Annex 5 to OPG Amended in October 2017

REQUEST FOR PROJECT/PROGRAMME FUNDING FROM THE ADAPTATION FUND

PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme Category: Regular Project/Programme

Country/ies: Honduras, CA

Title of Project/Programme: Let's Save the Merendon
Type of Implementing Entity: NIE

Implementing Entity: CASM

Executing Entity/ies: Cuerpos de conservación de Omoa, FENAPROCACAO

Amount of Financing Requested: $ 4,000,000 (in U.S Dollars Equivalent)

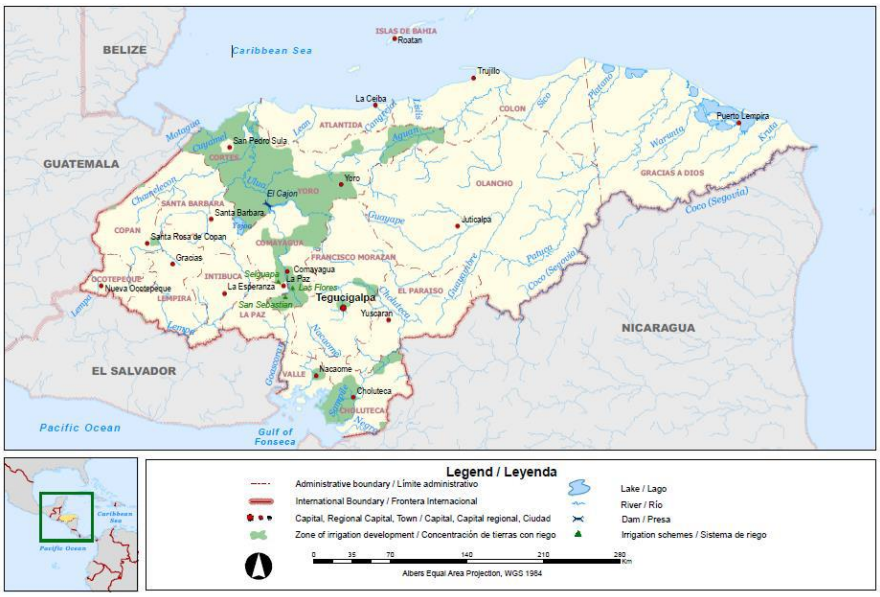
Project / Programme Background and Context:

1.- National Context

Honduras signed the Kyoto Protocol on February 25, 1999 and ratified it in July 2002. Honduras is part of the "non-Annex 1" countries, which includes the Developing Countries (Madre Tierra __).

Honduras is located in Central America between 12° and 16° north latitude and 83° and 89° west longitude. It limits to the north and northeast with the Caribbean Sea (880 km coastline), to the east and southeast with Nicaragua, to the south with the Pacific Ocean (153 km coastline), to the southwest with El Salvador and to the northwest with Guatemala. Administratively it is divided into 18 departments (*Map 1~~Map 1~~*). The total area of the country is 112,490 km^2 and the arable area is estimated at 3.1 million ha. In 2012, the cultivated area was 1,475,000 ha (1,020,000 ha in annual crops and 455,000 ha in permanent crops) (FAO 2015).

Map 1: Honduras map



Fuente: *FAO AQUASTAT 2015.*

In 2020 the country had a population of 9.9 million inhabitants, an area of 112,500 km^2, 48% of poverty, life expectancy of 75 years, 63,600 km^2 of forests, 10,9% of protected terrestrial and marine protected areas (of total country area), US$23.66 billion gross domestic product (GDP) and GDP growth of -9%, from which agriculture, forestry and fishing represents 12%.[1] Honduras has a total coastline of 820 km.[2]

Honduras registered the second highest economic growth rates in Central America, only behind Panama; GDP growth reached 4.8% in 2017, 3.7% in 2018, and 2.7% in 2019, above the average in Central America and, Latin America and the Caribbean (LAC). However, Honduras faces high levels of poverty and inequality, the second highest poverty rate in Latin America. According to the World Bank 2021 estimates, before the impact of the COVID-19 pandemic and hurricanes Eta and Iota, 14 8% of the Honduran

[1] *databank.worldbank.org/views/reports/reportwidget.aspx?Report_Name=CountryProfile&Id=b450fd57&tbar=y&dd=y&inf=n&zm=n&country=HND*

[2] *www.fao.org/3/ac768s/ac768s02.htm#:~:text=Honduras%20tiene%20como%20limites%20geogr%C3%A1ficos.y%20al%20Oeste%20con%20Guatemala.&text=Honduras%20posee%20una%20extensi%C3%B3n%20total%20de%20costas%20de%20820%20km.*

population lived with less than US$1.90 per day and almost half (4.8 million people) with less than US$5.50 per day. Furthermore, Honduras has high levels of violence, with over 38 homicides per 100,000 inhabitants (2018), although this rate has diminished in recent years, from a peak of 83 homicides per 100,000 inhabitants in 2011[3].

The human development index reached 0.634 in 2020, which places Honduras in 132th place out of 182 countries.[4] The number of undernourished people reached 800,000 in the period 2003-2005, representing 12 percent of the total population. Life expectancy in 2020 was 73 for men and 77.6 for women and Expected years of schooling 10.1 years. In 2006 the infant mortality rate 27 out of every thousand births. In 2005, women had an illiteracy level of 21.7 percent and men 22.4 percent.[5]

The Economic Commission for Latin America and the Caribbean (ECLAC) reports that the damage caused by the two tropical storms ETA and IOTA rose to US$1,879 million and it is expected that in the coming years the social and economic inequality will deepen, especially affecting women and young people in rural areas. The private sector is more impacted with 69% and the public sector 31% of the total effects. Among the sectors most affected are commerce and industry, agriculture and housing. This illustrates the severe impact that recent tropical storms have on the lives of the Honduran population.[6]

IDB reaffirms that Honduras is exposed to natural hazards such as earthquakes, floods, hurricanes and droughts, which are estimated to boost in frequency and intensity as the effects of climate change increase. It is also vulnerable to pandemics such as the current COVID-19 and epidemics such as dengue, chikungunya and Zika.[7]

Honduras is considered one of the 20 most climate change vulnerable countries in the world, because of its geographical location, which favours the occurrence of extreme climatic phenomena such as hurricanes and tropical storms, which provokes floods and landslides weakening its fragile economy and slowing down sustainable development.[8]

The Government of Honduras has developed with the Oxford Poverty and Human Development Initiative (OPHI) and the United Nations Development Program (UNDP), the multidimensional vulnerability index (IVM), which was created to provide electronic vouchers to be exchanged for food, medicines, and/or biosafety equipment, for independent and self-employed workers who were most affected by the COVID-19 pandemic and tropical storms. This initiative shows the reactive nature of the assistance to respond to the effects described and the lack of activities aimed at addressing the causes that provoke and favour the social, environmental and food vulnerability of citizens, especially those in rural areas.[9]

Project location and description

The project will develop its activities in the Sierra del Merendón, which is a mountainous ecosystem that moves from east to west and borders the Caribbean Sea on the north coast of western Honduras. The Sierra del Merendón, registered as part of a reserve zone (Merendón Reserve), is located in the departments of Santa Bárbara and Cortés, and crosses five municipalities: Omoa, Puerto Cortés, Choloma, San Pedro Sula, and Quimistán. This mountain range has an approximate extension of 2,548 km^2, 200 communities, and a population of approximately 300,000 inhabitants (Delati;Cálix 2019).

This mountain range includes the hydrographic basin called the Sula Valley Region and the Chamelecón, Ulúa and Motagua river basins. It has soils of high environmental value, with high percolation of water from which the aforementioned municipalities are supplied. The Sierra del Merendón is the main source of water for most of the region, providing this resource to more than 1.3 million people. Furthermore, it is a region with a unique biotic, ecological, socioeconomic and cultural base (Delati;Cálix 2019).

FAO estimates an average annual precipitation of 2,400 mm during the rainy season and 1,200-1,800 mm

[3] www.worldbank.org/en/country/honduras/overview#1
[4] hdr.undp.org/en/countries/profiles/HND
[5] www.fao.org/gender-landrights-database/country-profiles/countries-list/general-introduction/en/?country_iso3=HND
[6] honduras.un.org/sites/default/files/2020-12/Comunicado%20de%20Prensa%20Informe%20DaLA%20CEPAL.pdf
[7] www.iadb.org/es/noticias/honduras-afrontara-desastres-naturales-y-de-salud-publica-con-credito-contingente-del-bid
[8] presencia.unah.edu.hn/noticias/el-calentamiento-global-y-el-cambio-climatico-problemas-eminentes-para-honduras/
[9] www.ophi.org.uk/wp-content/uploads/Honduras1.pdf

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during the driest season, but it varies considerably according to altitude and biogeophysical interactions (FAO 2016). According to the FAO soil classification, this region has an ortho acrisol soil, which means that it is acidic and well drained, with natural tropical forest vegetation and a clay subsoil. This results in extensive leaching of nutrients, an excess of aluminum, and a high heritability of the soil (FAO and UNESCO, 1972; Encyclopedia Britannica, 2000).

Pine, broadleaf and mixed forests, with commercial and environmental value is part of the landscape. Broadleaf forests, form an average canopy of 70%, have a dense and continuous presence, with a lot of organic matter and a high presence of epiphytes. These special characteristics contribute to the protection of these vulnerable soils. (Delati;Cálix 2019)

The population that lives in the Merendon Sierra is made up mainly of subsistence agricultural producers, including breeding of minor and major animal species, who use conventional production. In recent years, climate change has impacted the patterns of the rainy seasons, and prolonged droughts periods. Such situation creates contrasting rainfall that affects crops and favours landslides in the mountains. It also produces crops losses, and uncertainty on what are suitable times for sowing on the part of the farmers. (Delati; Cálix 2019)

There exists a weak implementation of agri-environmental laws by the authorities, both at the regional and municipal levels, as well as the increase in migratory agriculture activities, the burning of forests. An uncontrolled deforestation activity, between 2000 and 2016, determined the loss of more than 2,111 hectares of wooded land (Land Trender method developed by Kennedy 2010). The uncontrolled application of agrochemicals and changes in land use, has resulted in the loss of habitat for various species and biodiversity, deterioration and erosion of soils, loss of water resources which has been constantly reduced, especially surface currents. Finally, all these factors resulting in the breakdown of the harmonic relationship of water, soil and forest resources impacting on the fundamental agro-food production for the development and survival of those communities that inhabit the Sierra. (Delati;Cálix 2019)

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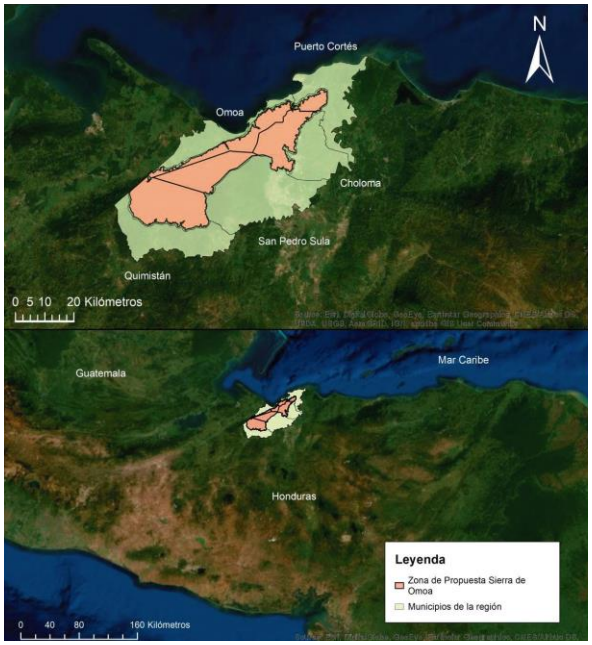
Map 2: ***Project location map***



Fuente: *Delati;Cálix 2019.*

Agriculture land use change and biodiversity

It is estimated that the land area with forest vocation is 98,629 ha (87.7% of the Honduran territory). Currently, 37.2% of lands with forest vocation are dedicated to other uses. Forest coverage is estimated at 5,680.52 hectares (50.5% of the territory). According to the Holdridge life zone classification in Honduras, eight life zones can be found: tropical humid forest, tropical dry forest, tropical very dry forest, sub-tropical very humid forest, sub-tropical humid forest, montane humid forest. low and very humid low montane forest. [10]

The main causes of forest cover change are described below: [11]

- *It is estimated that more than half of the originally forested areas have changed their use of the land to dedicate it to agriculture and livestock. Most of the rural Honduran population is found on forestry slopes. The peasants are dedicated to the cultivation of basic grains such as corn and beans, semi-permanent crops such as coffee and sugar cane, and livestock. Productivity per ha on these soils is low for most crops. Food crops in particular achieve yields that represent 1/3 of those obtained in the United States of America. In addition, livestock activities use more land than necessary and are highly deficient producers. The use of agricultural land for rangelands limits the availability of a scarce resource, forcing small producers onto marginal and hillside lands, expanding the agricultural frontier into forests.*
- *The forest has not had relevant importance for Honduran society in silvicultural and management aspects. Its use has been limited to the consumption of firewood and the construction of houses. The population has registered a high growth with rates that oscillate between 2.7 and 3.6% per year. 60% of the population lives in rural areas, of which 70% live in absolute poverty. The rural population lives in centres of fewer than 2,000 people. These small centres called municipal capitals, villages and hamlets are distributed throughout the country in the western, southern, central and Atlantic areas and to a lesser extent in the eastern area. Villages and hamlets arise spontaneously in the territory without there being any basic order. According to data from 1988, there were 3,725 villages and 27,397 hamlets. The rural population is characterized by having a low level of literacy, poor means of survival, little or no access to land tenure, low knowledge of appropriate farming techniques and little or no source of work. In such a way that this population, due to its conditions of misery and survival, the only resource to which they can have access is to clear the forest to obtain basic food and therefore any type of land regardless of its accessibility or coverage is occupied for this purpose.*
- *In a study on land tenure carried out in 1993 by the Planning Secretariat (SECPLAN) it was determined that there were 317,199 farms occupying an area of 3,337.08 hectares; of these, 72% were made up of units smaller than 5 ha (smallholdings), which accounted for 11.6% of the total area surveyed. 0.12% corresponded to farms of 500 or more ha that covered 12.4% of the surface. The highest accumulation of farms (24.6%) was reported in stratum greater than 5 ha and less than 50, which total 35.3% of the surface. Generally, the land in the valleys is in the hands of few landowners and companies, for which reason the peasants are forced to settle on the hillside lands of forest vocation, in order to achieve their survival.*
- *Land occupation is exacerbated in broadleaf forests where tenure is irregular, without property titles, with plots ranging between 4 and 35 ha per family. Almost all of these forests are on state land. The vast majority of the plots are engaged in subsistence agriculture or extensive small-scale cattle ranching in sub-plots that are used for an average of 1.8 years and left idle for approximately two years. Instability in land tenure is perhaps the most determining factor in the problems of the forestry sector. The peasant considers that a deforested land has more value than a land with forest. A land with forest belongs to the State, but without forest the peasant can fill it up and sell it with "improvements" to the rancher. The peasants who cut down and clear the forests and occupy these lands do not have in strictly legal terms "full domain" or "private", but they do have "useful domain" for which they call themselves owners of the land. Under this land tenure pattern, large amounts of tropical forests have passed from migrant farmers to ranchers.*
- *Firewood is the main source of energy for domestic and industrial consumption in the country. A study carried out by CATIE/COHDEFOR in 1982 reached to the following conclusions:*
    - *65% of the energy generated in the country comes from firewood.*
    - *75% of the population uses firewood for domestic purposes.*
    - *The annual per-capita consumption of those who use firewood is estimated at 1.7 cubic meters.*
    - *The most used species correspond to oak, oak, coal, pine and others.*

[10] www.fao.org/3/ac768s/AC768S03.htm#TopOfPage

[11] www.fao.org/3/ac768s/AC768S03.htm#TopOfPage

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- *Tegucigalpa, San Pedro Sula and Choluteca turn out to be the populations with the highest levels of firewood consumption, due to the volume of the population that resides in them.*
- *Currently the consumption of firewood presents an average annual growth rate of 3% with a consumption of 7,000,000 m^3/year. Most of this volume comes from broadleaf forests with little or no control over their use.*

In the area of the project, the Merendon Region, pine, broadleaf and mixed forests with commercial and environmental importance can be seen. Broadleaf forests form an average canopy of 70%, have a dense and continuous understory with a lot of organic matter and a high presence of epiphytes. These special characteristics contribute to the protection of these vulnerable soils. The presence of pine forests is attributed to the acidic and rather washed soil of this area. It is resistant to desiccation, the dry season and even fire (ICF 2019).

The communities in the area of the project in the Merendon are causing strong changes in land use and are affecting the ecosystems. Communities in the region are generally rural settlements, with subsistence economies. The main agricultural crops are: kidney beans, corn, rice, coffee, and farm animals such as chicken and pork. About 84% of the communities are located in the lowlands. The other 16% are in the highest parts, where they have an important contact with the different ecosystem services of the mountain, but live in very precarious conditions of poverty. People have little contact with the outside world because electricity is limited and there is no signal from the communication towers. The dirt roads leading up the mountain are steep and difficult to manoeuvre, and they become especially dangerous when it rains, as landslides and soil erosion are frequent. Approximately 30% of the families in the Merendón Reserve area live with food shortages with an average income of US$39 (Lps.960) to US$49 (Lps.1200) per month (ICF 2019).

