REQUEST FOR PROJECT/PROGRAMME FUNDING FROM THE ADAPTATION FUND

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

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

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

Complete documentation should be sent to:

The Adaptation Fund Board Secretariat
1818 H Street NW
MSN P4-400
Washington, D.C., 20433
U.S.A
Fax: +1 (202) 522-3240/5
Email: afbsec@adaptation-fund.org

EXECUTIVE SUMMARY

"STRENGTHENING CLIMATE RESILIENCE IN LIVELIHOODS AND COASTAL ECOSYSTEMS OF THE CENTRAL PACIFIC OF PANAMA"

The Republic of Panama is at the narrowest part of the Central American isthmus, which is why it has a privileged extension of coastlines to the north and south. Its position and geographical characteristics have been determining, for centuries, for its function of facilitating the transit of goods between the Atlantic and Pacific oceans, and the provision of services related to trans-isthmic transport. In fact, about 5% of the world's maritime trade is facilitated by the Panama Canal, connecting more than 140 maritime routes from more than 80 countries.

Panama has achieved high economic growth; however, it faces enormous challenges in terms of poverty, inequality in income levels, access to basic services and quality jobs (UNDP, 2015). These challenges are exacerbated by the country's vulnerability to the impacts of climate change. In fact, Panama has five characteristics recognized by the United Nations Framework Convention on Climate Change (UNFCCC) to indicate countries particularly vulnerable to climate change: (i) low-lying coastal areas; (ii) areas exposed to floods, droughts, and desertification; (iii) fragile mountain ecosystems; (iv) disaster-prone areas; (v) an economy dependent on the income generated by navigation services and the use of fossil fuels.

The country has an estimated population of 4,278,500 million as of 2020, comprising a political-administrative division of 10 provinces, 5 indigenous regions, 81 districts and 679 townships. The Panamanian Pacific coast is extensive and sinuous, with a length of 1,700.6 km. According to climate projections towards 2050 and 2070, it is expected that the potential impacts in coastal areas of Panama are related to increased precipitation, greater flood events and rising sea levels, mainly affecting mangrove areas, loss of coastline, damage. coastal communities and impact on ecosystems and vegetation adjacent to the coastal system.

The most common threats reported in the Third Panama Climate Change Communication for coastal areas are sea level rise, strong winds, floods, droughts, landslides, and earthquakes. These threats are increased by the occurrence of extreme events produced by the El Niño climate phenomena.

The general objective of this Programme is to increase the resilience of the most vulnerable coastal communities and their livelihoods; communities located in the climate region of the Arco Seco of Panama (from Arraiján to the mouth of the Parita River), and improve the management of high-value ecosystems such as blue carbon sinks in the Central Pacific of Panama, recognizing their value and contribution through the various ecosystem goods and services that they provide to communities and the region.

Specifically, the Programme will be addressing the following objectives: a) improve local and national capacity to respond to climate hazards through the development of effective tools for science-based decision-making, as well as risk reduction systems with an approach based In nature; b) generate greater resilience in vulnerable ecosystems and essential livelihoods, through concrete restoration actions and climate-smart management of marine-coastal ecosystems; productive diversification; and innovation for adaptation; and c) build and improve governance

climate change and the management and appropriation of knowledge on the matter, at the local, regional, and national levels, for the implementation of tangible adaptation and resilience measures to climate change.

The proposed Programme is a direct response to priorities established in the National Climate Change Strategy for 2050, with respect to the coastal-marine areas of the Central Pacific of Panama. Specifically, these priorities respond to the country's need to advance resilience management in the Central Pacific and Arco Seco communities of Panama; introduce adaptation into productive systems that sustain both the local economy and a large part of the national economy; and restoring and protecting fragile ecosystems that support local biodiversity, are livelihoods for food security, function as regulators-protectors of the coastline, and are sinks of blue carbon.

In addition, the proposed Programme aims to promote concrete and tangible adaptation actions with a nature-based approach, diversification in livelihoods, the generation of data that support effective and efficient decision-making in the medium and long term in the face of threats. anticipated climate conditions: and that they constitute a portfolio of lessons learned that allow the model to be replicated in other coastal areas of Panama. To achieve this, a cross-sectional approach is proposed that addresses the links between food security, livelihoods of the coastal population, management and improvement of coastal ecosystems, and the governance of adaptation at the local and national levels.

