerized systems.
- Competencies: Capacity for leadership, Initiative, Results Orientation, Trustworthiness, Proactivity, Flexibility, Teamwork and Organization, Work under pressure, Planning and management
- Academic Formation: academic degree and/or levels of studies
- Professional Title in Social Science and/or similar.
- Knowledge for the position and/or role: minimum indispensable and desirable (10) years.
- **CHARACTERISTICS OF POSITION AND/OR ROLE**
- Integrate the Special Committees for the Selection of Proposals for the Contracting of Services.
- Evaluate the necessary documents for undersigning of works contracts and supervision. Evaluate approve programmed and executed activities.
- Evaluation and declaration of the reports (monthly, quarterly, special, etc) presented by the project supervisor.
- Evaluation, declaration and additional filings.
- Evaluate and file conformity with service orders.
- Elaborate monthly status reports on the progress of programmed activities, recommending actions to be taken in each case.
- Elaborate and propose the Terms of Reference of the contracting of consultants. Serve as technical liaison between EI and COPASA.
- Supervise and control compliance with the instructions given to staff under this role.

PROFILE OF FIELD SUPERVISOR OF THE AYNINACUY PROJECT

PROJECT DURATION: 30 MONTHS

REQUISITES:

- Engineer, with specialization in natural sciences: Geologist, Agronomist, Zootechnician (animal husbandry)
- Accredited experience of at least five (5) years in the development of Adaptation to climate change projects.
- Know perfectly the project's area.
- Accredited Experience in rural training which must be accredited through certificate provided by a private or public entity.
- Experience in the design, elaboration and startup of adaptation to climate change projects.
- Specific experience of at least five (5) years managing technology related to adaptation projects, which must be accredited through certificate provided by a private or public entity.
- Not be present in the database of observed professionals kept by the Regional Bureau of Agriculture.
- Possess Fluency in the native language used in the project area.
- Hold a current driver's license which qualifies for the use of project vehicles: pickups and motorcycles.
- Experience with projects financed by International Cooperation.
- Experience in the development of adaptation to climate change projects.
- Experience in handling pressurized irrigation equipment.
- Experience in the installation of high altitude grasses and forage.
- Experience in the construction rustic ponds in rural areas.
- Facility in relating to institutional representatives from the area.
- Proactive, collaborative and with a great interest in developing an adaptation experience.

PROFILE OF YACHACHIQ (FIELD SPECIALIST) OF THE AYNINACUY PROJECT

PROJECT DURATION: 30 MONTHS

REQUISITES:

- Specific experience of at least 12 months in rural training, which must be accredited through certificate provided by a private or public entity.
- Specific experience of at least 12 months in handling the productive technologies related to the projects, which must be accredited through certificate provided by a private or public entity.

- Must be a leading producer recognized within the communities, while also being a livestock technician in the area.
- Not be included in the database of observed technicians kept by the Regional Bureau of Agriculture.
- Possess Fluency in the native language used in the project area.
- Know the project's area.
- Hold a valid driver's license that permits the use of motorcycles.
- Reside within the project area.
- Have experience with projects financed by International Cooperation..
- Have experience in the development of adaptation to climate change projects.
- Have experience in handling pressurized irrigation equipment.
- Have Experience in the installation of high altitude grasses and forage.
- Have Experience in the production and handling of organic fertilizer.
- Improvement of Andean crops (grains and tubers).
- Camelids handling.
- Management of natural resources (soil, water, crops and animal husbandry within the community).

PROFILE OF ADMINISTRATIVE ASSISTANT OF AYNINACUY PROJECT

PROJECT DURATION: 30 MONTHS

REQUISITES:

- Administrator and/or Certified Public Accountant.
- Have a valid driver's license.
- Computer skills, (Office and PowerPoint).
- Work Experience
- Work Experience of no fewer than 5 years, in project execution with funds from international cooperation.
- Functions:
 - Analysis of project accounting.
 - Manage the technical field team's logistics for the project.
 - Coordinate the execution of internal and external audits and inspections of accounting, finance, and administration.
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 - Prepare and present for consideration to the project director financial and accounting information in a timely and periodic manner within the framework of the requirements established by funding sources.
 - Archive all the project's accounting documentation.