In some cases, people create crop plots uninformed and haphazardly, often removing ecologically important forested areas, and their methods are harmful and dangerous. Burning land with gasoline to clear it for the establishment of crops is extremely harmful to the environment and represents a great safety risk. Between January and April 2019, Honduras suffered 461 forest fires and a loss of more than 22,000ha (EFE 2019).

Inventory studies of species show the rich endemic biodiversity of the Sierra de Omoa, part of the Merendon, especially for invertebrates and herpetofauna, which are important animals in the food chain as a food source and natural control of insects and pests. Approximately 126 species of amphibians and reptiles are known to exist in the Sierra de Omoa, 13 of which are distinct and only found in this area and 25 of them are considered of great conservation importance (Townsend 2006). A recent 10-year monitoring study of flightless mammals (i.e., all except bats) shows a relatively high abundance of small and large species (Hoskins et al. 2018). 43 species are present in the area, including the Central American red brocket or corzuela (Mazama americana), margay (Leopardus wiedii), jaguar (Panthera onca) and the Central American tapir or Baird's tapir (Tapirus bairdii) that is on the list of endangered species of extinction of the IUCN.

Water resources

Surface internal renewable water resources are estimated at 81,571 km^3/year. The country is divided into two slopes: the Atlantic slope (82% of the country) with 14 main basins of mighty rivers produces 86 percent of surface runoff, or 70,438 km^3/year, and the Pacific slope (18% of the country), which with five larger basins contributes the remaining 14%, or 11,133 km^3/year.

Total national water extraction for 2003 reached 1,607 km^3, highlighting the agricultural sector with an extraction of 1,178 km^3, equivalent to 73% of total withdrawals, of which 1,153 km^3 correspond to irrigation and 0.025 km^3 to the livestock sector. Municipal extractions reached 0.315 km^3 or 20% of the total and the industry reached an extraction of 0.114 km^3, or 7% of total extractions, of which 0.095 km^3 are for cooling thermoelectric plants (SERNA 2003).[12]

The country's economy depends heavily on the agricultural sector, so promoting irrigated agricultural production is considered essential to supply its domestic consumption and expand its horizons for the

[12] *The total does not include 0.300 km3 of hydroelectric use as it is a non-consumptive use.*

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export of non-traditional products. The potential irrigable area is estimated at 500,000 ha, distributed as follows: 100,000 ha in the interior highlands, 340,000 ha in the lowlands of the Atlantic slope and 60,000 ha in the lowlands of the Pacific slope.

Climate, soil, and topography

Honduras, due to its location in the hemisphere, is a Sub-Tropical country. The climate is hot and humid on the coasts (average temperature 31°C), more temperate in the mountainous area. Two seasons are distinguished: a rainy one from June to October and a dry one from November to May. [13]

The lowlands of the Atlantic or Caribbean coast have a short dry season between March and May, comprising the lower basins of the Ulúa, Patuca and Aguán rivers, and are periodically subject to flooding. In the interior highlands, as in the Pacific lowlands, the dry season occurs between December and April. In most of the country, the distribution of rainfall is bimodal, with peaks in May and September and among them a period without rain in the months of July-August, which is locally called canicular (FAO 2015).

Periodically the Atlantic zone is hit by tropical storms and Caribbean hurricanes (every 4 to 5 years with a marked 20-year cycle for the most destructive events, 1934, 1954 and 1974), with great damage to infrastructure and agriculture.

The tropical climate that allows agricultural production throughout the year guarantees the cultivation of a series of items that include milk and derivatives, fish and shrimp, a wide variety of fruits and vegetables, sugar, cocoa, coffee and bananas (FAO 2015).

The topography of Honduras is extremely mountainous and rugged, with steep slopes and fresh, shallow soils. The Central American mountain range that crosses the country from northwest to southeast, divides it into two large regions, the eastern and the western, with heights that exceed 2000 meters above sea level. Between the branches of the mountain range there are fertile valleys and savannas where a large part of the population lives.[14]

Honduras is divided into six geographic regions that have the following characteristics (FAO 2015):

- *Western Region: predominantly mountainous. Low aptitude for agriculture due to its acidic, shallow, rocky and eroded soils. High population density. Its economic activity is agriculture, mainly: corn, coffee, tobacco and livestock.*
- ***Northwest Region**: region of valleys and mountains. The economic activity is the cultivation of oranges, sugar cane, bananas, vegetables, as well as the raising of cattle and their derivatives.*
- *Northeast Region: includes the Caribbean coastal plain and the Nombre de Dios mountain range. Its economic activity is based on crops such as African palm, citrus, coconuts, bananas, pineapple, yucca; in addition to livestock, fishing, logging, and tourism.*
- *Central-Western Region: relief made up of mountain ranges and plateaus. The main agricultural products are: potatoes, coffee, strawberries, peaches, vegetables, tomatoes, and mangoes.*
- *Central-Eastern Region: configures the upper basins of the Guayape, Guayambre and Coco rivers. Mountainous relief. Its main economic activities are: tourist service, textiles, maquilas, agricultural, agricultural, corn, beans, vegetables and timber.*
- *South Region: includes the coastline of the Gulf of Fonseca and Piemonte, and the middle and lower basins of the Goascorán, Nacaomé and Choluteca rivers. The economy is based on livestock, cotton, sugar cane, fruits and vegetables, agribusiness and shrimp farming.*

The damage (deforestation) in the Omoa Mountains (part of the Merendon Region) is significant, although above the 100 m of elevation the source of all the water resources that the biome contains begins and their protection is fundamental for the sustainability of the region. In fact, the Omoa Mountains is the main source of water for most of the region, providing this resource to a total area of approximately 2,839,575 km^2 and more than 1.3 million people. FAO estimates an average annual precipitation of 2,400 mm during the rainy

[13] www.fao.org/3/ac768s/ac768s02.htm#:~:text=Honduras%20tiene%20como%20limites%20geogr%C3%A1ficos,y%20al%20Oeste%20con%20Guatemala.&text=Honduras%20posee%20una%20extensi%C3%B3n%20total%20de%20costas%20de%20820%20km.

[14] www.fao.org/3/ac768s/ac768s02.htm#:~:text=Honduras%20tiene%20como%20limites%20geogr%C3%A1ficos,y%20al%20Oeste%20con%20Guatemala.&text=Honduras%20posee%20una%20extensi%C3%B3n%20total%20de%20costas%20de%20820%20km.

season and 1,200-1,800 mm during the driest season, but it varies considerably according to altitude and bio-geophysical interactions (FAO 2016).

According to the FAO soil classification, this region (Merendon) has an ortho-acrisol soil, which means that it is acidic and well drained, with natural tropical forest vegetation and a clay subsoil. This results in extensive nutrient leaching, excess aluminium, and high soil erodibility (FAO and UNESCO 1972; Encyclopedia Britannica, 2000).

Climate change

Climate change is putting new and unforeseen pressures on resources, as fluctuations in climate cause more intense and longer-lasting natural disasters. In the Sierra de Omoa, part of the project area in the Merendon Region (in the Western part of Honduras), the upward migration of fauna has also been attributed to the increase in average temperatures. With the disturbance of fires pressing the tree line down simultaneously, problems of habitat degradation and connectivity to land are plaguing this isolated mountain range (Oliveras et al. 2017; Brando et al. 2019).

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The forecasts made by Secretariat of Natural Resources and Environment (SERNA) and United Nations Development Program (UNDP) in 2010 used both pessimistic and optimistic climate scenarios to assess future climate trends in Honduras. All computer modelling scenarios show a trend for the Merendon Region towards decreasing average annual rainfall and increasing average temperature for 2020, 2050, and 2090 (Delati; Cálix 2019, UNICEF 2016, SERNA 2010).

Another report, Climate variability and climate change in Honduras (2010), also mentions that rainfall could decrease by up to 10% and that the temperature will increase 0.9°C in 2020 in the coastal basins during the summer months, specifying the basins of Motagua, Chamelecón and Ulúa. The decrease in precipitation and the increase in average temperature in Cortés, Santa Bárbara, and most of the north-western part of the country were 6% and 0.8°C. By 2050, models suggest that most parts of Honduras will see a decrease of 20% to 25% in rainfall, while the western part of the country will see a decrease of up to 30% during the dry months. Even without increased human disturbances to the environment, the effects of climate change already pose serious threats due to the availability of water for both highlands and lowlands. The occurrence of a hotter, drier and longer summer in the Merendon Region is undoubted, only the rate and intensity are to be known (Delati; Cálix 2019).

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Combining this trend with an erratic rainy season and more extreme weather events means there will be high crop loss, not counting the danger of life and the lack of water for human and agricultural activities use. With less rainfall and higher temperatures, the basins will have more difficulties to recharge and maintain flows during the dry months. It will have serious consequences for the communities that depend on these streams year-round, and will cause the need for government and financial intervention and support. Furthermore, with the average deforestation rate of 132 ha of forest per year, the effects may be more pronounced. The worst-case scenario would be the dry stream of streams, irreversible soil degradation, and loss of way of life for the inhabitants. The most important climatic threat for this sector is the reduction in the volume of rainfall and droughts; which would reduce the availability of water for all its uses, due to a decrease in the infiltration capacity and in the replenishment of the aquifers. Likewise, drought and its alternation with events of intense rains under a scenario of increased temperature, would affect ecological flows, altering the habitats, reproductive cycles and mobility of the species of the ecosystems. Likewise, it would cause siltation of the channels and the propensity to overflows and floods, exacerbated by the intense levels of erosion of the soils of the hydrographic basins, which diminishes agricultural productivity. Climate change would affect different forms of life, including human life in many facets and dimensions, generating conditions of social discontent, expressed in conflicts over access to water, growing poverty and migration. Increased temperatures and intense droughts would affect the elderly, chronically ill, children, the population with a low nutritional profile, pregnant mothers and the population living in poverty more severely (Delati; Cálix 2019, UNICEF 2016, SERNA 2010).

Climate change will produce the following impacts (Delati; Cálix 2019):

- *The increase in temperatures would lead to thermal stress in the trees, while the decrease in precipitation and more intense and frequent droughts would generate water stress, reducing their development rate and making them more susceptible to other degradation factors, such as fires, pest and disease attacks, and extreme*

weather events such as heavy rains, hurricanes, and high winds. The increase in temperatures, together with the concomitant occurrence of extreme climatic events, would affect species, ecosystems and biomes differently, with particularly relevant impacts on those with lower ranges of tolerance to climatic variations. Although the main adaptive response is migration, many other alterations would arise at the level of food chains, populations and interspecific relationships of communities.

- *The rise of the sea level would generate a retreat of the coastline, through the loss of beaches, erosion of cliffs, intrusion of saline water in fresh water bodies and a propensity for marine flooding; as well as the impact on infrastructure and human settlements in these areas. The aforementioned impacts would be exacerbated by a greater occurrence of extreme weather events, accompanied by greater waves and intensity of winds. In coastal-marine communities, rising sea levels would imply changes in the composition, distribution, and structure of mangroves, seagrasses, and coral reefs. Likewise, the increase in temperature would decrease the productivity of mangroves and seagrasses; and a higher level of acidity in seawater would cause coral bleaching. Changes in ocean surface circulation and current patterns would imply changes in migration patterns, location, and behaviour of commercially important species.*
- *Increased temperatures and changes in precipitation and humidity patterns would increase the risk of transmission of vector diseases (dengue, malaria, Chagas disease and leishmaniasis) and of bacterial and parasitic water diseases. This would be exacerbated by the occurrence of intense rains and floods, which would eventually destroy the sanitation systems, and would lead to the emergence of vector breeding sites, which constitute the means of transporting infectious agents. Regarding the impacts of particulate matter and gases on human health, beyond constituting exacerbating factors of the adverse effects of climate change, their impacts are linked to a series of physicochemical mechanisms that require further analysis that considers the specific conditions of each locality.*
- *In Honduras floods and river overflows have been the main causes of disasters. Two types are distinguished: (1) riparian floods, which occur primarily in large and long basins, and which reflect natural variations in river flows in the face of high rainfall, and (2) 'urban' or rapid floods they occur in smaller and steeper basins. Both types of flooding increase their occurrence due to the loss of the infiltration capacity in the basins, associated with deforestation in the first case, such as the waterproofing of the soil after almost completely paving the surfaces in urban areas to in the second. Problems occur when the population occupies the risk areas. The channelling of the rivers and streams lead to the reduction of the concentration times of the torrents and generate excessive flows that impact the inhabitants in the lower areas of the basins.*
- *Droughts and reduced rainfall would decrease the availability of water for hydroelectric generation. This impact would be aggravated by the occurrence of intense rainfall in conditions of soil erosion and runoff of pollutants, affecting silting and eutrophication of reservoirs, and therefore, in reducing their capacity, power and total period of hydroelectric generation.*

Gender and youth[15]

Estimated gross national income per capita in Hnduras for females (constant prices 2017) was US$4,173 and men US$6,446. Furthermore, there is a great inequality in the distribution of land: 15% of the owners own 50% of the usable agricultural land and only 20% of the agricultural area is worked by peasant groups. Currently there is practically no availability of land given the high level of concentration. Women, in contrast to the contribution that they individually or collectively make to agricultural production, and as support for the agricultural work of their husband or partner, have much lower living conditions than men. Homework is their sole responsibility for ideological and cultural reasons, and thus their contribution to agricultural production is invisible.

With the agrarian reform that began in 1962, women were only direct beneficiaries if they had a family in their charge. Despite their work on the land, women were not seen as farmers in the 1975 agrarian reform law. Socio-cultural and ideological factors influenced this, so that in 1978 of the 33,203 beneficiaries of the agrarian reform, they were awarded only as 3.8%. In 1992, the Law for the Modernization and Development of the Agrarian Sector recognized the possibility of being awarded to peasant women who were married or in common-law union with or without dependents. The law terminates the agrarian reform cooperatives and creates the land market. In this way, individual private ownership of land is promoted, which is superimposed on traditional and collective forms of appropriation. Joint titling is possible only if the couple requests it, with which the decision became dependent on cultural or patriarchal norms, which did not help

[15] www.fao.org/gender-landrights-database/country-profiles/countries-list/general-introduction/en/?country_iso3=HND

gender equality. In 1996-1997, 43% of women, compared to 57% of men, benefited from the award.

The Law of Equal Opportunities for Women of 2000 declared family patrimony the real estate, urban or rural, financed by the State, and must be registered in the name of both spouses or of those who live in a common-law union registered in the Civil Registry. In 2004 the Property Law established new procedures for the acquisition, adjudication, regularization and transmission, registration and administration of real estate. Individual titles of communally acquired areas are made possible and legally issued titles of property or useful domain can be regularized for Garífuna communities. [16]

The country has a significant youth bulge, with approximately 65% of the population below the age of 29, and 42% between the ages of 10-29. Much has been written about the effects of the country's poverty, violence and migration on youth, especially in Honduras' central and northern regions where the largest cities (Tegucigalpa and San Pedro Sula) are located. However, there is less systematic and comprehensive documentation regarding the reality of youth in the departments of Copán, Santa Bárbara, Intibucá, La Paz, Lempira, and Ocotepeque in western Honduras.[17]

Along with women, children and adolescents in Honduras are the members of society most vulnerable to the impact of climate change - especially those who reside in the rural area of the country. Droughts, hurricanes, increased temperatures, floods, and any extreme natural phenomenon can cause serious problems for this age group, due to their lower development and their special need for protection from their families and the State. Access to health care, particularly among the rural and poor population and those of different ethnic groups, is compromised by the impacts of climate change, since coverage fails to cover the population's needs. This is more pronounced in cities, where precarious settlements - which group the less favoured strata - are both difficult to access and at high risk from landslides and floods. Any extreme weather phenomenon also reduces the possibility of access to education, which not only affects the future development of children and adolescents, but also increases individual and community vulnerability, since education provides direct knowledge about natural hazards, and therefore greater adaptation and resilience. The ability to grow their own food has decreased so significantly that people are forced to buy their food on the market, where it is also in short supply, with consequent rising prices. At the same time, production-related jobs have declined (UNICEF 2016).

Ethnic groups[18]

In Honduras there are nine ethnic groups:

- *The Chortis*: ~~Culturally and linguistically related to the Mayans. They are located in the departments of Copán and Ocotepeque. They currently live with the mestizo population and use the Spanish language.~~
- *Los Lencas*: ~~People that created resistance to the Spanish in defense of their culture and land. Currently all speak Spanish. They are located in the departments of Intibucá, La Paz, Lempira and Ocotepeque.~~
- *Los Misquitos*: ~~The origin of this group is still under study and biologically they seem to be a mestizo group resulting from the mixture of the indigenous population with blacks and whites who came into contact due to the piracy practices of the time. They are located in the department of Gracias a Dios.~~
- *Los Payas*: ~~Its origin is unknown. They speak the Pech language which has features of the South American Macro-Chibcha language. They are located in the departments of Olancho and Gracias a Dios.~~
- *The Tolupanes*: ~~They also opposed the conquest and fled inland. They currently speak their language and maintain their culture. They are located in the department of Yoro.~~
- *The Garífunas and the Creoles*: They are Afro-Caribbean black groups. The latter are called English-speaking blacks. The Garífunas speak their native language.
- The~~se~~ *Sumos o tawahkas*: ~~*It is a community almost in extinction, located inside the Honduran mosquitia, although there are more numerous groups on the Nicaraguan side, their mother tongue is Tawahka, although*~~

[16] *www.fao.org/gender-landrights-database/country-profiles/countries-list/general-introduction/en/?country_iso3=HND*

[17] *www.edu-links.org/resources/usaidhonduras-development-objective-2-youth-assessment-situational-analysis*

[18] *www.fao.org/3/ac768s/ac768s02.htm#:~:text=Honduras%20tiene%20como%20limites%20geogr%C3%A1ficos,y%20al%20Oeste%20con%20Guatemala.&text=Honduras%20posee%20una%20extensi%C3%B3n%20total%20de%20costas%20de%20820%20km.*

they speak Miskito and Spanish for which they are considered trilingual It is the least studied people who live in Honduras, and after colonial times they are better known by the name of sumos.