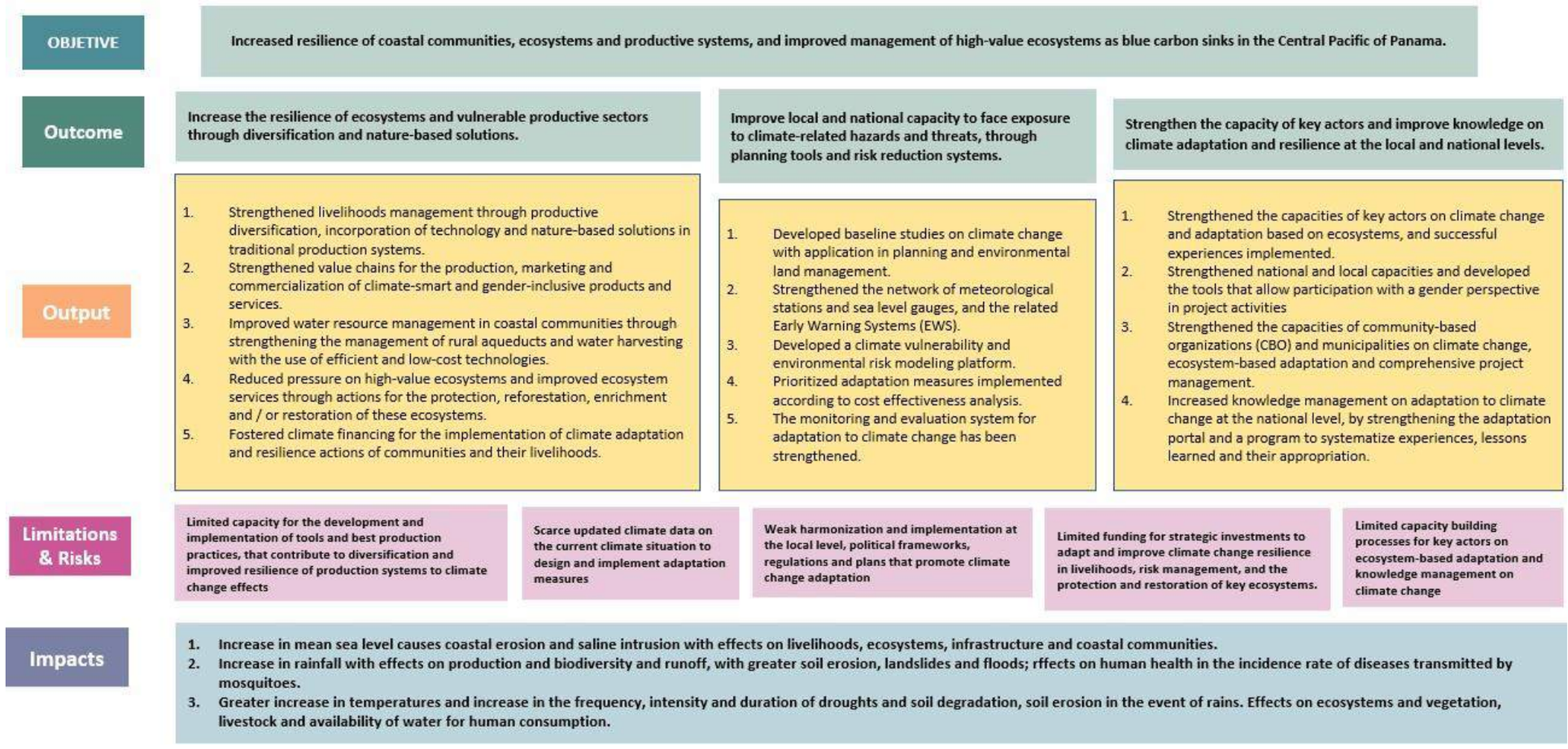
From the national scope, the proposal is aligned and contributes to the achievement of global objectives, such as the Sustainable Development Goals (SDG), the Paris Agreement and the Aichi Biodiversity Targets. They establish measures and encourage the 195 states that are party to the United Nations Framework Convention on Climate Change to establish commitments to reduce greenhouse gas (GHG) emissions through media mitigation, adaptation, and resilience. of life and ecosystems in the face of the effects and impacts of global warming.

The Programme is consistent with:

- National strategies and sustainable development plans such as the National Climate Change Policy (Executive Decree No. 35 of 2007) and its policy of mitigation and adaptation to climate change (Executive Decree No. 100 of 2020 and Executive Decree 131 of 2021).
- The National Climate Change Strategy, which establishes a roadmap with the aim of guiding the country towards a low-carbon economy with mitigation and adaptation actions for sustainable economic, social, and environmental growth.
- The Strategic Government Plan 2019-2024 of Panama framed in objectives and goals agreed upon through a broad participatory and inclusive process called "National Consensus". This consensus includes issues of Environment and Climate Change, disaster risk prevention and management, the promotion of actions that promote gender equality as a basis for a prosperous and sustainable development (SDG 5), among others.