- Maintain in working order the computer programs, processing on a monthly basis, and distributing the accounting and budget information to the different levels that may require it.
- Administration of the institution's petty cash, in the respective area office, carrying out authorized expenditures.
- Administer efficiently the project's financial and economic resources.
- Maintain the physical inventory of the local office updated and watch over them.
- Control budgetary execution in the area office and where pertinent submit proposals for budget reviews, with the approval of the Project Director.
- Coordinate the execution of internal and external audits and inspections of accounting, finance, and administration.
- Open joint bank account.
- Issue checks.
- Pay Providers.
- Do monthly bank balances.
- Gather quotes in inputs, materials for project activities.
- Present updated quotes table.
- Support and assist Project Director in entrusted actions.

ANNEX F – DISTRIBUTION OF CAF FEE BUDGET FOR THE AYNINACUY PROJECT

Stage	CAF Services	CAF Fee (8.0%)
Identification, Sourcing and Screening of Ideas	<p>Provide information on key issues of a potential adaptation project from the perspective of the Adaptation Fund's (FA) goals.</p> <p>Engage in a preliminary dialogue about policies related to potential application to the AF.</p> <p>Verify the consistency and potential eligibility for the FA of the identified idea.</p>	2%
Feasibility Assessment / Due Diligence Review	<p>Orientation in the transformation of a practical experience into a feasible project.</p> <p>Supply technical experience in relation to the scope and possibilities of the project.</p> <p>Supply meticulous evaluation of technical, social, and risk criteria, and orient with respect to the possibilities of eligibility in the face the Fund's requirements.</p> <p>Review technical reports.</p> <p>Revise and accompany the conceptual structuring of the project.</p> <p>Orient in the understanding of the guidelines framework and approval processes for a project.</p> <p>Orient in the selection of and search for pertinent information.</p> <p>Obtain clarifications and authorizations from the AF.</p>	15%
Development & Preparation	<p>Provide technical support and accompaniment in problem solving in order to convert the idea into a technically feasible and operationally viable project.</p> <p>Supply technical experience in relation to the demands and needs of the project.</p> <p>Review the technical reports.</p> <p>Revise and accompany the conceptual structuring of the project..</p> <p>Orient about the expectations and requirements of the AF.</p> <p>Verify the technical consistency, the quality of the elaboration and alignment with respect to the expectations of the AF.</p> <p>Respond to information requirements, organize revisions, control responses with respect to deadlines.</p>	23%

<p>Implementa- tion</p>	<p>Technical support in the preparation of the terms of reference and verification of requirements for technical positions.</p> <p>Orient, train and accompany the project team in the design of the operating plan for the project's execution during the initial stage of the approved project.</p> <p>Verification of the technical validity of the initial workshop report and of its alignment with respect to the expectations of the AF.</p> <p>Provide technical information as necessary in order to facilitate the implementation of the project's activities.</p> <p>As necessary, provide: advisory services; technical support and participation during the project's activities; support for problem-solving.</p> <p>Provide as a minimum technically support, and hold on supervisory visit per year, as well as support and additional supervisory trips as necessary.</p> <p>Provide technical supervision, progress monitoring, validation and quality control for the entire length of the project.</p> <p>Assign and control limits of annual expenditure on the basis of agreed upon work plans.</p> <p>Return unspent resources to the AF.</p> <p>Visits to the areas and project activities</p>	<p>42%</p>
<p>Evaluation and Reporting</p>	<p>Technical support in the preparation of the terms of reference and verification of requirements for technical positions related to the evaluation and the presentation of reports.</p> <p>Participate in informational and synthesis activities.</p> <p>Verification of the technical validity of all evaluation and reporting and their alignment with the expectations of the AF.</p> <p>Carry out technical analysis, validate results, compile lessons learned.</p> <p>Disseminate the technical results.</p> <p>Financial Auditing.</p> <p>Systematization of the project.</p>	<p>18%</p>



PERÚ

Ministerio
del Ambiente

Despacho Ministerial

"Decenio de las Personas con Discapacidad en el Perú"
"Año de la consolidación del mar de Grau"

Lima, July 11th, 2016

Letter N° 003-2016-MINAM/DM/VZCH

The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for Project "AYNINACUY: Strengthening the livelihoods for vulnerable highland communities in the provinces of Arequipa, Caylloma, Condesuyos, Castilla and La Union in the Region of Arequipa, Peru"

In my capacity as designated authority for the Adaptation Fund in Peru, I confirm that the above national project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts and risks, posed by climate change in Peru.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by Development Bank of Latin America (CAF) and executed by the Special Project COPASA.

Sincerely,

Viviana Zaldívar Chauca
Adviser Minsitry of Environment
Designated Authority