- *Nahuas: The population of the indigenous Nahua people of Honduras is approximately 20,000 inhabitants, distributed in the municipalities of Catacamas, La Guata, El Jano and Gualaco in the department of Olancho. The Nahuas are mainly engaged in agriculture and raising domestic animals, their main crops are beans, corn, yucca, rice and squash. Corn, beans, and squash are part of their main diet*.
- *English-speaking Negroes: Its roots come firstly from the black slaves who were brought to the Bay Islands by the English at the end of the 18th century and the middle of the 19th century and secondly, they descend from the blacks who came freely to the area to work in the companies. banana plants at the beginning of the 20th century from Gran Cayman, Trinidad and Tobago, Jamaica and some from Belize.*

These groups constitute 8.8% of the total population of the country. The rest of the population is essentially mestizo[19]. In the Meredon region there is no ethnic communities, only in two municipalities (Omoa and Puerto Cortés) there are Garifunas communities, but not in the Merendon region.

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Legal framework[20]

Honduras has an adequate legal and institutional basis in relation to climate risks, despite which, according to the Consultative Group on International Agricultural Research - CGIAR (2014), the country needs to incorporate the issue of climate risks in the fundamental documents of public policies, as well as their implementation and capacity building. Additionally, the United Nations Development Program (PNUD 2012) affirms that "good governance of risk management is a key objective for human development in Honduras." For its part, various articles of the Constitution of the Republic of Honduras support climate risk management in the country: for example, those related to the right to physical integrity, life and the right to security, as well as the concept of common good (article 62). The Honduran legal framework presents the following hierarchy:

1. constitutional norms,
2. international treaties and conventions,
3. general laws,
4. special laws,
5. regulations or legislative agreements, and
6. technical standards, resolutions and provisions of an administrative nature.

Important documents for the social and economic development of the country - the National Plan and the Country Vision, among others - recognize climate risks as an obstacle to development. However, according to UNDP (PNUD 2013b), risk analysis has not been incorporated into main national policies. After the "social upheaval resulting from the 2009 coup," the Honduran institutional framework has been restructured, with a greater orientation towards attracting external resources and strengthening national planning capacity. In this sense, the State approved the law for the establishment of a vision of the country and the adoption of a nation plan for Honduras (Legislative Decree 286-2009) as part of a planning process for social, economic, and political development in both national and territorial level. It establishes a series of strategic guidelines, objectives and indicators for four main objectives. This law has a time horizon of 2020, the date on which it foresees that physical and environmental vulnerability will have been reduced by 75% 62.

The country vision identifies 19 constitutional articles related to the management of natural resources and the regulation of the environment. Likewise, the country has ratified approximately 50 international conventions and protocols related to the environment. The 2010-2022 nation plan, for its part, also includes efforts to reduce the impacts of climate change in the country and increase the resilience of the population. From this nation plan the National Climate Change Strategy (ENCC) is derived, which includes the possible interactions of climate change, its causes, manifestations, adverse effects and adaptation and response measures, thanks to which it becomes the framework for national reference to climate change (PNUD/SERNA 2010). The State has the mandate to create and implement the necessary adaptation and

[19] *The official language is Spanish. Unofficial languages include: Miskito, Garifuna, Tawaka, Pech, Tolupán, and Creole (from English). Some communities of foreign origin also speak English, Chinese and Arabic.*
[20] *www.unicef.org/honduras/media/501/file/El-Cambio-clim%C3%A1tico-en-Honduras-estudio-2016.pdf*

mitigation measures in the face of the effects of climate change, for which the ENCC constitutes its international commitment for the formulation of adaptation and mitigation instruments. Additionally, Honduras has a state policy for comprehensive risk management (PEGIR), which defines a conceptual framework for knowledge, monitoring and disaster management, vulnerability reduction, and financial management. This policy considers it imperative that the country equip itself with medium and long-term preventive strategies for the definition and implementation of early recovery strategies and the development of the population's resilience capacities, especially in the areas of livelihoods, housing, human and territorial security. Finally, the Law of the National Risk Management System (SINAGER), approved in 2013, proposes the national legal framework for the development of capacities for the prevention and reduction of climatic risks, as well as in relation to the preparation of the response and recovering from the damage caused by climate change. This law regulates the public, private and civil institutional framework: it is the "synthetic, participatory and harmonious articulation of all State institutions, private companies and civil society organizations", according to DIPECHO (2013). It establishes a series of strategic guidelines, objectives and indicators for four main objectives. This law has a time horizon of 2020, the date on which it foresees that physical and environmental vulnerability will have been reduced by 75%.

The UNDP points out, however, that the country does not yet have the necessary policies to reduce climate risk. Likewise, FIDA suggests deepening the institutional aspects that contribute to improving the application, the overlapping of competencies and the dispersion of the responsible institutions. The country has environmental laws and regulations, but - due to impunity for crimes, among other factors - the State is unable to verify or ensure compliance at all levels, according to DIPECHO's analysis (2013). According to UNDP (PNUD 2012), "the problem is not so much having plans, but rather that they are implemented." In fact, Delati; Cálix 2019 pointed out that although in Honduras there is an apparently appropriate legal framework, there is a low level of efficiency in the application of the laws and a great dispersion of the legal norms and public organizations that have specific attributions in this field. The little presence of the authorities and the generalized disregard for regulations, accompanied by an exploitation of resources in a way contribute to the exacerbation of environmental problems and social problems, where no sustainability matters, but profit.

The legal framework of the forestry sector is established by three laws and a regulation[21]:

- *Decree Law 85 (forestry law) in force since 1971.*
- *Decree 103 (creation of COHDEFOR) issued in 1974.*
- *The general forestry regulation issued in 1984 and,*
- *Decree 31-92 (agricultural modernization law), issued in 1992.*

Forest policies have not been efficiently integrated into national policies, so there has been no coordination between them and economic and agricultural policies. The forestry activity is not favoured by the economic policies of the state. Compared with other sectors of the economy, the forestry sector does not have lines of promotion for silvicultural activity or industrial development. This situation was stimulated in part by the high intervention of the state in most forestry activities, which discouraged private investment and, on the other hand, private banking has considered this activity as high risk, demanding guarantees of up to 200% of the value. of the loan. Credit to livestock, coffee and basic grains represented more than 50% of agricultural credit in the 1986-90 period.

Regarding the coordination between laws, there are many inconsistencies that discourage forest management activity and favours agricultural and livestock activities. The demand for land in the agricultural sector for food production is detrimental to forestry, it is estimated that most crops are grown in hillside areas without a management plan according to their productive capacity. While for Honduran Forestry Development Corporation (COHDEFOR) forests are the "lands that support a plant association dominated by trees and shrubs of any size" for the National Agrarian Institute (INA) these lands have no social function and therefore are subject to expropriation.

The importance of the agricultural sector is reflected in law initiatives such as Decree 65-89 where the

[21] www.fao.org/3/ac768s/AC768S03.htm#TopOfPage

cultivation of basic grains is declared of national interest and emergency. Decree 78, referring to the protection of coffee growing, also encourages this crop even at the expense of the integrity of the cloud forests, an ecosystem of vital importance not only for its valuable biodiversity but also for its importance in maintaining the hydrological cycle.

On the other hand, mangrove forests (100% state-owned) have been subjected to accelerated deforestation (83% of its surface from 1964 to 1990) mainly due to shrimp farming. To build artificial lagoons for shrimp farming, large areas of mangrove have been destroyed, although the mangrove is the largest nursery for shrimp larvae. This activity has been carried out without state control and has been favoured by macroeconomic policies to promote exports.

The national policy and legal norms related to adaptation are the following: Update of the Institutional Strategy (UIS) (AB-3190-2), the development challenge of Productivity and Innovation, which promotes resilience in the provision of ecosystem services provided by the forest, cross-cutting areas of: (i) Climate Change and Environmental Sustainability, by promoting forest management activities; and (ii) Gender Equality and Diversity, generating special consideration for the participation of women. In addition, it is aligned with the Country Strategy with Honduras 2019-2022 (GN-2944), in the priority area of expansion of sustainable productive opportunities and the transversal pillar of adaptation to climate change, with the strategic objective of expanding the forest cover of the country and its resilience. It is consistent with the Sectorial Frameworks for Agriculture and Natural Resources Management (GN-2709-10) and Climate Change (GN-2835-8), focusing on the dimensions of success of promoting sustainable agriculture, which reduces and compensates its impact in the environment, and in improving access to financing for climate actions. Likewise, by assisting in the improvement of natural resource management, it is consistent with Agro LAC's objectives, which are aimed at improving the capacity of (i) local and national governments to develop and implement sustainable policies and plans; and (ii) access to good land use practices. In addition, it contributes to the achievement of the Nationally Determined Contribution (NDC) of Honduras by supporting activities for the restoration of forest areas.[22]

The country has a food security policy and strategy supported by the European Union that contributes to strengthening the strategy of eradicating hunger in various departments, especially those with the highest rate of malnutrition, such as those found in the dry corridor and the southern part of the country. In 2010, the National Food and Nutrition Security Strategy (ENSAN) was launched, for the period 2010-2022 (FAO 2015).

The agricultural sector strategy and investment plans have been developed using parameters and goals established in the Country Vision 2010-2038 and the National Plan 2010-2022. This direction is maintained in the future looking for the fulfilment of the goals of eradication of extreme poverty and the irrigation of 400,000 hectares to ensure 100 percent of the national food requirements.

5. Description of the problem to be addressed/resolved.

According to the diagnosis presented in Chapter 1, extreme climatic events will continue to be unavoidable in Honduras, and evidently in the Cordillera del Merendon, further increasing the already existing situations of vulnerability, particularly in the most unprotected urban-rural communities. Such environment is already generating new displacements of families and communities, giving rise to floods and landslides, drought situations, contamination of rivers and basins, affecting people's health through pandemics. Such no doubt has an evident impact in their productive agro-silvopastoral activities and crops, and, consequently nutritional and food diet, which will create challenges for communities and families to reach their basic life standards in a sustainable way; as well as, an impact on the natural resource base and biodiversity.

Taking into account the vision of the National Plan for Adaptation to Climate Change Honduras 2018 (PNA-CC), this project proposal will focus its efforts on strengthening the resilience of communities to climate change, increasing their productive capacity, reducing their vulnerability, and provide a sustainable development path.

The project will reach these objectives through the strengthening of capacities from the local level in actions

[22] www.iadb.org/projects/document/EZSHARE-1681455087-25?project=HO-T1347

to adapt to climate change that result in a reduction of their socioeconomic vulnerabilities, mitigating the effects of environmental degradation, having as Pillars in this effort the development of a solid institutional and local governance base. The improvement of those capacities will allow the materialization and feasibility of adaptation plans. It is expected the full participation and ownership by the communities in the planning processes in order to achieve their well-being, in accordance with the National Adaptation Plan of Honduras.

The approach of the proposal adheres to the six principles established in the (PNA-CC) National Plan:

1.- *Inter-institutional and intersectoral coordination*: contribute and promote an intersectoral, public-private collaboration within the territory, as a way to reduce fragmentation and institutional action currently prevalent. Based on CASM's strategy and expertise on public-private partnerships, it is expected, in the current Honduran context, to develop strong ties of collaboration and inter-institutional complementarity, and of the actors participating in the proposal, to confront the challenges posed by climate change.

2.-*Education, research and transfer of knowledge and technologies*: based on scientific and traditional knowledge of indigenous and Afro-Honduran communities and peoples.

Very important elements in the formation of the final proposal will be the elements of training, knowledge management, transfer of appropriate technologies to face the vulnerabilities created by climatic phenomena, and how to develop adequate resilience in this regard. Rescuing ancestral knowledge and practices that benefit sustainability and resilience in the face of climatic phenomena that affect communities will be key components of the future proposal.

Raising awareness about the issue of climate change, knowing its origins, its impacts and consequences, and the various ways of facing it, mitigating it and adapting to the level of people and communities is perceived as key for adaptation plans to have an impact beyond of a declaration in public policies and plans. Today, in Honduras, at the national and local level, there continues to be a weak application of environmental laws, and insufficient appropriation of the impacts of climate change by the population.

3.-*Recognition of the value of ecosystems and biodiversity in reducing the adverse effects of climate change on human communities and infrastructure*: There is a national recognition of the value of ecosystems and biodiversity as key factors in reducing the adverse effects of climate change, a number of elements play against the viability of such recognition, among which we mention the weak processes of control of environmental norms, lack of capacities and resources on the part of local organizations for the implementation of solid adaptation plans (includes the improvement of their livelihoods, construction of earthquake resistant infrastructure and sustainable ecological practices) the fragmentation of efforts to confront climatic phenomena effectively, and therefore the recognitions are not able to materialize effectively so that they are translated into a real valorization of the ecosystems, and that they go towards the well-being of people and communities.

4.- *Mainstreaming the issue of adaptation to climate change in the framework of public policy and sustainable development planning under a human rights approach*: The implementation of different environmental legal frameworks, national plans related to the management, protection and conservation of natural resources, as well as the National Plan for Adaptation to Climate Change, among other initiatives, represent a baseline for mainstreaming the adaptation issue in all areas of the work of Honduran society and its institutions. But there are still obstacles of an economic, social and political nature, at the national and local levels, that prevent such initiatives from achieving their purpose. A fragile public institutional structure and the dispersion of sector programs and initiatives make it difficult to obtain the desired impacts that these principles establish.

5.- *Recognition and appreciation of the traditional knowledge of indigenous and Afro-Honduran peoples linked to adaptation to climate change*: In CASM's trajectory in its different programs and projects at the national level, it has been important to value indigenous knowledge, which will undoubtedly be reflected and materialized in the construction of the final proposal and particularly in relation to the knowledge and practices of adaptability to change. However, it will always be necessary to carry out periodic scientific studies with the participation of the communities on the existing vulnerabilities and potential climatic scenarios that allow us to define alternatives for adaptation that can be developed in the intervention area.

6.- *Participation and social inclusion in the design and implementation of adaptation measures, with special attention to vulnerable groups, with gender equity and in accordance with the needs and potential of indigenous and Afro-Honduran groups*: In the framework of the PNA-CC, this principle is fundamental that will guide the development of the final proposal, the long experience of CASM at the national level, with programs and projects co-designed with families and communities, will be of enormous value for an inclusion effective and real social action in all stages of the formulation of the final proposal. CASM has been present in the proposed territories for more than 5 years, executing different projects that allows it to have an approach with the leadership of the different communities as well as with local governments that will facilitate the construction and development of a proposal for adaptation to climate change in the Sierra del Merendon. CASM's current gender policy will be a valuable complement that will allow this principle to be present in the construction of the global proposal.

According to the diagnosis presented in Chapter 1, extreme climatic events will continue to be unavoidable in Honduras, and evidently in the Cordillera del Merendon, further increasing the already existing situations of vulnerability, particularly in the most unprotected urban-rural communities. Such environment is already generating new displacements of families and communities, giving rise to floods and landslides, drought situations, contamination of rivers and basins, affecting people's health through pandemics. Such no doubt has an evident impact in their productive agro-silvopastoral activities and crops, and, consequently nutritional and food diet, which will create challenges for communities and families to reach their basic life standards in a sustainable way; as well as, an impact on the natural resource base and biodiversity.

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The project will reach these objectives through the strengthening of capacities from the local level in actions to adapt to climate change that result in a reduction of their socioeconomic vulnerabilities, mitigating the effects of environmental degradation, having as pillars in this effort the development of a solid institutional and local governance base. The improvement of those capacities will allow the materialization and feasibility of adaptation plans. It is expected the full participation and ownership by the communities in the planning processes in order to achieve their well-being, in accordance with the National Adaptation Plan of Honduras.

Project/Programme Objectives:

General objective
Strengthen the capacities of families and communities, to adapt to climate change through sustainable management and conservation practices aimed at improving resilience to climate change in the Sierra del Merendon.

The project objectives are aligned to the fund's outcome framework, as follows:

Project Objective(s)	Fund Outcome	Grant Amount (USD)
1. Capacity development	Reduced exposure to climate-related hazards and threats Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses Strengthened awareness and	984,000

	ownership of adaptation and climate risk reduction processes at local level Increased adaptive capacity within relevant development sector services and infrastructure assets Improved policies and regulations that promote and enforce resilience measures	
2. Adaptation measures	Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level Increased ecosystem resilience in response to climate change and variability-induced stress	1,640,000
3. Generation of knoweldge and learning in relation to climate adaptation	Support the development and diffusion of innovative adaptation practices, tools and technologies Reduced exposure to climate-related hazards and threats Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	656,000

Project/Programme Components and Financing:

It is important to highlight that there are cross-cutting approaches which will be present in the different components and activities of the project.