Based on the previous statements, the Ministry of Environment of Panama, designated authority before the Adaptation Fund, endorses the Programme proposal "Strengthening climate resilience in livelihoods and coastal ecosystems of the Central Pacific of Panama", presented by Fundación Natura, National Implementing Entity of Panama.

Strengthening climate resilience in coastal livelihoods and ecosystems of the Central Pacific of Panama



Contenido

GLOSSARY

CATHALAC	Water Center for the Humid Tropics of Latin America and the Caribbean
CEPAL	Economic Commission for Latin America and the Caribbean
CIAT	International Center for Tropical Agriculture
UNFCCC	United Nations Framework Convention on Climate Change
CREHO	Ramsar Regional Center for Wetland Research and Training
ENOS	El Niño - Southern Oscillation
ETESA	Electric Transmission Company
GEI	Greenhouse gases
SAT	Early Warning Systems
FAO	The United Nations Food and Agriculture Organization
PIB	Gross domestic product
BID	Inter-American Development Bank
IDIAP	Research Institute of Agriculture and Livestock of Panama
IMHPA	Institute of Meteorology and Hydrology of Panama
INEC	National Institute of Statistics and Census
IPCC	Intergovernmental Panel on Climate Change
AL	Latin American countries
MIDA	Ministry of Agricultural Development
MIAMBIENTE	Ministry of Environment
SINAPROC	National Civil Protection System

ADAPTATION FUND

PROGRAMME PROPOSAL FOR THE ADAPTATION FUND

PART I: PROGRAMME INFORMATION

Programme Category:	**Full Scale Programme**
Country / countries:	**Panama**
Programme / Programme title:	**"Strengthening climate resilience in livelihoods and coastal ecosystems of the Central Pacific of Panama"**
Type of Implementing Entity:	**NIE**
Implementing Entity:	**Fundación Natura**
Executing entity (s):	**Ministry of the Environment (MiAmbiente), Ministry of Agricultural Development (MIDA), Panama Aquatic Resources Authority (ARAP), Institute of Meteorology and Hydrology of Panama (IMHPA)**
Amount of financing requested:	**US $10,000,000**

Note: The main executing entities are the Ministry of the Environment, the Ministry of Agricultural Development, the Panama Aquatic Resources Authority, among some other executors that will be selected to develop specific products and activities based on the short list (such as Institute of Meteorology and Hydrology of Panama Empresa de Transimisión Eléctrica, S.A. - ETESA; the National Civil Protection System - SINAPROC, Tourism Authority of Panama - ATP, Local Governments) and the public calls for some consulting services that were identified in the budget and in the chart that describes the agreements implementation by product and executing entities.

Project / Programme Background and Context

A. Brief information on the background of the problem to be solved and the general context of the Programme

A1. The Problem

The Republic of Panama is located in the narrowest part of the Central American isthmus, which is why it has a privileged extension of coastlines to the north and south. Its position and geographical characteristics have been determining, for centuries, for its function of facilitating the transit of goods between the Atlantic and Pacific oceans, and the provision of services related to trans-isthmic transport. In fact, about 5% of the world's maritime trade is facilitated by the Panama Canal, connecting more than 140 maritime routes from more than 80 countries. Panama has achieved high economic growth; However, it faces enormous challenges in terms of poverty, inequality in income levels, access to basic services and quality jobs (UNDP, 2015). These challenges are exacerbated by the country's vulnerability to the impacts of climate change. In fact, Panama has five characteristics recognized by the United Nations Framework Convention on Climate Change (UNFCCC) to indicate countries particularly vulnerable to climate change: (i) low-lying coastal areas; (ii) areas exposed to floods, droughts, and desertification; (iii) fragile mountain ecosystems; (iv) disaster-prone areas; (v) an economy dependent on the income generated by navigation services and the use of fossil fuels.

The country has an estimated population of 4,278,500 million as of 2020, comprising a political-administrative division of 10 provinces, 5 indigenous regions, 81 districts and 679 townships. The Panamanian Pacific coast is extensive and sinuous, with a length of 1,700.6 km. According to climate projections towards 2050 and 2070, it is expected that the potential impacts in coastal areas of Panama will be related

to the increase in precipitation, greater events of drought and floods and a rise in sea level, mainly affecting mangrove areas, loss of coastlines, damage to coastal communities and damage to ecosystems and vegetation adjacent to the coastal system.