5.1 A *Territorial Approach*. Climatic change doesn´t respond to geographical political-administrative borders established by governments. Ecosystems are interdependent and continuous, this results in the need to propose conservation, development and adaptation proposals that introduce a comprehensive and territorial approach, identifying the set of actors, the connections and interactions that exist between the various natural resources and the existing population in the project area.

5.2 *Human Rights Approach* It means, recognizing the actors of the project as subjects of rights and not as objects or depositories of a service, this requires strengthening their knowledge of their fundamental rights, so their rights are fully exercise, and subsequently improve their life conditions.

5.3 A *Gender Equity Approach*. Beyond the fact that the project will include activities specifically aimed at strengthening the management capacities and improvement of the quality of life of women, a gender perspective will be present in all the components of the project. There will be a presence of this perspective not only at the level of the activities to be programmed, and their results, but from the start of the assessments, planning,

management, implementation, monitoring and evaluation processes of the various components of the Project.

5.4 An *Approach to Sustainability*. It will be verified that each component of the project includes elements that guarantee its continuity, and appropriation by the communities and actors subject to the project. The levels of sustainability achieved will be determined by the levels of the resilience acquired by the communities, and the improvement of livelihoods resources.

5.5 A *Risk Management and Mitigation Approach*. Given the occurrence of climatic change and critical social events, it is essential to integrate such considerations in all aspects of a project. New natural disasters will take place, new socio-political conflicts will develop that will need to be managed, or mitigate, to guarantee the elements of sustainability of the project objectives, as well as the livelihoods of the communities, each activity developed in the project will have a risk analysis in order to ensure its sustainability.

Table 1 ***Project components and financing***

COMPONENTS	EXPECTED CONCRETE OUTPUTS	EXPECTED OUTCOMES	AMOUNT (US$)
1. Capacity development	(i) agreements with local authorities and organizations (ii)climate change vulnerability scenarios for the Merendon region; (iii) vulnerability assessments, focused on the identification of priority areas for the intervention of the project; (iv) support of local institutions/organizations for the incorporation of adaptation measures in their development plans and territorial planning instruments (v) monitoring system to track the impact of the adaptation measures and (vi) workshops and training sessions to enhance knowledge of climate change issues.	Climate change vulnerability considerations are included in land-use and watershed planning	984,000
2. Adaptation measures	(i) landscape and farm planning; (ii) adoption by farmers of climate-resilient land-use management practices with gender and youth equity; (iii) restoration activities and establishment of connectivity of natural ecosystems; (iv) design and implementation of revegetation activities to increase the water use and/or regulation capacity; and (v) redesign and modification of hydraulic works in critical water supply areas to increase water storage capacity.	Increased adoption of climate adaptation measures in land-use and watershed planning and execution at the community and Family levels	1,640,000
3. Generation of knoweldge and learning in relation to climate adaptation	(i) a platform that includes the community structures, local governments, academia and, private sector for the generation of knowledge and learning; (ii) effective early warning network for the prevention and awareness of the threats generated by climate change in the municipalities; (iii) creation of a corridor with information stations	Capacities strengthen of key actors to generate and disseminate knowledge aimed at raising awareness and actions about the effects of climate	656,000

	and visitor services.	change and adaptation	
6. Project/Programme Execution cost			380 000
7. Total Project/Programme Cost			3 660 000
8. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)			340 000
Amount of Financing Requested			**US$ 4.000.000**

Component 1 has to do with institutional fragility and weak governance; Component 2 with unsustainable practices and poverty, and Component 3 with transferring of knowledge. The idea of the vulnerability scenarios in Component 1 is to determine specific priority areas for the activities developed under Component 2. Component 3 will provide technical information about best suitable agricultural practices, adaptative varieties and practices to avoid soil and water resources degradation and related climate change risks, among others

The business-as-usual scenario is not one of natural resource management, instead the normal activities in the area do not take into account sustainability. As appointed in the context, the region is very poor with very week enforcement, extraction and deforestation of forest areas, unsustainable agricultural practices and water stress, among others

The specific activities to carry out under Component 2 will be determined during project execution, because they will depend on the particularities of the priority areas identified under Component 1. Vast knowledge exits in the Universities and Research Institutions (Zamorano, CATIE, and local univeristies) about the best agricultural practices to develop according to the characteristics of the priority areas, therefore, the expected activities to carry out under Component 3.

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Projected Calendar:

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

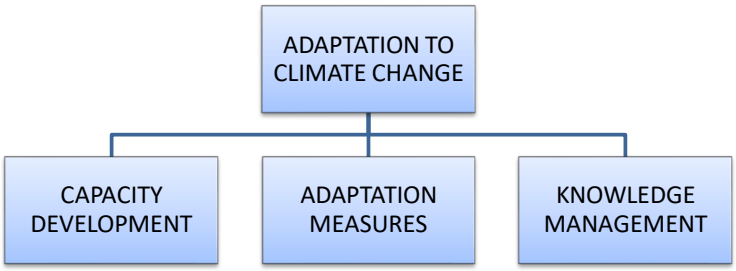
Milestones	Expected Dates
Start of Project/Programme Implementation	2023
Mid-term Review (if planned)	End 2024
Project/Programme Closing	2026
Terminal Evaluation	2026

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Description of components and products:

The project that is expected to be developed is directly related to the objectives of the AF whose global framework is to reduce vulnerabilities and increase the capacities of communities, and institutional bodies, at the national and local level, with measures and actions of adaptability to climate change.

The CASM project starts from the premise that in order to obtain effective results in relation to climate change adaptation measures, an approach must be adopted that integrates three pillars in a complementary manner that can guarantee sustainability. The components are the following: capacity development, adaptation measures, and knowledge management.



Components

Assertive adaptation measures will depend on the identification of priority areas under Component 1 and the regional planning and planning of every farm under Component 2. This planning will identify what activities better fit into a specific region/farm, according to the soil, climate, altitude, slope, and priorities of beneficiaries, among others (Component 3).

Assertive use of climate change information for policy and regional planning is the specific information developed in Component 1 for planning of the region/farm and implementation of best agricultural practices in Component 2 and in Component 3 to identify the best agricultural and conservation practices to implement.

The first step to promote the adoption of best agricultural practices and adaptation measures is to identify the priority areas for the project intervention (Component 1), based on climate, water resources, soil, forest coverage, wind and biodiversity, among others. Once the priority areas are identified the following step is to carry out a landscape and farm planning, to detect the special conditions presented in the region (connectivity, water resources management, among others) and in the specific farms (degraded lands that must have conservation practices, steep slopes, agricultural lands, aquiculture, livestock – what crops are the best for the particular conditions of soil, climate, preferences of farmers, market, water resources, among others) (Component 2). Beneficiaries will receive a diversity of options and will be prioritized with the assistance of technical personnel of the project, with the use of data from the research institutions (Component 3).

Component 1. *Capacity development*. This component aims to increase climate change (change and variability) vulnerability considerations in land-use and watershed planning, measured through the number of land use plans (local governments, institutions, and organizations) that incorporate climate change considerations and adaptation measures in the Merendon Region. It includes the transfer of focussed

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information and results of geographical analysis about climate impacts on water (regulation), soil, forests, and biodiversity to local institutions (municipalities), community organizations, and other stakeholders as a basis for more effective natural resource management.

The fragility and often the dispersion of government institutions and social structures in Honduras, makes that any policy, regulation, or plan for adaptation to climate change and natural disaster mitigation strategies, in general, remain on paper. In addition, the instruments for the fulfillment of the legal norms and policies, often lack the financial resources and capacities to put them into practice. Therefore, without a minimum budget for an effective governance, both from the perspective of local governments and social structures, will be very likely that any adaptation plan will not materialize or have little sustainability over time.

In this sense, the concertation of efforts and initiatives of the different key actors in the territory, public-private alliances, can guarantee effectiveness and sustainability of any adaptation measure and/or plan.

This approach is clearly outlined in CASM's *"Institutional policy for the establishment of alliances with the public-private and academic sectors"* (Sept,2015), which on page # 4 states the following:

> *"The complexity of social and economic problems that transcends the individual response capacity of the different sectors is increasingly evident. Challenges such as poverty reduction, community education, health, environmental sustainability and climate change, among others, cannot be overcome unilaterally by States and other organizations as the only providers of basic services.*
>
> *This type of public-private alliances is intended to be agile, flexible and innovative mechanisms that represent a release of co-responsibilities of different groups, which in the search for common welfare share resources, knowledge and above all the commitment to contribute to development and therefore. welfare of society ".*

Hence the interest in translating a strengthening of the governance structures of the Sierra del Merendon, through a process of appropriation of the adaptation measures to climate change within a territorial and/or development plan, which allows the improvement of the capacities of communities and local governments to face climate change adaptatiion in a systemic and sustainable way.

The main activities that will be carried out in this component are the following:

(i) ***Output 1.1***: agreements with local authorities and organizations for the successful implementation of adaptation measures in development and territorial plans. This process will require a consultation process that will be explained below.

Effective processes of permanent collaboration will be put into practice for the development of the territorial plans between the communities and municipalities on the management of risks associated with climate change in the territory. A close collaboration relationship between local government and communities, with permanent mechanisms of consultation and accountability, in relation to the measures to be adopted in the face of climatic variables, can be a good starting point to arrive at a structure effective collaboration at the territorial level. To ensure the success of this activity the following actions will be carried out. a) support for the development of territorial plans in coordination wth community leaders and municipal authorities b) significant consultations for decision making c) development of a permanent monitoring system to verify implementation.

(ii) ***Output 1.2***: development of high-resolution climate change vulnerability scenarios specific and non-existent for the Merendon region, which will serve as input for land-use and watershed planning, for all public institutions, organizations, and private sector, among others. A participatory mapping will be carried out identifying the main high-risk areas, and possible risk mitigations actions to reduce vulnerabilities, doing a significant consultation with the communities and local governments, in order to incorporate these considerations into their municipal planning.

~~(ii)~~

(iii) ***Output 1.3***: development of vulnerability assessments of the Merendon region to climate change, analysed on a proper scale, focused on the identification of priority areas for the intervention of the project. The assessment will be carried out with a consultative and participatory model of the

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stakeholders, in order to strengthen their capacities.

(iv) ***Output 1.4***: support of local institutions/organizations for the incorporation of assertive[23] adaptation measures to climate change in their development plans and territorial planning instruments. A proper methodology for the development of plans will be used that considers gender and youth, who normally are the population strata that suffer more from poverty, low participation, and lack of work.

The strentening of current or creation of Territorial Advisory Councils with the participation of different actors from the different municipalities and communities of the Sierra del Merendon will be evaluated, in order to facilitate the implementation of the adaptation plans. The following actions will be implemented: a) diagnosis of the organizational situation of the forest advisory councils b) training process on law enforcement for the conservation of protected areas and wildlife.

(v) ***Output 1.5***: creation of a monitoring system to track the impact of the adaptation measures, aimed at reducing the region's vulnerability to climate change. A way of making a participatory monitoring system, with the training of members of the communities will be developed with the stakeholders. The implementation of technology of massive use, with applications that take information through cell phones, will be evaluated and/or with a mix of low-cost instruments provided by the project. The following actions will be implemented: a) georeferentation of the area where the adaptation measures will be implemented b) aerial images before, during and after the intervention, to establish the base line for comparisons before and after.

(vi) ***Output 1.6***: the development of workshops and training sessions to respond to the needs of different users and enhance their existent knowledge of climate change issues, covering topics such as assertive use of climate change information for policy and regional planning and, successful management experiences on adaptation by community organizations.

Effective training and learning models ~~are~~ will be introduced to strengthen governance with a territorial approach, which allow vulnerable communities and local governments to adopt measures to adapt to climate change in the Sierra del Merendon. Such models will be diverse, from itinerant modules, knowledge exchange platforms on participation, inclusion and co-responsibility in the design of decision-making instances, with an emphasis on the participation of women and ~~sectors of indigenous communities~~youth and representations of local governments. This development of capacities will allow progress in establishing adaptation measures that are viable and with a sense of co-responsibility in their application. Governance models, with a territorial and inclusive approach, will benefit from the knowledge and material resources of government actors, social/private organizations and academics at the territorial level.

OUTCOME 1.1*: At least five land use plans, facilitated by the project, from local governments, institutions, and/or organizations that incorporate climate change considerations and adaptation measures in the Merendon Region, properly using the information provided by the project.*

Component 2. *Adoption of adaptation measures to address the impacts of climate change on the natural resource base and productive capacity of farms and Families in priority areas*. This component seeks to increase, as opposed to the normal use of unsustainable practices in the Merendon described in Part I, the adoption of climate adaptation measures in land-use and watershed planning and execution at the regional, community and Family levels, with emphasis on ~~ethnic groups,~~ women, and youth. Strategic adaptation measures will be financed to directly address the net effect of climate change on the natural resource base and productive capacity of Families in priority areas.

It has been evidenced, among others through a CASM-CUSO report (Pag. 14 and 15 September 2019), the unsustainable agricultural practices that are currently being implemented in the Sierra del Merendón.

"These are characterized by a high investment of commercial chemical products to be able to cultivate. It has negative environmental impacts on the quality of soil and water. The open and

[23] Adaptation measures that are applicable to the context of the area and that are compatible with the culture and way of producing of the communities.

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liberal application of pesticides, fungicides, insecticides, herbicides and fertilizers cannot continue in the same way in the mountains because they easily run down the slopes towards the headland and then people indirectly consume them".

In addition, the quantity of soils transformed to *"bad practice"* agriculture and overgrazing further increase the vulnerability conditions of the communities to face climate change. This context urgently determines the identification of alternative agroecological and adaptation practices, since current practices make the livelihood of the communities and the conservation of the ecosystems of the Sierra del Merendon unsustainable and made them more vulnerable to natural hazards, exacerbated by climate change.

The elegible criteria for beneficiaries under Component 2 will be the following:

- Vulnerable communities/farmers.
- Not having the financial capacity to develop the adaptation activities by themselves.
- Be located in on of the priority areas identified.
- Belong or willing to belong to a community organization.
- Willing to implement the recommendations of the project to improve their productivity and resilience.

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To ensure an equitable income distribution among beneficiaries, the project will establish a maximum amount to be receive by beneficiary/Family.

Concrete activities to be initially deployed will include the following:

(i) ***Output 2.1***: landscape and farm planning, through a consultation process, identifying potential areas for, for example, conservation/protection (water, soil, and biodiversity) – to stop deforestation, avoid or dimmish landslides, and improve water resources -, agricultural production including agroforestry systems (permanent and annual crops) and, animal production., among others. The planning will be made together will the community at the landscape level and with every Family at the farm level, taking into account the role of every member (of the Family) and considering equity for women and youth. The idea is that the farm planning responds to the landscape planning and to the particular conditions of every farm, identifying at the microlevel areas for production, conservation, livestock production, acuiculture and, water resource production, among others.

(ii) ***Output 2.2***: adoption by farmers of climate-resilient land-use best management practices – i.e., agro-silvopastoral and/or agroforesty systems, improved micro-irrigation, enhanced drought resistant grasses in local production systems, water production (collection) – and support for the implementation of improved technology agricultural activities, among others, taking into account adaptation considerations and, gender and youth equity, aimed at reducing the vulnerability posed by climate change on local natural resource conditions, according to the landscape and farm planning of output 2.1.

~~(ii)~~ The project will promote activities that dimmish the use of agrochemicals, increase organic inputs, use varieties adapted to climate change, use contour lines or other good agricultural practices for agricultural production that look for higher productivity and soil conservation, use of selected pastures to increase productivity of animals to reduce soil compaction and deforestation, seek water collection and storage as a cost-effective technology especially to dimmish the impact of droughts, and develop acuiculture to improve their self nutrition and selling possibilities, among others.

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Community and municipal organizations adopt innovative mechanisms and adaptation technologies to reduce their vulnerabilities to climate change in the Sierra del Merendon. Research, interactive workshops, exchanges will be developed, in consultation with the communities and actors of the project, to identify the most appropriate instruments to facilitate this participation with a territorial approach. There will be special emphasis on socializing gender perspectives that ~~achieve~~ encourage the full incorporation of women and youth in processes of new delineations before climatic change.

The project will prioritize the improvement/use of best agricultural practices of crops and in general agricultural activities currently implemented by farmers for example, beans, coffee, cattle, and

cardamom, among others; and, will propose, according to the recommendations of research institutions of Component 3, other alternativies to diversify production.

(iii) ***Output 2.3***: restoration activities and establishment of connectivity of natural ecosystems, for which the landscape planning of output 2.1 is essential and ~~de~~ the capacity building of local institutions/organizations and communities, to understand the adaptation benefitis and necessity of collective actions. It will be necessary to develop a training process with community and municipal organizations that allows them to know what the benefits of generating a protectionist culture are.

~~(iii)~~

(iv) ***Output 2.4***: design and implementation of re-vegetation activities to increase the water use and/or regulation capacity; and restore soils and habitats and/or prevent major negative effects from climate change, involving local institutions/organizations and communities. The following activities will be carried out, among others: a) establishment of nurseries and nureries for the production of plants, b) development of tree planting programs in the basins c) strengthening of the capacities of the water management boards so that they provide maintenance and sustainability to the planted trees.

~~(v)~~ ***Output 2.5***: redesign and modification of hydraulic works in critical water supply areas to increase water storage capacity. The investment will be used to directly promote changes in the habits of families, which are expected to transition towards climate-resilient management and, gender and youth sensitive practices.

OUTCOME 2.1*: At least 500 Families and local institutions organizations implement adaptation productive and conservaton practices with gender and youth considerations.*

Component 3. ***Generation of knoweldge and learning in relation to climate adaptation.*** Strengthen the capacities of key actors to generate and disseminate knowledge aimed at raising awareness about the effects of climate change, specifically the lessons learned from the implementation of the project and case studies that exemplified the way toward and adaptation path for sustainable development. The main activities of this component include the following:

(i) ***Output 3.1***: a platform that includes the community structures, local governments, academia and, the private sector for the generation of knowledge and learning (case studies and lessons learned) will be created in order to disseminate knowledge and concrete practices for the adaptation to climate change.

A platform will be created among community structures, local governments, academia and the private sector for the generation of knowledge and learning. There is a success case study to be explored *"Communities of Practice: Made up of participating people who share and develop information, knowledge, wisdom and capacities. This requires a deep dialogue and an open exchange; It is self-organized and has a common agenda that specifies joint actions"*. ("Adaptation to climate change and ecosystem services in LA". CATIE, Pag. 112, 2008).

(ii) ***Output 3.2***: an effective early warning network for the prevention and awareness of the threats generated by climate change in the municipalities of the Sierra del Merendon will be developed, with the participations of local institutions/organizations and communities.

Effective early warning networks are created for the prevention and awareness of the threats generated by climate change in the municipalities of the Sierra del Merendon. Prevention and awareness are key aspects to be developed in training processes, as part of a set of actions that lead to concretize climate change adaptation measures. These early warning networks allow the socialization and management of knowledge at the territorial level to provide concrete responses to the challenges experienced by communities and local authorities, specifically with regard to adaptation to climate change and resilience to natural disasters. The following activities will be carried out: a) generation of knowledge about the risks in the area, including environmental and those caused by adverse natural events b) technical monitoring and alert service by the competent institutions established by SINAGER that covers the central, municipal government and community structures c) establishment of communication and dissemination of alerts so that the population can take the necessary measures when appropriate to respond adequately d) strengthening of community response capacity to community organizations and their structures and

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committee of local emergency so that there is synergy in the approach of early warnings.

(iii) ***Output 3.3***: creation of a corridor with information stations and visitor services to raise awareness about biodiversity and climate change in Sierra del Merendon. Local stakeholders will take informed disaster prevention decisions based on the information generated by the Early Warning System. a) define information stations and strategic points for visitors' resting, b) signs to indicate different information relevant for visitors.

OUTCOME 3.1*: The Families benefited from the project are direct beneficiaries of the platform and at least five communities develop an early warning system, raising awareness and actions linked to climate adaptation.*

In the Merendon mountain range there exists a set of different entities, at the municipal and departamental levels, such as the Water Councils, Risk Management System, Consutative Forestry Councils, and Metheorological Stations that could be a base to establish a Territorial Climate Adaptation Knowledge Network. A key function of such a network would be the integration of the already existant expertise, with the additional know how. Such a network would allow for a continued actualization of information and practices that can contribute to the strengthening of measures and policies around climate adaptation. A central element of this effort will be to link such Network to the National Plan on Climate Change, thus providing an opportunity for a two-way channel of knowledge sharing and dissemination among patners and communities.

Some of the functions/tasks of the Territorial Network may include the following:

- *Maping of the head water basins of the Cordillera del Merendon.*
- *Updated flow of rivers through different seasons.*
- *Identify land erosion on specific locations.*
- *Studies of human activity impact on forest resources.*
- *Inventory of water dams in the Cordillera del Merendon.*
- *Channel weather and meterological appropiate information.*
- *Access and dessiminate climate adaptation successful practices to be shared among stakeholders.*
- *Facilitate the Integration of national plans and policies at the territorial level.*

B. Economic, social and environmental benefits, with special reference to the most vulnerable communities and vulnerable groups within communities, including gender considerations.

The Project will be developed in the Sierra del Merendon, in 238 communities, accompanying 3,500 families with approximately 17,850 people, of these approximately 9,104 are women and 8,746 are men; These families are of limited economic resources, located in the upper part of the Merendon, their main activity is subsistence agriculture, livestock, and small-scale forestry, since it is a subsistence economic activity, carried out on small plots, due to that there is no equitable distribution of the land, most of which is in the hands of large ranchers. Because families carry out unfavorable and conventional agronomic practices, they are generating soil degradation, environmental pollution and forest destruction, among other environmental impacts.

The Project will generate the following environmental and socio-economic benefits:

Environmental benefits

There are central aspects of the project in which the project expects to directly benefit the environment through adaptation practices: The project will discriminate the areas of intervention, priorizing areas for water production and conservation, essential areas for maintaining the dynamic interactions within and among ecosystems with especial biodiversity value, and degraded areas (soil and forest), among others, contributing significantly to creating the conditions for a healthy and sustainable environment in the Sierra

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and prioritizing the work with women, youth, and ethnic groups[24]. In working with the adoption by farmers of climate-resilient land-use best management practices, there will be environmental benefits of less agrochemical use and more use of organic products, using adapted technology for a more precise the use of inputs. The project will promote the restauration of biological corridors and, agroforestry and silvopastoriles production systems, together with capacity building for avoiding, mitigating, and compensating potential impacts to the environment and natural resources, among others reusing materials and recycling.

Producers will be organized to maintain vigilance for verifying the proper use of the natural resources of the communities and establish a complaint mechanism to regulate the environmental conduct of the members of the community.

Through the strengthening of public institutions and private organizations and communities, at the local-minicipal e intermunicipal levels, the project will allow a real implementation and appropriation of environmental regulations and plans for adaptation to climate change.

The environmental benefits will be perceived by at least five municipalities of the Sierra del Merendon, which covers an approximate area of 975 km^2. It is only worth mentioning that the Sierra del Merendon is the main source of water for most of the region, providing this resource to more than 1.3 million people, which makes it key to environmental sustainability and people's quality of life.

The supplies and services used in each of the processes will be donated to the participant families and given as compensation for their contribution to adapting to climate change and caring for the environment through their conservation practices.

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Socio-economic benefits, introduction of Adaptive Capacities

As stated in Chapter one, the project will be dealing with very poor communities, which will benefit from small improvements in production technology that will inmediately translate in higher income. Although there are no specific studies for the Merendon region, there are studies made in similar context situations, that demonstrates the benefit of improving climate change adaptation and mitigation agricultural production technologies, for example in Colombia the results of improve technology adaptation practices are presented below" (GEF 2015):

- *"Results indicate that annual farm profit with the project increases by 49% versus the baseline suggesting that switching to the proposed production practices are efficient both from the water efficiency point of view as well as in economic terms."*

[24] *According to the information provided for the area of the project, it is not expected to find ethnic communities, however, there could be disperse indigenous people and/or organizations, which the project will prioritize.*

Table 2 ~~*Potato production revenue and costs (US$)*~~

	Baseline	Project
Revenue		
Sales of crop production	6,968	8,094
Total revenue (Ha/cycle)	*6,968*	*8,094*
Costs		
Soil preparation	149	149
Sowing	131	131
Crop maintenance	1,025	1,189
Harvest	489	568
Inputs		
Propagation material	425	553
Fertilizers	1,228	1,228
Fungicides, Insecticides and herbicides	1,240	1,240
Packing	232	269
Other costs	608	622
Total costs (Ha/cycle)	*5,527*	*5,949*
Profit (Ha/cycle)	***1,441***	***2,145***
Profit per farm/year	***10,832***	***16,130***

~~*Source: Agronet 2010; www.agronet.gov.co.*~~

- ~~*Results indicate that annual farm profit from milk production with the project increases by 33% versus the baseline.*~~

~~Table 3~~ ~~*Milk production revenue and costs (US$)*~~

	Baseline	Project
Revenue		
Sales of milk	14,879	21.025
Total revenue (Ha/cycle)	*14,879*	*21,025*
Costs		
Direct costs		
Nutrition	4,030	4,030
Medicines	279	279
Insemination	205	205
Labor	2,985	4,206
materials	37	129
pastures maintenance	111	776
Indirect costs		
Water	225	225
Other indirect	2,797	5,594
Total costs (Ha/cycle)	10,672	15,443
Profit per farm/year	***4,207***	***5,582***

~~*Source: GEF 2015.*~~

- ~~*The economic return of the aggregate project is positive as indicated by the positive NVP; this suggests the economic feasibility of the operation.*~~

Table 34 ***Total cost of adaptation measures***

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Watershed	Number of beneficiaries families	Annual benefit	Economic Return	
		(Col Pesos)	NPV(12%, 20yr) (Col pesos)	NPV(12%, 20yr) USD$
Rio Guandoque	1800	79,526,978	594,021,990	330,012
Rio San Francisco	2526	111,602,860	833,610,870	463,117
Rio Chipatá	1331	58,805,782	439,246,260	244,026
Rio Chisacá	16431	725,948,768	5,422,430,700	3,012,462
TOTAL	**22,088**	**975,884,389**	**7,289,309,820**	**4,049,617**

***Source**: GEF 2015.*

One of the main purposes of the project is to improve the capacities of communities and local governments to engage in initiatives to adapt to climate change, and to allow them to make better and informed decisions regarding their environment and in turn improve their quality of life. In this sense, how this development of capacities increases their states of resilience is a factor of enormous value to provide sustainability and viability to adaptation plans, and an improved response to climatic phenomena. The effective governance-improved agroecological capacities-knowledge management relationship represents an integrating strategy of the basic and interdependent elements to achieve an adaptive viability to climate change by communities and local governments. The integration of diverse knowledge and practices, both ancestral and new technologies, creates an optimal scenario to develop new bases of resilience. The collaborative confluence of political actors, communities and academia, with well-founded information, on advances in sustainable soil treatment, for example, can only benefit all communities and the environment, not only in their social conditions but also economical. And in this way, to be in better conditions to assume the implementation of adaptation plans and prevention of natural risks.

In addition to the above, the benefits generated by the project will be distributed equally between men and women and will promote the incorporation of young people in field work to discourage them from migrating to urban centers and other countries.

Food safety

The conditions of poverty as described in Chapter one are worse in the Sierra del Merendon than in urban areas of Honduras. By improving cultivation practices, diversification, water quality, and resilience to climate change, the communities can improve their levels of nutrition and diet. Without solving these aspects - of poor food security -, it could not be expected that the communities will be in a position to take on adaptation challenges and reduce their vulnerability to climatic phenomena.

With climate-resilient crops, conservation of their water resources, and new agroecological practices, significant improvements in the diet can be expected, but also an opening in the generation of income for families and their economic-social well-being.

With the introduction of new agroecological practices, their crops of red beans, rice, coffee and farm animals such as chicken and pork can be highly benefited, under a scheme of environmental protection and sustainable food security. The benefit of moving from a mere subsistence agricultural economy to one of comprehensive socio-economic benefit, as a premise for the development of adaptability to climate change, in the 238 communities that make up the Sierra del Merendon, is one of the goals of the project.

Inclusion of the most vulnerable sectors.

Women will have a broad participation in the development of the project and the implementation of the activities. In relation to women, this statement is based not only on the intention of the project, but also finds its foundation in the CASM “Gender Policy” Guidance Document. In this sense, it is expected to transform the perceived secondary importance that women have had in agricultural participation, and decision-making instances, at the level of community organizations and municipal governance structures. Given the preponderant role that women have had in agricultural activities, horticulture, animal care, and others, their inclusion in processes and plans for adaptation to climate change is irreplaceable. It is also expected that the project, by incorporating new agroecological practices, will not only imply technical

improvements in the area, but also improvements and social benefits for women in these processes. For the time being, reducing the triple shift to which women are currently exposed: work at home, work shift in the field, family care, will be a permanent consideration of the project. The ancestral knowledge of rural communities will be reinforced, and at the same time will be of enormous value to the rest of the community in terms of understanding and conserving the environment, restoring environmentally friendly agricultural practices, and inclusive decision-making processes and culturally relevant.

Analysis of the Gender Situation and Project Measures to seek equity

One of the difficulties in addressing the situation of rural women in Honduras, and specifically in the area, is the lack of up-to-date statistics on land tenure, access to credit, the relationship with natural resources and their incorporation into actions. adaptation to climate change. However, it can be observed in the fieldwork experience that the sexist and patriarchal culture has multiple expressions of machismo that prevent the full enjoyment of the rights of women and girls for the development of their autonomy and self-realization. Some of these expressions are the exclusion of women from decision-making spaces, economic and psychological dependence, sexual abuse, early pregnancy and domestic violence; For example, two of the municipalities in the area (San Pedro Sula and Choloma) are among those with the highest rate of violence in general and gender-based violence in the country, according to data from the Violence Observatory of the National Autonomous University of Honduras.

The life of this population depends to a great extent on the availability of natural resources, especially due to situations of poverty and low productivity in food; which is causing a depletion of these resources, especially if there are no sustainable practices in their use. Women are affected by being responsible for the daily use and management of these resources, in their role of satisfying the needs of their families through food processing, gathering wild products, hauling water and collecting firewood. The vast and growing deforestation coupled with the depletion of water sources force women to travel ever longer distances. This requires them to spend more time and consume more energy to obtain these much-needed resources, increasing the workload and reducing the time available for other activities.

This impact described above is little acknoweldged by the population, and by the local authorities of El Merendon region. When consulting community leaders about how the impacts of climate change and climate threats affect gender, the majority say that it affects the same way to men and women, that is to say, gender differences are little recognized. This aspect is very important because by not identifying the differences in needs and impacts, the approaches are not considering strategies in a differentiated way, which is evidenced in that the Development plans and the Risk management plans of the municipalities do not have any analysis, nor strategies differentiated by gender, even if there has been participation of women in the construction of these.

In the country there is a regulation and institutional framework for gender equality in accordance with international instruments, one is the Plan for Gender Equality and Equity 2010-2022, it has several axes including Access, sustainable use and control of biodiversity, natural resources and risk management. The challenge in this area is to adopt a gender equity approach in strategies related to climate change, protected areas, forest management areas, biodiversity, water and risk management. This is a great challenge that needs to be addressed in the area because, as mentioned above, local instruments on these issues do not even identify gender-differentiated problems, therefore, they do not establish strategies to address these differences, consequently, it is followed reproducing the same traditional patterns; Likewise, to understand these differences in problems and impacts, it is necessary to develop diagnoses and data collection.

With the proposed analysis, the following actions are proposed:

a) *Develop a diagnosis to identify and have data on the specific differences in the problem, participation and impacts on the genders of the threats that climate change entails and of the adaptation measures, as well as identify the limitations / obstacles that prevent the active participation of women and men. It is also necessary to map women's organizations and if a gender approach is established in community organizations.*

b) *Gender indicators will be established in each of the project objectives.*

c) *Establish differentiated work strategies by gender to carry out the project actions.*

d) *The participation of women will be promoted and strengthened at all levels: consultative, decision-making, executive and operational in the structuring of local alliances.*

e) *There will be reflections within environmental and community organizations on gender differences in leadership.*

f) *Support organizations to establish affirmative measures that help to incorporate more women in their organizations and especially in the integration of boards of directors (minimum 30%) not only in traditional positions such as secretary.*

g) *In training and awareness-raising activities, the participatory methodology should be used in such a way that the contributions of each and every participant are visualized.*

h) *Inter-institutional coordination with local organizations (municipal offices for women, National Women's Institute, Women's Networks) and national organizations is proposed to develop gender awareness and training processes.*

Avoid Negative Impacts

The following measures will be included to avoid or lessen potential negative impacts of the project.