The most common threats reported in the Third Panama Climate Change Communication for coastal areas are sea level rise, strong winds, floods, droughts, landslides, and earthquakes. These threats are increased by the occurrence of extreme events produced by the El Niño climate phenomena.

According to the document, "according to data from the Ministry of Economy and Finance of Panama (MEF, 2016) coastal areas in Panama are a priority sector for rural areas, in terms of their economic impact and as a fundamental element in the food security of its inhabitants. Fishing is one of the most relevant economic activities that take place on the national coastlines, it is indicated that the contribution of fishing in 2016 was 15,247.9 metric tons, representing a FOB value of 42,958.5 million Balboas. It should be noted that Fishing activity, measured by national exports, fell 4.4%, with the main decrease being perceived in the quantities of fresh, refrigerated, or frozen fish, which constitute 71% of the country's fish exports, also according to to MEF data. On the other hand, the population in the coastal sector of the country is about 128,537 inhabitants approximately, of which the population dedicated to artisanal fishing is around 60,000 inhabitants. Taking into account the geographical and geopolitical situation of the coastal sector with large territories on both coastlines of the country, inhabited by a mostly qualified population within the extreme poverty districts, the aforementioned situation enables a higher risk ratio in the face of adverse phenomena of change climate."

As part of the process of preparing the Third Communication on Climate Change in Panama, various surveys were conducted with residents of the areas studied. In the case of the Central Pacific and the Arco Seco of Panama, it was found that coastal water sources are affected by saline intrusion in the event of floods and high tide events. Faced with this panorama, the vulnerability of the coastal inhabitants and economic sectors is threatened, in the face of changes in climate variability that, year after year, seem to intensify the extreme values of rain and temperature. The main damages reported and associated with climate events were the impact on the housing and communication infrastructures of the fishing communities, such as housing, public buildings, roads, bridges, retaining walls, storm drainage systems, docks, ports, tourist areas. and recreational, equipment and transportation of artisanal fishermen. Likewise, damages caused by landslides, the occurrence of floods and marine intrusion were reported, which affected the permanence and maintenance of productive agricultural and livestock areas, including coastal vegetation, mangroves and associated wildlife. The evidence collected suggests a high exposure of the coastal sector to climatic threats, particularly to the local perception of an intensification of extreme climatic phenomena expressed as sea level rise, strong winds, floods and droughts (which show a greater repercussion at the local level, particularly given the scarcity of rain during dry months).

These threats impose probable serious impacts in aspects such as food security, health, and water security. For this reason, the government of Panama, through the Ministry of the Environment, has defined as a priority the need to increase the resilience of the most vulnerable coastal communities and their livelihoods; communities located in the climate region of the Arco Seco of Panama, and improve the management of high-value ecosystems such as blue carbon sinks in the Central Pacific of Panama, recognizing their value and contribution through the various ecosystem goods and services that they provide to the communities and the region. For this reason, it has designed this proposed Programme that allows: a) to generate greater resilience in vulnerable ecosystems and essential livelihoods, through concrete actions for the restoration and climate-smart management of marine-coastal ecosystems; productive diversification; and innovation foradaptation; b) improve local and national capacity to respond to climate threats by developing effective tools for science-based decision- making, as well as risk reduction systems with a nature-based approach; and c) build and improve climate governance and the management and appropriation of knowledge on the matter, at the local, regional and national levels, for the implementation of tangible adaptation and resilience measures to climate change.

The proposed Programme is a direct response to the priorities established in the National Climate Change Strategy for 2050[1], regarding the coastal-marine areas of the Central Pacific of Panama. Specifically, these priorities respond to the country's need to advance resilience management in the communities of the Arco Seco of Panama; introduce adaptation into productive systems that sustain both the local economy and a large part of the national economy; and restoring and protecting fragile ecosystems that support local biodiversity, are livelihoods for food security, function as regulators-protectors of the coastline, and are sinks of blue carbon.

In addition, the proposed Programme aims to promote concrete and tangible adaptation actions with a nature-based approach, diversification in livelihoods, generation of data that support effective and efficient decision-making in the medium and long term in the face of anticipated climatic threats; and that they constitute a portfolio of lessons learned that allow the model to be replicated in other coastal areas of Panama. To achieve this, a cross-sectional approach is proposed that addresses the links between food security, livelihoods of the coastal population, management and improvement of coastal ecosystems, and the governance of adaptation at the local and national levels.

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[1] *Ministry of the Environment (2019). National Climate Change Strategy 2050. Government of the Republic of Panama. 157 p.*

(GHG) emissions through media mitigation, adaptation and resilience. of life and ecosystems in the face of the effects and impacts of global warming.