1. *Throughout the process of design, implementation, monitoring and evaluation, the "Policies of Transparency and Conflict of Interest of CASM" will be applied.*
2. *With the application of its policy of "Procedure for the Management of Complaints, Suggestions and Congratulations", the inputs provided by the key actors of the project, in particular community organizations and local governments, will be constantly monitored.*
3. *In relation to particularly vulnerable sectors, such as children and the elderly, as part of the population that will be impacted by the project, CASM will be guided by its "Protection Policy for Vulnerable Adults", and its "Protection Policy Childish".*
4. *The purposes of the Project are directly aligned with the National Plan for Adaptation to Climate Change of Honduras", consequently, we will be in permanent contact and collaboration with state institutions to join forces and resources and avoid potential obstacles and delays in the development of the project.*
5. *The inclusion of a comprehensive approach and multisectoral participation in the development and implementation of the project will mitigate possible shortcomings in relation to fragmented contributions from the different sectors, which would weaken the achievement of the proposed objectives.*
6. *The project, with the inclusion of academic contributions, will ensure that the information inputs and scientifically proven practices have the necessary solidity to generate the changes proposed in the project. This both in the development of the organizational capacities of the communities and local governments and in the incorporation of new agroecological practices.*
7. *In the development of the total and definitive proposal, the 15 principles of the Adaptation Fund will be considered in relation to its Social and Environmental and Gender Policy to carry out the diagnoses of social and environmental risks.*
8. *Through its "Institutional Contingency Plan", CASM is in a position to face potential situations of threats and dangers that may affect the Sierra del Merendon region. This includes general principles and rules for handling humanitarian aid. Threats include rising waters, hurricanes, fire, floods, landslides, and landslides, among others.*
9. *The project, from its inception in the definitive formulation of the complete proposal, will have the long experience and knowledge of the CASM teams in processes of inclusion and multilevel participation of the actors and beneficiaries of the project. Particular attention will be paid to the participation of the most vulnerable sectors, women and indigenous communities.*

C. Analysis of the cost-effectiveness.
Economic Analysis of Climate Change Effects [25]

There are studies made in similar context situations, that demonstrates the benefit of improving climate change adaptation and mitigation agricultural production technologies, for example the following:

"In Costa Rica 36 coffee mills have reported cost-savings (average US$3,16 /fanega[26]) and increased

[25] The Economics of Climate Change in Honduras 2016
[26] 1 fanega corresponds to 46kg of green coffee.

productivity as a result of the implementation of technological changes." "In order to encourage and facilitate investments in low-emission technologies and practices and to promote these innovative technologies (e.g. use of renewables in the drying process or use of by-products and such reduce methane) at the level of coffee mills, a combination of technical and financial instruments was applied. The technical assistance offered in this component mainly worked on carbon audits, capacity building measures, trainings and exchange of experiences at national and international level" (Spies 2019).

"The NSP[27] has demonstrated that climate change mitigation activities can lead to increased cost efficiencies at coffee farms and mills, thus ultimately reducing coffee production costs" (Linne, Guzmán 2020).

According to Climate-Adapted Sustainable Agriculture Practice Implementation Manual (ASAC) in Honduras (CGIAR, ASORECH, CASM, ALIANZA BIODIVERSITY-CIAT 2020), following are examples of costs applied to improve technologies in different crops:

- *Water harvest: costs about US$138.2 with a plastic tank, but it can be cheaper if an artisan reservoir is used, with an approximate cost of US$ 48.75.*
- *Vegetable garden with roof: The implementation of the structure costs around US $ 355.53 and the purchase of seed to harvest food throughout the year costs US $ 56.18.*
- *Contour ditches or hillside ditches: only the payment of wages should be considered. To make four 20-meter-long contour trenches, the implementation cost is US$44.49.*
- *Living barriers (Madre Cacao, Maguey, Piña, Izote): You should only invest in the purchase of the cuttings or stems to be used and in the payment of the wage. For the implementation of four live Izote barriers of 20 meters long each, US$65.49 must be invested.*
- *Handmade water reservoir: 3,600-liter reservoir costs about US$49.10 and a 9,000 liter reservoir costs about US$76.18.*
- *Minimum conservation tillage: must consider the area of the land to be prepared for sowing, and the number of wages to be used. Implementing this practice for four tasks has a cost of US$31.57.*
- *Crop rotation: must consider the area of the farm to prepare for the sowing of the second crop and the number of wages to be used. For the calculation of costs, crop rotation was considered in four tasks, with a cost of 31.57.*
- *Biopreparations (madrifol and sulfocalcium): the elaboration of Madrifol only takes time. This time is usually less than half a day's work. In the case of Sulfocalcium, the production of 25 liters will require an investment of only US $ 47.83.*
- *Fish production and irrigation system: 3,600-liter reservoir needs to invest approximately US$51.37 and for the 9,000-liter reservoir an investment of approximately US$79.73 will be needed.*
- *Shade management in coffee plantations: an area of 0.3 ha, the costs of the first year will be approximately US$48.68, for the purchase of the tools, however, the following years the maintenance cost will correspond only to labor.*
- *Terraces with live barriers: high cost, since a task (437 m²) requires US$252.63, of which a large part is labor.*
- *Improved bean varieties: in 437 m² the purchase of bean seeds is required, which is around US$1 per pound.*
- *Diversified vegetable gardens: a small garden of 6 m² requires US$85.92 of which a large part is labor.*

Initial results from the ECC CA (Economics of Climate Change in Central America) initiative indicate that climate change could have direct and growing negative economic impacts for Honduras. A significant reduction in the yields of the main crops such as basic grains and other agro-industrial crops is expected, while the pressure on water resources, biodiversity losses and the costs associated with extreme events will grow. These reductions will have an impact on income, employment, migration, and human security.

The cumulative cost of the measurable impact of climate change in Honduras, based on the impacts on the agricultural sector, water resources (municipal and agricultural availability and consumption), biodiversity (economically recorded costs and indirect impact on agriculture), hurricanes, storms and floods (increase intensity without including increase in frequency and other types of extreme events) and

[27] *Nama Support Project.*

with a discount rate of 0.5%, it could be 3.6% of GDP in 2008 at net present value (NPV) in scenario B2 and 5.0% in scenario A2 in 2030, 10.2% in B2 and 14.7% in A2 in 2050, reaching 45.8% in B2 and 79.6% in A2 at the end of the century. Costs would begin to accelerate in the water sector as of 2030, in biodiversity and extreme events as of 2050, and in the agricultural sector as of 2070. This analysis suggests that costs would be significantly higher in a high-trend emissions scenario (scenario A2) than in a lower emissions scenario (scenario B2). It should be noted that there is a high level of uncertainty due to the interaction between economic variables, weather conditions and social, political and cultural aspects. As these are future scenarios that integrate various "layers" of analysis with their respective uncertainties and methodological difficulties, the results should be interpreted as relative trends and magnitudes, not as exact figures.

In general, this type of analysis seeks to estimate the potential impacts if public policies and actions of all actors are not created to adapt. It is important to consider that the estimates made in these scenarios seek to identify the impacts of changes in temperature and precipitation attributable to climate change, therefore maintaining the historical values of the other variables. The estimates must be interpreted as possible scenarios if adaptation measures are not taken. Two other important considerations are, first, that the analysis does not estimate the future cumulative effect of productive practices that undermine sustainability, such as soil degradation and erosion, practices that could contribute to reducing agricultural yields, and hydroelectric generation even without climate change. Second, several of the analyzes focus on the regional and departmental levels but do not characterize smaller-scale areas within these, for the purposes of this project, this aspect of the socio-economic analysis should be studied in greater depth in the construction of the proposal because it lacks accurate information in this regard.

D. Coherence of the project with international, national and subnational strategies:

The project proposed in this concept note is framed in the Paris Agreement, ratified by the National Congress of Honduras on July 20, 2016, which states in Article 2, literal b) *"relative to the commitment of parties on increasing the capacity to adapt to the adverse effects of climate change and promoting climate resilience and development with low greenhouse gas emissions, in a way that does not compromise food production"*. The project is consistent with this international instrument that seeks to strengthen the capacities for adaptation to climate change in communities and different actors.

The project is nationally consistent with the Country Vision and the Nation Plan. As of 2010, the country has a guiding framework for the long-term development planning process that is expressed in Legislative Decree N°. 286-2009 "*Law for the Establishment of a Country Vision and the Adoption of a Nation Plan for Honduras"*, approved by the National Congress of the Republic in December 2009. This law contains a conceptual framework oriented to the conformation of the following instruments:[28]

A Nation Plan that includes the strategic guidelines, objectives and indicators that address the challenges faced by the Nation and around which public and private action must be executed to fulfill the intermediate objectives of the Country Vision. The Nation Plans are formulated for successive periods of 12 years and their implementation is mandatory for the Public Sector and indicative for the Private Sector.

A matrix of 65 indicators, which contains quantitative criteria to be achieved and that allow measuring progress in meeting the goals of the National Plan, in accordance with each of the strategic guidelines.

A Draft Decree for the creation of the National Planning System, as an instrument for the execution and institutionalization of the Country Vision, the Nation Plan and the Government Plans, which must have, for its proper implementation, a legal framework, a well-defined institutional framework and an operational functionality scheme.

The Country Vision is the objective image of the social, political, economic and environmental characteristics that the country must achieve by the year 2038, through the execution of successive Nation Plans and Government Plans, consistent with each other and congruent with the aspirations of Honduran society. Likewise, the Nation Plan is defined as the set of strategic axes that will obligatorily guide the action of the public sector, through various periods of Government until 2022, and indicatively the actions of the private

[28] *Visión de País y Plan de Nación | FONAC*

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sector, with the ultimate aim of attend and solve the challenges that national development implies.

The Country Vision synthesizes the best efforts made between 1998-2009, mainly those referring to the Master Plan for National Reconstruction and Transformation, the Strategy for Poverty Reduction, the results of the Great National Dialogue, the Millennium Development Goals and various sectoral plans. In a particular way, the Country Vision and the Nation Plan give special value to the inclusive and participatory nature of the aforementioned efforts, and endorses the challenges that have been posed in recent history and that have not yet been resolved.

The objectives and goals that are intended to be achieved by the year 2038, mark the horizon towards which the different State administrations must direct their efforts in the short term. The objectives of the Country Vision are the following:

- *Honduras without extreme poverty, educated and healthy, with consolidated social security systems.*
- *Honduras developing in democracy, safely and without violence.*
- *Productive Honduras, generator of opportunities and decent jobs, that makes use of its natural resources in a sustainable way and reduces environmental vulnerability to a minimum.*
- *Honduras with a modern, transparent, responsible, efficient and competitive State.*

Based on these objectives, the Country Vision 2010-2038 defines a set of 23 strategic goals for which the administrations should channel their best efforts in a coordinated and ongoing manner. The National Plan 2010-2022 provides a framework of strategic guidelines, under which the different Government Plans must be defined, while they constitute instruments for planning and medium-term programming, aimed at facilitating compliance in each period of government. The eleven Strategic Guidelines of the National Plan constitute the fundamental reference for the Government Plans, corresponding to each one of them a set of process indicators. These guidelines are the following:

- *Sustainable development of the population.*
- *Democracy, citizenship and governance.*
- *Reduction of poverty, generation of assets and equal opportunities.*
- *Education and culture as a mean of social emancipation.*
- *Health as a foundation for the improvement of living conditions.*
- *Citizen security as a requirement of development.*
- *Regional development, natural resources and environment.*
- *Productive infrastructure as the engine of economic activity.*
- *Macroeconomic stability as the basis for domestic savings.*
- *Competitiveness, Country Image and development of productive sectors.*
- *Adaptation and mitigation to climate change.*

The proposed project is also linked to the Vision and Mandate of the National Plan for Adaptation to Climate Change of Honduras:

> *<u>Vision</u>: A Honduras resilient to climate change, productive and inclusive, generating jobs worthy, which takes advantage of the benefits and services of its natural resources in a sustainable way and that reduces their vulnerability to climate change with a focus on people's well-being.*
>
> *<u>Mission</u>: Improve the national capacity to adapt to the effects of climate change, in the communities and cities, in order to promote sustainable and low-carbon development by reducing socioeconomic vulnerabilities and environmental degradation.*

The proposal will ultimately seek to focus its efforts on strengthening the resilience of communities to climate change, increasing their productive capacity, reducing their vulnerability to provide sustainability and well-being of the beneficiaries, strengthening their local capacities to adapt to climate change, through a reduction of their socioeconomic vulnerabilities and mitigating the effects of environmental and natural resource degradation. For this purpose, it is essential to develop solid institutional and local governance that allows adaptation plans to be materialized and made viable, which the project addresses in component one.

Another instrument in the national framework that gains importance in this project, due to the impact of the Eta/Iota Tropical Storms in the area, is the Reconstruction Plan for Sustainable Development (PRDS) that has recently been presented by the Government of Honduras and the United Nations System, in its volume 1 of Early Recovery whose main objective is to achieve physical, social and productive recovery from the effects and impacts of storms Eta and Iota, seeking to strengthen institutional and social capacities for governance, sustainable development and resilience. The project is consistent with this objective since it also aims to strengthen capacities of the different local actors for resilience.

The PRDS also has an Environment, Risk Management and Climate Change axis that seeks immediate comprehensive intervention in the Sula Valley, with studies and projects that guarantee the safety of the population and the development of productive activities, in the face of future natural disasters. In this axis, work will be done on the definition and implementation of effective programs for adaptation to climate change, which are inclusive and participatory (women and youth inclusive), especially at the local and regional level, which is also aligned with the project since it seeks to generate participatory actions with governments. local, civil society actors, academia and the private sector to implement measures to adapt to climate change and build resilience before climate phenomena.

It is important to mention that in the country, on January 27, 2022 a new government has taken office. It is proposing many changes, a different way, to take on the main problems of the country, so the different government programs and plans may change.

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E. Linking the project with national legal regulations.

The intervention proposed by the program will comply with and promote compliance with national technical standards in accordance with the Environmental and Social Policy of the Fund, in this sense it will comply with the following instruments:

- *FORESTRY, PROTECTED AREAS AND WILDLIFE LAW (DECREE Nº. 156-2007), establishes the legal regime to which the administration and management of Forest Resources, Protected Areas and Wildlife will be subject to, including their protection, restoration, use, conservation and promotion of sustainable development, in accordance with the social, economic, environmental and cultural interest of the country. The project will take this law into consideration since within the project area there are three protected areas and this law in the forestry sector establishes the advisory councils and their operation.*
- *GENERAL WATER LAW (Decree Nº. 181-2009). Its objective is to establish the principles and regulations applicable to the adequate management of the water resource for the protection, conservation, valorization and use of the water resource to promote the integrated management of said resource at the national level.*
- *LAW OF TERRITORIAL PLANNING (Decree Nº. 180-2003), promotes the integral, strategic and efficient management of all the Nation's resources, human, natural and technical, through the application of effective policies, strategies and plans to ensure human development in a dynamic, homogeneous, equitable, and sustainable way. It also establishes the provisions to develop these policies, strategies and plans. The project establishes a product that seeks, together with all the stakeholders, to have a territorial plan for the Cordillera de El Merendon.*
- *GENERAL ENVIRONMENT LAW (Decree Nº. 47-2010), establishes that the protection, conservation, restoration and sustainable management of the environment and natural resources are of public utility and social interest. The Central Government and the municipalities will promote the rational use and sustainable management of these resources, in order to allow their preservation and use. The project will be working so that local governments in the area strengthen their capacities to fulfill their responsibility for the sustainable management of natural resources with a focus on adaptation to climate change. An important part is related to Environmental Impact assessments and that a specific protocol is established in the law.*
- *SINAGER LAW, aims to create the National Risk Management System, constituting the Honduran legal framework aimed at ensuring that the country has and develops the capacity to prevent and reduce the risks of potential disasters, in addition to preparing, responding and recovering of the real damages caused by natural phenomena or by those generated by human activities. One of the principles of the System is decentralization, where it is established that the municipalities, within the scope of their respective competencies, must assume and execute the tasks and concrete actions in the territory to comply, adequately and in a timely manner, with their responsibility for prevention and reduction of risks, to prevent*

and mitigate disasters, adapt to climate change, respond to emergencies and rehabilitate and rebuild areas. The project will be working directly with local governments helping them to comply with these aspects.