The Programme is consistent with:

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A2. General and regional context

General context

Surface: According to the Third National Communication on Climate Change (2019), the Republic of Panama has an approximate area of 74,177.37 km². The Caribbean Sea is located on its North coast, while the Pacific Ocean borders the South coast; to the East it borders Colombia and to the West with Costa Rica. The surface of the territorial sea is approximately 319,823.9 km². The strategic location of the Isthmus and its shape allow it a privileged stretch of coastline. The Pacific coast has a length of 1,700.6 km, being more extensive and sinuous than that of the Caribbean with an extension of 1,287.7 km. From the above, it stands out that Panama has the highest coast / area ratio among the continental countries of Latin America.

Human development and economy: According to the United Nations Development PROGRAMME (UNDP)[2], Panama's Human Development Index is the highest in Central America and one of the highest in Latin America; However, their analysis reflects that there are still shortcomings that must be addressed to promote a more comprehensive and inclusive human development. The Gross Domestic Product (GDP) has shown signs of the slowdown in the economy, varying from 5.6% in 2017 to 3.7% in 2018 and 3.0% in 2019; and GDP per capita during the period it has shown increases of 4.0%, 2.2% and 1.5%, in the years 2017, 2018 and 2019 respectively. There has been no inflation rate for several years. Another indicator to mention is the unemployment rate, which has increased from 6.1% in 2017 to 7.1% in 2019[3]. These figures have undoubtedly varied to the year 2021 according to the impacts caused by the SARS-COV 2 pandemic, the magnitude of which has not yet been calculated with precision.

Regarding rural economies in Panama, they depend mainly on the primary sector as the main source of employment, representing 14.4% of employment at the national level despite their limited contribution to the national economy (2.7% of GDP). Most of the primary producers in Panama are men, only 9% of women (vs 20% of men) are employees of the primary sector[4]. According to FAO, more than 63% of Panama's producers depend on family farming, and this represents 70% of all rural livelihoods in the country[5]. Fishing is also an important activity, not only for the livelihood of the community but also in valuable exports that generated 128 million dollars in 2019[6]. Most of all fisheries exports (commercial fishing) are carried out in the Pacific area, while that the Caribbean area focuses mainly on artisanal fishing for the local market.

Population and gender: Panama has a population of 4,278,500 inhabitants, estimated as of July 1, 2020, of which 50.1% are men and 49.9% are women; By age groups, it is observed that 32.6% of the population are under 18 years of age and 12.4% are over 60 years of age, which are part of the dependent population. By ethnic group, data from the 2010 Population and Housing Census indicate that 12% are indigenous and 9.2% are Afro descendant. Life expectancy in Panama for the year 2020 is 78.7 years, 75.8 years for men and 81.7 years for women.[7]

According to the UNDP (2015), the gender inequality index (developed in 2010 to measure the disadvantages that women can experience compared to men in three dimensions: reproductive health, empowerment, and the labor market), reveals that women face important disadvantages in all the country's provinces and the losses in their human development exceed 54% in all cases. A dynamic of advances and losses in the three dimensions is highlighted; However, the size of the labor market is the only one that shows little variation and, in

[2] United Nations Development PROGRAMME -UNDP (2015). Atlas of Local Human Development. Website: https://www.pa.undp.org/content/dam/panama/docs/documentos/undp_pa_atlas_2015.pdf

[3] Ministry of Social Development -MIDES (2020). II Voluntary National Report of the SDGs. Website: https://sustainabledevelopment.un.org/content/documents/26427Panama_Informe_Voluntario_Reducido_1_reduced.pdf

[4] Ibid

[5] FAO (2019). Review of the family farm. June 2021. Website: http://www.fao.org/3/cb4184es/cb4184es.pdf

[6] SICA, 2021

[7] Ministry of Social Development -MIDES (2020). II Voluntary National Report of the SDGs. Website: https://sustainabledevelopment.un.org/content/documents/26427Panama_Informe_Voluntario_Reducido_1_reduced.pdf

many cases, a tendency to worsen in many of the provinces. On the other hand, the empowerment dimension presents the highest gender inequality, since in no province does it exceed 0.5. Both dimensions require greater efforts to create policies that facilitate access, improve the quality of employment for women, and facilitate their political participation.

Landscape: The Panamanian relief is composed of highlands and lowlands. The highlands constitute approximately 30% of the territory (Storymaps, 2021), while most of the territory (70%) is made up of lowlands and hills less than 700 meters above sea level (including the extensive plains of Chiriquí, Veraguas, the Peninsula Azuero, Coclé and the coastal plains of the Caribbean).

Biodiversity: Panama has high biodiversity (it ranks tenth in the world considering its size). More than 65% of its territory is occupied by primary forest, which places it among the countries with the highest percentage of forest coverage. According to the National Institute of Statistics and Census (INEC)[8], Panama is located in the region with the greatest biodiversity on the planet, among the six known centers of global biodiversity, with high altitude variations that, under tropical climate conditions, they favor a diversity of ecosystems. In addition to the species common to other regions of America, there are between 1,300 and 1,900 species of plants, 23 species of amphibians, 24 species of reptiles, 8 species of birds, and 10 species of mammals that are endemic or unique to the country.

Coastal ecosystems: Panamanian coastlines are also among the most diverse in Central America, with a variety of marine ecosystemsthat include mangroves, estuaries, sandy shores, and 76 different types of coral species, of which 58 inhabit the Caribbean. These ecosystems provide important protection against storms and coastal tides, as well as other ecosystem services for coastal communities. However, these ecosystems and their resources have been seriously threatened by pressure from human activities, including pollution and poor physical planning that has led to the construction of housing and public infrastructure along sensitive coastal areas.[9]

Temperature: According to the INEC[10], due to the low latitudes in which the Panamanian isthmus is located, the climate of Panama is tropical, with a great influence from the movements of the Inter-Tropical Convergence Zone (ITCZ) to the topography, to the location or East-West disposition of the territory and access to two great oceanic masses. As part of the Inter-Tropical zone in the lowlands, temperatures in Panama are characterized by being constantly warm. The annual averages of temperature fluctuate between 24ºC and 28ºC and remain close to these values throughout the year. This regime of constantly high temperatures is a consequence of the low latitudes in which the isthmus is located; at these latitudes the thickness of the atmosphere traversed by solar radiation is less than in the middle and high latitudes and, the incidence of radiation is stronger.

Precipitation: On the Pacific slope, annual precipitation is estimated between 1,500 and 3,500 mm. It is characterized by a rainy season that begins at the end of April and persists until the end of November and its maximums are registered between June and October. Between December and the end of April there is a dry season with an almost total absence of rain. On the Caribbean slope, the uniformity of rainfall throughout the year stands out and in much of the area there is no defined dry season. In this slope the rainfall totals are high or very high, which very often exceed 4,000 mm per year; This is mainly due to the large contributions of humidity supplied by the permanently warm waters of the Caribbean, reinforced by the coastal marine currents.[11]

Climate: The country is particularly prone to climate variability with rainfall and temperature patterns changing with sudden changes from year to year. The impact of El Niño-Southern Oscillation (ENSO) in both its warm and cold phases (La Niña) influences precipitation patterns according to their intensity. The impacts and modification of these climate patterns have an important effect on both the communities and the economy of Panama. According to statistical and meteorological records, since 2004 there has been an increase in the frequency of extreme events in the country, being hydro-meteorological events those that have mainly affected vulnerable ecosystems and populations.[12]

Climate Change: According to the National Climate Change Strategy 2050[13], the climate change scenarios for 6 climate regions of the country use global climate models recommended by the IPCC (see map 1 and map 2). The main effects identified that are associated with climate change include risks from intense summer rains, long and / or more intense periods of drought, as well as rising sea levels. These impacts will result in the flooding of the coastal plains of both coastlines.

The same source points out that these threats already show evidence of negative impacts on sectors of national interest, with clear effects on the availability of water in summer, a greater demand for energy in the face of high temperatures, loss of crops and soils, loss of coastline in the event of storm surges, as well as damage to infrastructure and services. Additionally, the conditions of unequal opportunities to face natural hazards, the distribution of poverty, the need for greater monitoring of works or actions to counteract climatic effects, as well as the challenge of greater coordination among all stakeholders, make the conditions of vulnerability increase and are expressed to a greater extent in the population with limited resources, mostly adults or children in a state of poverty, as well as the need for more basic services and Programmes to strengthen local capacities.