- *REGULATION OF THE NATIONAL ENVIRONMENTAL IMPACT ASSESSMENT SYSTEM (SINEIA)[29]: Its objectives are the following a) Organize, coordinate and regulate the National Cistern for Environmental Impact Assessment (SINEIA), establishing the links between the Secretariat of the Environment; entities of the public, private and international sectors. b) Ensure that plans, policies, programs and projects, industrial facilities or any other public or private activity, likely to contaminate or degrade the environment, are subjected to an environmental impact assessment in order to avoid damage to the environment. c) Identify and develop the procedures and mechanisms by which the SINEIA and the other sectorial laws and regulations on environmental matters, complement each other. ch) Promote, manage and coordinate the processes for the incorporation of the public, NGOs, banks and private companies and governmental, central and local institutions to SINEIA. d) Apply the policies, norms, procedures that update the SINEIA in accordance with the economic, political, social, legal, cultural and environmental situation of the country, always seeking the compatibility of development and the environment.*
- *ENVIRONMENTAL CATEGORIZATION TABLE: Ministerial-Agreement-705-2021[30]: Its fundamental objective is the categorization of projects that are categorized by Sector, Subsector and activity, works or projects subject to the Environmental Impact Assessment process, as well as classifying them according to their potential Environmental Impact; It also fulfills the function of serving as a technical basis to establish the Category of environmental risk of the activities, works or projects that are in operation, in order to guide the different authorities gathered in the National System of Environmental Impact Assessment (SINEIA) , regarding the actions of administrative procedures of an environmental nature related to permits, authorizations and control tasks, in accordance with the principle of proportionality.*
- *NATIONAL TECHNICAL STANDARD FOR DRINKING WATER QUALITY[31]: The objective is to protect public health by establishing adequate or maximum levels that those components or characteristics of the water must have that may represent a risk to the health of the community and inconveniences for the preservation of the water supply systems.*
- *SOLID WASTE MANAGEMENT REGULATIONS[32]: The objective is to regulate the integral management of solid waste, including the operations of prevention, reduction, storage and conditioning, transport, treatment and final disposal of said waste, promoting their use in order to avoid risks to health and the environment.*
- *GUIDELINES FOR THE INTEGRATION OF FOREST ADVISORY COUNCILS, PROTECTED AREAS AND WILDLIFE:[33]: The objective is to facilitate the formation of the Advisory Councils at different levels; Departmental, Municipal and Community, indicating the procedures for their organization.*
- *LAW TO PROMOTE THE GENERATION OF ELECTRICITY WITH RENEWABLE RESOURCES. DECREE N[O]. 70/07[34]: The main purpose is to promote public and / or private investment in electricity generation projects with national renewable resources.*

F. Complementarity with other projects and programs

CASM is an organization that has within its policies the inter-institutional coordination and collaborative relationships with other organizations/institutions that establish programs in the areas of intervention, this is why it is essential to have knowledge of the programs and projects that are developed, either with government cooperation funds as other types of cooperation, so apply the lessons learned of projects related to the issues managed within the Reconstruction Plan for Sustainable Development that are planned for the Sula Valley area, where the El Merendon Mountain Range is located; in order to promote sinergy and complementarity. Some of the current projects identified in the area are the following:

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[29] sineia.pdf (miambiente.gob.hn)
[30] Acuerdo-Ministerial-705-2021.pdf (tsc.gob.hn)
[31] Norma agua potable Honduras.pdf (credia.hn)
[32] ReglamentodeResiduosSolidos.pdf (miambiente.gob.hn)
[33] Microsoft Word - Lineamientos Consejos Consultivos 23 de abril 2009.doc (infoagro.hn)
[34] Decreto-No.70-2017-Ley-de-Promoción-a-la-Generación-de-Energía-Electrica-con-Recursos-Renovables.pdf (sen.hn)

- *IDB Program for the Restoration of Climate-resilient Forests and Forestry[35]: The objective is to contribute to improve the climatic resilience of coniferous forests located in critical areas for the provision of water. The specific objectives are to restore forest cover with resilient systems, and to strengthen governance and financial sustainability for MFA.*
- *BCIE Productive Investment Initiative for Adaptation to Climate Change (CAMBio II)[36]: its objective is to increase the resilience to climate change of Micro, Small and Medium Enterprises (MSMEs) in Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama and the Dominican Republic, through access to financial and non-financial resources in order to adopt and apply the best adaptation measures to climate change.*
- *GEF Agroforestry landscapes and sustainable forest management that generate environmental and economic benefits at a global and local level CONECTA[37]: The objective of the project is to strengthen the connectivity between protected areas (APS) and productive landscapes, in order to obtain social, environmental and economic benefits in the humid arid biological corridor of south-western Honduras. This will be achieved through a multifocal strategy that includes four interrelated results that contribute to the strengthening of the national and local governance framework for the establishment of biological corridors in the project intervention area, with emphasis on the interconnectivity between PAs and productive systems, for their contribution to the conservation of biodiversity and sustainable use of natural resources; the generation of environmental, social and economic benefits through sustainable land management and the rehabilitation of corridors to increase connectivity between PHC and production landscapes; the establishment of productive chain initiatives to increase income and other benefits for communities and farmers related to coffee, cocoa in agroforestry systems and a focus on ecosystems; and knowledge management for the replication of project results. This investment from the Global Environment Facility (GEF) will reverse the fragmentation of forest ecosystems (cloud forests, subtropical humid forests, mixed and lower montane forests and pine and oak forests), the loss of biodiversity and land degradation in the runners. The project will generate global environmental benefits using a participatory approach and ensuring the equitable distribution of benefits between men and women, with 16,103 people directly benefiting from the project. This will result in the consolidation of 971,752 hectares (ha) of biological corridors that provide connectivity between PAs and forest remnants in production landscapes; the improved conservation of Key Biodiversity Areas and 14 PAs; the capture of 470,601 tCOz-eq through forest rehabilitation, reforestation, and agroforestry systems through the use of landscape management tools in 6,000 ha; and the reduction of about 20% of forest fires and 70% of firewood consumption and greenhouse gas emissions in the prioritized landscapes, among others. The project will have a duration of 7 years with a total investment of $ 13,286,697 USD that will be provided by the GEF.*
- *GEF Protecting Biodiversity and Recovering Ecosystems[38]:This GEF project (GEF ID 10220) is supported by UNDP and FAO as GEF agencies. The objective of the project is to promote the conservation of biodiversity through better connectivity, threat reduction and improve the effective management of protected areas and biological corridors in Northern Honduras. This will be achieved through four interrelated components that will allow the development of an enabling territorial governance framework for the conservation of biodiversity and improvement of ecosystem connectivity, promoting the conservation of biodiversity and improvement of connectivity between protected areas and landscapes of production, incorporate biodiversity conservation and sustainable land management practices into production landscapes, and document and share lessons learned and knowledge for replication in other conservation and production landscapes. This strategy will generate global environmental benefits including 295,398 hectares (ha) of terrestrial protected areas under better management for their conservation and sustainable use, 30,000 ha of vulnerable ecosystems and restored degraded lands, 31,432 ha of productive landscapes under improved practices, and the presence of key species such as the jaguar (Panthera onca) and the Central American tapir (Tapirus bairdii). In addition, it will benefit 26,400 people (women: 9,700; men; 14,700; indigenous: 2,000) directly. The project will have a duration of 7 years and a total investment of USD 109,302,248, of which USD 9,863,948 will be provided by the GEF (USD 8,137,464 administered by UNDP and USD 1,726,484 administered by the Food and Agriculture Organization of the United Nations [FAO]).*

[35] *Project Details | IADB*
[36] www.bcie.org/novedades/noticias/articulo/solucion-innovadora-de-financiamiento-para-adaptacion-al-cambio-climatico
[37] *info.undp.org/docs/pdc/Documents/HND/PRODOC GEF6.pdf*
[38] *Project Document - Deliverable Description (undp.org)*

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- *Euroclima in Honduras[39]: initiatives related to i) Climate policy actions. ii) Euroclima+ projects in Honduras. Central America Resilience promotion, risk management: Capacity Building for Flood and Drought Disaster Risk Reduction and Resilience Promotion in Central America. Forests, biodiversity and ecosystems Communities, forests and biodiversity: promoting dialogue, exchange and forest value chains to adapt and mitigate climate change. Forests, biodiversity and ecosystems Improving the governance and management of land use to address the causes of forest loss and degradation and increase in carbon stocks in Honduras and Peru. Forests, biodiversity and ecosystems Forests, biodiversity and community development: strengthening the national management of Protected Areas in Guatemala and Honduras.Resilient food production Local policies and mechanisms for articulation and implementation of public-private partnerships Climate-smart agriculture Climate-smart family farming with an integrated watershed management approach. iii) Multi-country climate policy actions with Honduras. iv) Regional actions.*
- *With all these projects, synergies and the required inter-institutional coordination will be sought, depending on their lines of action and relevant aspects.*

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G. Knowledge management and dissemination of learned lessons

Much of the climate change information, at present, is managed in disparced and non-integrated fashion. In order to create an environment of adaptability, such information need to be precessed and distributed according to stakeholders needs. Wether the user is a farmer, government official at the local level, or a park ranger, such mechanisms need to be effective, relevant and timely. Knowledge management is necessary and important in the execution of the project; therefore, it will be a priority to periodically document each of the learning and processes undertaken to count with the necessary evidence for the knowledge and dissemination process. Likewise, actions will be carried out that capitalize on these learnings, thus allowing the multiplication of knowledge and the generation of sustained processes of debate that address the structural problems that affect the population of the Sierra del Merendon before climate change adaptability. During the execution of the project, there will be a flow of information for families, community leaders, local organizations, municipal governments, academia and the private sector as follows:

- *Each lesson learned that can be replicated with other populations and stakeholders will be systematized and documented.*
- *Each quarter, meetings will be held with the different actors of the project, to analyzed the lessons generated in the development of the different processes.*
- *During all training events, there will be sections to raise awareness about climatic effects in the Sierra del Merendon and how to promote resilience and adaptability.*
- *At the level of the project team, spaces for continuous and systematic analysis will be generated on the practices to be carried out and, in this way, allow the design of action plans that disseminate and enhance the processes and results generated.*
- *The practices of other organizations and countries that are implementing similar projects will be considered in order to consider successful experiences in the project execution, mainly those that are linked to actions to adapt to climate change.*
- *Information will be disseminated through institutional portals/social networks (facebook, instagram, twitter, website), on good practices, technological innovation as an element in the environmental management model and adaptation to climate change, which the project is generating through the different actions carried out.*
- *A bulletin will be generated every quarter to be shared with the population involved in the project and other interested parties.*
- *Short videos with educational messages will be recorded to raise awareness of the population for the care and protection of the Sierra del Merendon.*
- *With these actions, the knowledge management component will generate, monitor and manage a multidisciplinary management of local, national and regional knowledge that fosters a virtuous cycle of learning and detect the challenges that allow continuous improvements, both internally and externally. It will be necessary to carry out the following strategic activities:*
  - *The creation of a platform between community structures, local governments, academia and the private sector for the generation of knowledge and learning.*
  - *The organization of effective early warning networks for the prevention and awareness of the threats*

[39] *EUROCLIMA+ is a program financed by the EU - Honduras (euroclimaplus.org)*

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generated by climate change in the municipalities of the Sierra del Merendon.

- *The installation of a tourist corridor with information and attention stations for visitors to raise awareness about biodiversity and climate variability in Sierra del Merendon.*

It also creates spaces and opportunities that allow the development of a better-informed community, more willing to participate in the territorial activities around climate change adaptation, as well as engage in the implementation processes of the National Plan for Adaptation to Climate Change. Accords will be pursued with school, universities, and civil society organization for information sharing sessions on the differet aspects that impact the Cordillera del Merendon in relation to climate change adaptation, and measures to be taken. These sessions can be supported by the development of a series of photo-video docuementaries related to climate change impact on the territory, and adaptation practices put in place, among others. i) multi-stakeholder dialogues with all relevant partners, on climate risks and adaptation options, can be set in place throughout the year at different locations of the corridor. ii) open seminars on regional adaptation policies and intiatives for result dissemination can be held with local government officers and media within the corridor.

H. **Consultation process**

CASM has been developing an accompaniment effort in the municipalities that are located in the Sierra del Merendon (Choloma, Omoa, Puerto Cortés, San Pedro Sula and Quimistán), executing different processes with men and women, belonging to community, municipal, and academic structures. and private sector; what allows him to understand the social, economic, productive, cultural dynamics, to know in depth the problems that affect them; Therefore, the information required to prepare this concept note has been generated by local actors in different ways:

- Field visits and meetings with community leaders and key stakeholders; These have facilitated decision-making, due to their concern for the different changes generated and produced in the Sierra del Merendon. - Analysis within CASM, which has allowed to visualize the different contexts, alliances, climatic scenarios and risks that the populations of the Sierra del Merendon are exposed, which supports the approach that will be carried out in the Sierra; two investigations were also carried out:

1. A study[40] on environmental impacts in the Sierra where communities, public and private institutions were consulted, of the 5 municipalities located in the Sierra del Merendon, the study provided the different problems with respect to climate change, highlights the environmental and social impacts, product of anthropogenic and social activities, which are affecting the natural balance and the impacts on the availability of resources in the face of continuous population growth and that it is urgent to address them comprehensively to reduce climate variability.

2. A survey was applied to the different key actors that are part of the community leadership (13 people) and public servants (12)[41], to know different aspects, their knowledge, interests and needs; consulting two main topics, the practices developed in reference to the care and management of the Sierra del Merendon as the forms of community and municipal governance; reflecting the following findings:

a. Most of the interviewees (public servants) 71% stated that there is a territorial development and management plan for the Merendon mountain range, however, only 50% of the measures contemplated in it are being applied to mitigate the different threats present in the Sierra; the obstacles for the application of the measures in a 100%, stands out the lack of financial resources in the first instance, followed by personnel and logistics; being this an opportunity for the project that allows coordination between different actors present in the Sierra del Merendon.

b When asking the community leadership if they have participated in the construction of the plan, it is striking that 71% said they did not participate. However, 43% report that there was participation of women in the preparation of the territorial plan, a situation that can be used to continue promoting the equitable and equal participation of women in these development processes.

c The consultation also allowed the community leadership to learn about the current and most recurrent threats in the Sierra del Merendon, being in the first place landslides followed by forest fires, and the extension of the agricultural frontier, arguing that this has caused crop losses, housing, damage to road infrastructure,

[40] https://drive.google.com/file/d/1W9iw2ivYQEizNG4zZBs2EZjSfP_0L7cn/view?usp=sharing

[41] https://drive.google.com/file/d/1I40_-t-5Z4SCTf4ff64MZryyzIIPI_QC/view?usp=sharing

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basic services and therefore economic losses. In order to face these threats, people expressed that as measures they have developed their community risk / emergency management plans, this being a tool that facilitates work in the community.

d. *In reference to agricultural practices to protect the Sierra del Merendon, 79% of the interviewees stated that families carry out practices and the most used is reforestation, followed by productive diversification; however, there are few practices to avoid landslides and the extension of the agricultural frontier. They are also aware that the practices have helped many to prevent the effects of climate change.*

e. *An important finding is that 50% of those interviewed stated that climate hazards affect women and men equally; however, the other 50% argument that they affect differently; this being something important to be able to work on gender considerations in the face of climate vulnerabilities.*

I. Justification of Required Funds

The funding requested from AF for the execution of the project will allow to fulfill a gap in project execution in the area, since no real territorial planning using available technology and geographic information system are present in none of the current projects executed in the Merendon region, nor there is a real integration of the adaptation measures, productive activities, and conservation necessities and water production. Although in the area there are projects with could be complementary and create synergy, most of them do not have the approach of adaptation to climate change: it is necessary to work with the local governments, civil society and the private sector so that their actions and development and risk management plans identify the impacts of climate change and make adaptation actions visible.

Another important aspect is that the few actions aimed at adaptation are developed by the actors without considering the Cordillera de El Merendon as an integral system, the proposed project seeks that the actors of the five municipalities make visible the conditions of the mountain range and how their individuals actions affect the system and define joint actions for the adaptation of climate change, translating it into a territorial plan.

Working with women, youth and men in a Family oriented approach, in the identification of impacts of climate change and the strengthening of adaptation measures in their productive activities is an aspect that was incorporated and that requires investments in practices and technologies with the adaptation approach.

Likewise, knowledge management is very important since other projects are weak in the generation and multidisciplinary management of local-regional knowledge, as well as in technological innovation; The project will also invest part of its financial resources, considering that it is essential that the population and different actors are strengthened to generate this knowledge and also to raise awareness of the impacts of climate change in their territory and the adaptation measures that can be built.

Co-financing for this project is not planned, but CASM will look for additional resources to continue with the activities started by this project after AF financing has concluded.

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J. Sustainability construction

The project has been designed with an approach that will allow the expected results to generate a multiplier effect (impact) and be able to be sustained in time with mechanisms that the different social actors involved, appropriate, enact, and defend before public and private entities. For this purpose, it is considered to develop the components with a sustainability approach.

In Component 1, the project will work with a number of land use plans (local governments, institutions, and organizations) to incorporate climate change considerations and adaptation measures in the Merendon Region. The project includes the transfer of focused information and results of geographical analysis about climate impacts on water (regulation), soil, forests, and biodiversity to local institutions (municipalities), community organizations, and other stakeholders as a basis for more effective natural resource management. Furthermore, concertation of efforts and initiatives of the different key actors in the territory, public-private alliances, can guarantee effectiveness and sustainability of any adaptation measure and/or plan.

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In Component 2, the project will induce a transformational change with training sessions, development of best agricultural practices (sustainability) and income increase, because the strongest threat to sustainability is

poverty.

In Component 3 the project will compile lessons learned and success case studies to be an input in future initiatives.

Perhaps one of the most complex elements to address, in a project or program related to climate change, is to secure climate adaptation sustainability. In part because the consecuences and events created by climate change are unpredictable (such as hurricanes, floodings, contamination), in terms of time and location, while others take longer time to see their presence felt (soil erosion, glacier liquidification). In addition to such complexity, it is necessary to take into consideration that efforts to reach climate adaptation sustainability are materialized in an also variable context, impacted by political, social, economics and cultural determinants. Still, such complexities can be approached as opportunities toward an evolving process of community resilience development, as well as to increase capacities to address climate change adaptation at the local and regional government levels. This is the approach that the present proposal is looking to pursue.

According to some studies there are certain principles that can be considered in order to achieve such sustainable adaptation (Ericksen et al 2010).

#1. - Recognize the context for vulnerability, including multiple stresses.

#2. - Acknowledge that dfferent values and interests affect adaptation outcomes.

#3. - Integrate local knowledge into adaptation response.

#4. - Consider potential feedback between local and global processes.

There are different ways to view adaptation. One can use cuantitative or determined measures as a way to seek sustainability. Also, another methodology is setting up of plans that can be evaluated in terms of results and time period.

In the present proposal, climate adaptation sustainability is approached as a dynamic process. An evolving process which takes into consideration the elements in the principles mentioned above, as well as the present situational state of the citizen organitzations and territorial government capacities. It is understood that without strengthening of the communities, the increased capacities of the local governments, to mention two of the key stakeholders of the proposal, no plan or activity will be able to be sustainable.

As the same publication state: “Sustainable adaptation can be defined as a set of actions that contribute to socially and environmentaly sustainable development pathways, including social justice and environmental integrity”.