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[8] National Institute of Statistics and Census -INEC (n / d). General geographic aspects of Panama. December 2021. Website: https://www.inec.gob.pa/archivos/P5161Aspectos.pdf

[9] Organización Internacional de los Bosques del Mundo (n / d). Bosque del Mundo en Panamá. Mayo de 2021. Sitio web: https://www.forestsoftheworld.org/programme/panama

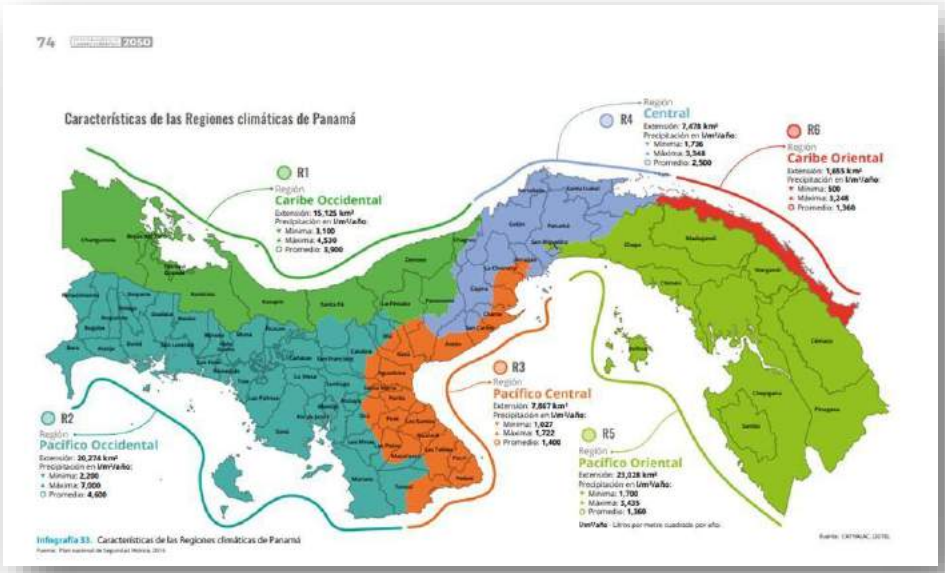
[10] Instituto Nacional de Estadística y Censo -INEC (n / d). Aspectos geográficos Generales de Panamá. Diciembre de 2021. Sitio web: https://www.inec.gob.pa/archivos/P5161Aspectos.pdf

[11] Íbid.

[12] Gobierno de Panamá (2017). Proyecto del Fondo de Adaptación: "Adaptación al Cambio Climático a través de la gestión integral del agua en Panamá. Marzo 2021. Sitio web: https://www.adaptation-fund.org/project/adapting-climate-change-integrated-water-management-panama/

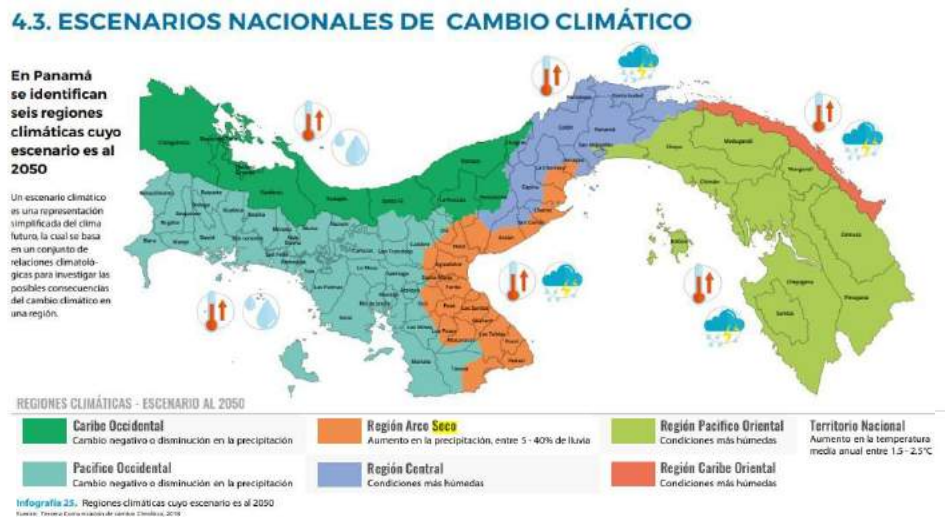
[13] Ministerio de Ambiente (2019). Estrategia Nacional de Cambio Climático 2050.

Map 1. Characteristics of the Climate Regions of Panama



Ministry of the Environment (2019). National Climate Change Strategy 2050. Government of the Republic of Panama.