The reason why the components of this proposal will be sustainable is essentially because of their goal to increase climate change adaptation is the elements of context, the empowerment of the communities, and the increased capacities of the local and territorial government institutions, to carry on the activities and improved policies that can make real the National Plan on Climate Adaptation in the Cordillera del Merendon.

Territorial planning and governance component for adaptability to climate change

It is planned with the different community and municipal organizations of the five municipalities, to consolidate the Forestry Advisory Councils at the community, Municipal and Regional level, which must be articulated to the National instance and protected by Legislative Decree 98-007, of the laws Honduran, which establishes that this is an instance of citizen participation, consultation, agreement and coordination of the actions of the public sector and of private and community organizations involved in the protection, use and conservation of forest areas, protected areas and life wild.

With the Advisory Councils of each Municipality, advocacy will be made before decision-makers at the public level, to create consensus, agreements, Municipal ordinances, as well as the approval of public policies at the local level, so that the benefits generated in the framework of development of the project, is maintained over time and that good practices transcend to other geographical areas of Honduras.

The strategies to be developed within the framework of this project will seek for community organizations to achieve organizational strength, to adopt innovative mechanisms and adaptation technologies to reduce their vulnerabilities to climate change, and it will be done through the introduction of effective training and learning

models. for the strengthening of governance with a territorial approach, articulating the five local governments and linked to the My Environment 2012-2026 strategy of Honduras.

This component constitutes an important element for the profitability of the project since it is expected that the resources invested in the participation of different local actors (local governments, civil society structures, private sector, academia) will be multiplied in the achievement that the plans and budgets of these actors including adaptation actions for climate resilience in accordance with the objectives of the project, the country and the AF.

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Component for the implementation of agroecological practices for adaptation to climate change

For the production of livelihoods in the communities where the project will cover, they will promote agroecological practices of adaptation to climate change, replacing traditional harmful agricultural practices with conservationist technologies. For this process to be sustainable, the theoretical and procedural training contents will be designed and implemented in such a way that the families and organizations involved adopt as a productive culture, under adaptation technologies, combined with ancestral knowledge favorable to the environment that are part of the social fabric. productive, of the families settled in the Sierra del Merendon.

Knowledge management on adaptation to climate change.

The project plans to generate knowledge about the climatic variety and adaptation to use it during the implementation and for decision-making and management of the Sierra del Merendon, once the execution period has ended. For this purpose, all community, public and private actors will be articulated with an active participation of the academy through the generation of studies. Among other processes that are intended to be developed are:

1. Throughout the coverage area of the project, (the Sierra del Merendon in the municipalities of Omoa, Puerto Cortés, San Pedro Sula, Choloma and Quimistan) access routes will be made that allow observing the environmental degradation that affects climate change. In these access routes, information stations will be established on climatic variation, adaptation actions so that visitors can be sensitized and disseminate information at the population level of other areas, and the respective lobbying will be made to ensure that these routes are assumed by each municipality, so that they give it maintenance and that improvements are gradually implemented.

2. To ensure that the local governments will assume the responsibilities of following up on the results generated by the project, with the Forestry Advisory Councils it will be managed so that the Municipal Corporations approve as part of the budget, financial resources to invest in the maintenance of the stations. of climatic information of the mountain range. In addition, this local initiative will be accompanied by the organizational structures at the community level, who will carry out surveillance work aimed at ensuring that the infrastructure work is maintained for the purposes that have been established.

3. As part of the sustainability in the development strategy of the project, it is planned to make a link between community actors, Municipalities and Universities, to carry out studies in the Sierra del Merendon. These investigations will be carried out to disseminate information through the mechanisms that are going to be created and to have scientific data that allow incentives to environmentalist and protectionist investors to channel resources and adaptation projects to climate change in the Sierra del Merendon).

K. Relevant risks and impacts

The project in all its stages will be designed and implemented under a focus of action without damage and thus reduce the probable negative socio-environmental risks that could result. Each activity that is undertaken at the community level, a participatory environmental risk assessment will be applied, with close consultation with the beneficiaries, including the most vulnerable groups and key stakeholders, and it will be done by applying the CEDRA methodology, to combine scientific information with knowledge. ancestral in decision-making.

Due to its conservationist approach and adaptation to climate change, the project is classified as medium risk or category B that is why an environmental and social risk assessment will be

developed according to AF guidelines., and it is not considered that there will be negative effects as a result of the processes that are going to be undertaken. However, a rapid evaluation has been carried out taking as a parameter the 15 environmental and social principles of the adaptation funds established in the environmental and social policy of the Adaptation Fund, which will serve as a guiding guide in the implementation of the activities.

Next, a list on rapid assessment taking as a parameter the 15 principles of the adaptation fund.

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Compliance with the Law		It will act in strict adherence to the Honduran environmental and climate change legal framework, which implies that the actors involved will observe the laws described above and will make the respective consultations to the public authorities with the legal power for this purpose and apply the advice received.
Access and Equity		This risk is considered low or null, because the project will be highly participatory in the community and will guarantee that for no reason inequality and lack of equity will deepen. On the contrary, equitable access to services will be promoted, and that, for any historically violated and marginalized group, this will be an opportunity to include and empower them.
Marginalized and Vulnerable Groups		This risk is low or null, since families that are part of marginalized groups, especially women, older adults, the project in their management will consult them and they will be involved in decision-making and will participate as a priority in services and everything. benefit emanating from the implementation. The marginalized or vulnerable groups that are present in the area are: 1. People in displacement: the area is the highest in human mobility in the country, there are high rates of internal migration and migration out of the country that cannot reach their main destination in the USA and are deported. No adverse effects of the project are seen with this group. 2. Women: more than 50% of the

		population are women, many incorporated into the productive sector since the area is a highly industrialized area, but also in more rural areas there are many women housewives and others involved in agriculture. 3. Children / youth: high violation of rights of this group, with the pandemic there is an even greater exclusion from the educational system, there is a high percentage of young people who neither work nor study. 4. Older Adults: there is a large number of this group in charge of grandchildren due to migration, and they are the ones who are most involved in agricultural activities. CASM has institutional policies consistent with the Environmental and Social Policy of the AF that establish how to address these groups and not deepen inequalities, these policies are: Child Protection Policy, Gender Equity Policy and Policy for the Protection of Vulnerable Adults. In addition, it will be used to sensitize the entire community about the need to serve these groups, to understand and analyze the challenges experienced by them to access specific services, such as climate information, financial products, supplies, etc. And the ways to extract this information will be through a combination of household surveys, focus group discussions, and community consultations at general meetings.
Human Rights		This risk is low or null, since an analysis has been carried out and it is preliminarily determined that this project does not violate any pillar of human rights under any circumstances and is consistent with the Universal Declaration of Human Rights and other international instruments. Honduras is a signatory to the Universal Declaration of Human Rights, and the most fundamental aspects are retaken in the Constitution of the Republic, however, in the universal periodic reviews broad recommendations are established to improve the application of the SDGs and other aspects of the system of human rights of the country. At the request of the Honduran State, an office of the United Nations High

		Commissioner for Human Rights operates. However, in the implementation process, the respective monitoring will be carried out to ensure that it is fully complied with.
Gender Equality and Women's Empowerment		This risk is medium since the project will be implemented in a context where gender inequality prevails, therefore, greater efforts should be made to ensure that project activities contribute to gender empowerment. This project will develop a series of actions in accordance with the FA Gender Policy, although a gender analysis is already done in this document, it is important to deepen these analyzes before developing the full proposal. Among the actions, the leadership of women in governance processes and decision-making power for adaptation to climate change and food security will be promoted. Through specific consultations with women, the design and implementation of the project will ensure that gender considerations are mainstreamed. Both women and men will participate equally and lead inclusive spaces for participation and decision-making. During the final project formulation, a gender assessment will be conducted to ensure that the project also effectively responds to the unique needs of women and girls and promotes gender equity. In addition, each activity planned within the framework of the project will be reviewed to see if gender equity considerations are reflected in the work scripts. Article 2 of the United Nations Framework Convention on Climate Change should be considered
Core Labour Rights		This risk is low or null, since it will be guaranteed that the executing organizations and those that coordinate with the project maintain respect for national labor laws and international standards of the ILO, for which permanent communication will be established with the Secretary of Labor and thus receive advice. The right to freedom of association will be fulfilled with the organizations that will execute and are in coordination with the project.

		The labor relations that are necessary on the part of CASM and the organizations executing the project are guaranteed to be free from discrimination and forced labor. The project, as it is mystique of CASM, will not hire minors and will guarantee that none of the executing organizations and with whom they coordinate will do so, likewise in the communities they will seek to raise awareness about the worst forms of child labor.
Indigenous Peoples		This is a low or non-existent risk, since in the communities of the Sierra del Merendon there are no indigenous groups settled except for a few families that have emigrated from other than the country. However, in the activities to be carried out, consultations will always be made about this particular group and thus take the appropriate measures, regarding the respect for the integrity of the indigenous people, if any.
Involuntary Resettlement		In this regard, the risk is nil, because the project will not lead to resettlement, on the contrary, it will try to ensure that the families that are already settled in these communities learn new production techniques and that, combined with their ancestral knowledge, they will be able to establish a culture of generation of livelihoods, under conservation mechanisms.
Protection of Natural Habitats		Low risk. By implementing activities for sustainable land use, conservation and restoration, and integrated water management, the project will ensure the protection of natural habitats. Additionally, consultations with government stakeholders, community leaders, and communities will ensure that discussion or degradation of critical natural habitats (including those that are legally protected, officially proposed for protection, recognized for their high conservation value or recognized as protected by traditional norms or indigenous local communities) is avoided.
Conservation of Biological Diversity		This risk is low or zero, as the project will not generate significant greenhouse gas emissions and will not contribute to climate change in any other way. All the components and activities of the project contribute to

		increasing local capacities to sustainably face long-term climate change and short- and medium-term climate variability. The project will not introduce any agrochemicals for agricultural production, all inputs will be organic and, as far as possible, locally produced.
Climate Change		This risk is low or zero, as the project will not generate significant greenhouse gas emissions and will not contribute to climate change in any other way. All the components and activities of the project contribute to increasing local capacities to sustainably face long-term climate change and short- and medium-term climate variability. The project will not introduce any agrochemicals for agricultural production, all inputs will be organic and, as far as possible, locally produced.
Pollution Prevention and Resource Efficiency		In this principle there is no risk, since the project will not release pollutants. Energy efficiency, minimization of the use of material resources and minimization of waste production will be integrated into the project design. In addition, all the management will be done, so that the same producers and producers generate their own fertilizers under one hundred percent organic mechanisms.
Public Health		This risk is low since in the different community actions a risk assessment will be applied through the application of the CEDRA methodology, this will help the interventions to be without damage to health, taking all the precautionary measures of the case to safeguard physical health and mental of the families that are reached by the project.
Physical and Cultural Heritage		This risk is low or null since the project is highly participatory, in the consultations that are made and the commitments that are assumed, it will guarantee that any physical or cultural heritage in the area of implementation of the project, damages or possible negative impacts are avoided. On the contrary, if some physical infrastructure works remain in the execution, the information will emphasize that this belongs to the community and that it must take care

		of it as its patrimony.
Lands and Soil Conservation		This risk is low to nil because, although it is true that the adaptation actions that are implemented in the communities, especially for the generation of their livelihoods, could generate some negative impact on soil conservation by not designing them properly or by not being sufficiently informed of these challenges to reduce this possibility, awareness will be raised at all times and all these precautions will be made in the work scripts. In addition, in the permanent monitoring they will be points of focus to make the pertinent corrections in case of finding any aspect that does not contribute to the achievement of the objectives set by the project.

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PART IV: APPROVAL BY THE DESIGNATED GOVERNMENTAL AUTHORITY FOR THE ADAPTATION FUND AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. RECORD OF APPROVAL BY THE DESIGNATED GOVERNMENTAL AUTHORITY.
Provide the name, title, and government office of the designated government authority and indicate the date of approval. If this is a regional project or program, please list the designated government authorities of all participating countries that support the project. Approval letters must be attached as an annex to the project or program proposal.
Liliam Rivera Hipp, Minister os Secretary of State in the offices of Natural Resources and enviroment.
Date of approval: August 9, 2021.,

B. IMPLEMENTING ENTITY CERTIFICATION. Provide the name and signature of the Implementing Entity Coordinator and the date signed. Also provide the name and phone number of the contact person for the project or program.
Coordinator: Nelson Garcia Lobo, Executive Director. February 7, 2022.
Contact person for the project; Suyapa Ucles, + 504 9456-0623. ,

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SECRETARÍA
DE RECURSOS NATURALES
Y AMBIENTE

Tegucigalpa, M.D.C., 09 de Agosto 2021 OFICIO No. UCEMR-DMA-0220-2021

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for Project "Let's Save The Merendon"

As the designated authority for the Adaptation Fund in Honduras, I confirm that the above-mentioned national project proposal is in line with the Honduran government's priorities in implementing adaptation activities to reduce the adverse impacts and risks posed by climate change in the country.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by Mennonite Social Action Comission (CASM).

Sincerely,

SECRETARÍA DE RECURSOS NATURALES Y AMBIENTE MIAMBIENTE+ SECRETARIO DE ESTADO HONDURAS, C.A.

LIC. LILIAM RIVERA HIPP
Secretaria de Estado
en los Despacho de Recursos Naturales
y Ambiente (***MiAmbiente+***)

ADAPTATION FUND

Project Formulation Grant (PFG)

Submission Date:

Adaptation Fund Project ID:
Country/ies: Honduras, CA
Title of Project/Programme: Let's Save The Merendon
Type of IE (NIE/MIE): NIE
Implementing Entity: Comision de Accion Social Menonita (CASM)
Executing Entity/ies: Cuerpos de conservación de Omoa (CCO), FENAPROCACAO

A. Project Preparation Timeframe

Start date of PFG	April 2022
Completion date of PFG	Julio 2022

B. Proposed Project Preparation Activities ($)

Describe the PFG activities and justifications:

List of Proposed Project Preparation Activities	Output of the PFG Activities	USD Amount
Contracting of Specialized Services for the formulation of the proposal	Specialized consultants to direct the process of formulating the complete proposal and organize the documents for AF	$ 16,000
Formation and meetings of the formulation team	Team under the direction of the specialist who establishes and executes a path for developing the complete proposal	$ 2,000
Gender Study	It is necessary to identify how gender relations occur and the participation of women and men in the family, community, productive and political spheres, as well as in the adaptation to climate change. It will identify strategies to incorporate and guarantee gender equity in the project	$ 4,000
Territorial Diagnosis	It is necessary to identify the main characteristics and critical points of the intervention area in the	$ 8,000

	demographic, social, cultural, economic, environmental and political aspects, which will provide more precise information for the definition of the project intervention strategy.	
Study of natural resources use in the Sierra de El Merendon and climatic scenarios	It is necessary to identify the most common uses of the natural resource (water, soil and forest) in the area, who have access to it and the decision-making process related to those resources. Furthermore, develop more accurate climatic scenarios linked to the management of these natural resources in this area, which will allow to have a technical proposal for their efficient and sustainable use and especially an efficient adaptation approach, which must be incorporated into the project strategy	$ 6,000
Socioeconomic and productive study in the Coordillera El Merendon	A study that identifies the productive areas developed, and those that can adopt strategies for adaptation to climate change and environmental sustainability. In addition, identify social structures, their strengths, weaknesses and relationships with local and national authorities. This study should also identify relevant points that make visible the social profitability and the cost-benefit analysis of the intervention.	$ 6,000
Meetings with local authorities and central government institutions	Ensure the participation of local governments and national authorities in the planning and implementation of the project	$ 3,000

Consultations with local actors in Territories	Identification and prioritization of the lines of action of the components and ensure the participation of these actors in the project	$ 3,000
Complete proposal formulation	Proposal document according to the requirements of the AF	$ 2,000
Total Project Formulation Grant		$ 50,000

C. Implementing Entity

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

Implementing Entity Coordinator, IE Name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
Nelson Garcia Lobo, CEO CASM		01/10/2022	Nelson Garcia Lobo Suyapa Uclés	504-9995-0256 504-9456-0623	direccion@casm.hn programas@casm.hn

CGIAR, ASORECH, CASM, ALIANZA BIODIVERSITY-CIAT. 2020. *Manual de Implementación de Prácticas de Agricultura Sostenible Adaptada al Clima (ASAC). Experiencias de los Tesac de Guatemala y Honduras.* Alianza Bioversity Internacional y el CIAT, Programa de Investigación de CGIAR en Cambio Climático, Agricultura y Seguridad Alimentaria (CCAF), Asociación Regional Campesina Ch'orti' (ASORECH) de Guatemala, Comisión de Acción Social Menonita (CASM) de Honduras.

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Meetings with local authorities and central government institutions	Ensure the participation of local governments and national authorities in the planning and implementation of the project	$ 3,000

Consultations with local actors in Territories	Identification and prioritization of the lines of action of the components and ensure the participation of these actors in the project	$ 3,000
Complete proposal formulation	Proposal document according to the requirements of the AF	$ 2,000
Total Project Formulation Grant		$ 50,000

C. Implementing Entity

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

Implementing Entity Coordinator, IE Name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
Nelson Garcia Lobo, CEO CASM		01/10/2022	Nelson Garcia Lobo Suyapa Uclés	504-9995-0256 504-9456-0623	direccion@casm.hn programas@casm.hn