Map 2. National scenarios of climate change, by climate regions of Panama, to 2050

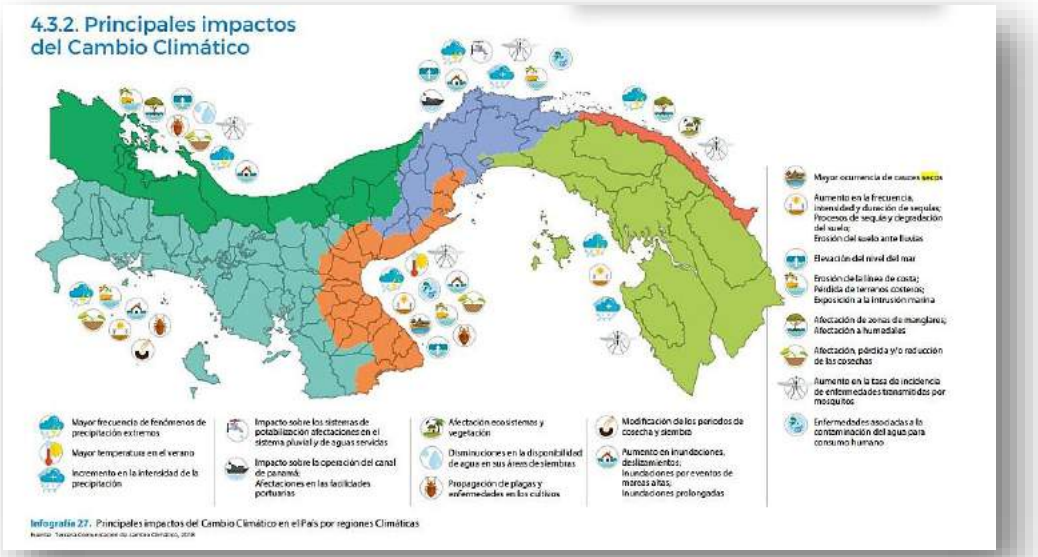


Ministry of the Environment (2019). National Climate Change Strategy 2050. Government of the Republic of Panama

Coastal zones are one of the key national economic sectors for Panama. Among the current threats -from frequent to very frequent- in the coastal areas of Panama are drought, storms, floods, rise in sea level (waves, swells, floods or swell), intense winds and heat waves. Expected threats indicate that current threats are very likely to increase (rainfall deficit of up to 10% and changes in mean and maximum temperature of up to 3 ° C); that it is very likely that the sea level will continue to rise; and that it is very likely that the winds will intensify,

although there is uncertainty associated with this behavior[14]. These threats impose probable serious impacts on aspects such as food security, health, and water security (see map 3).

Map 3. Main impacts of climate change, by climate regions of Panama, to 2050



Source: Ministry of the Environment (2019). National Climate Change Strategy 2050. Government of the Republic of Panama

Sea level rise: According to Kwiecinski, B. and D'Croz, L. (2008)[15], the rise in sea level during the 20th century was approximately 20 cm for the Panamanian Pacific. Furthermore, the statistical analysis indicates that for the Pacific coast of Panama the rise in sea level for each twenty-year period was increasing, varying from 1.70 cm in the first twenty years (1909-1929), to about 8 cm between the years 1988-1999. In conclusion, the statistical analysis projects the rise in sea level on the Pacific coast of Panama by more than fifty centimeters, from the present to the end of the 21st century. On a global scale, the increase in the volume of water in the oceans due to climate warming was more than 15 cm in the last hundred years. Climate change is predicted to cause a sea level rise of about 30 cm by 2050, due to the melting of glaciers and thermal expansion of the ocean's surface layer.[16]

Changes in Precipitation: In Panama, a relative reduction in accumulated precipitation is expected, particularly during the influence of El Niño[16]. The climate change scenarios, according to the Third National Communication on Climate Change, indicate a significant reduction in rainfall towards different time horizons. While a clear picture of annual precipitation change is not yet possible due to large model uncertainties, MCG projected changes in national dry season precipitation from -7% to + 7% by 2020, -12% to + 5% for 2050 and -20% to + 9% for 2080. This implies that the future climate will increase the variability and intensity of extreme events.

According to one downscaling study (PRECIS), extreme precipitation events (more than 40mm per day) are expected to increase by up to half in the A2 emissions scenario.[17]

Increase in Temperature: The climate change scenarios for Panama point to a potential increase in temperature with changes in recent years that already show an increasing trend despite climate variability (data for the period between 1950 and 2006 and according to scenarios A2 and B2 on climate change[18]). Specifically, this increase is projected for 0.5 ° C at 1 ° C and 1 ° C at 2.5 ° C, respectively for the scenarios. The change tends to be most evident in the central and western provinces, including the province of Panama. For the years close to 2050 and especially to 2080, the temperature, under scenario A2 shows values of 1.5 ° C to 4.5 ° C, while under B1, it will increase only between 0.7 ° C to 2.6 ° C for the same period.

[14] *Idem.*

[15] *Kwiecinski, B. and D'Croz, L. (2008) climate change and its projection on sea level on the Pacific coast of Panama, Tecnociencia, 10 (2), pp. 95-101. Available at: https://revistas.up.ac.pa/index.php/tecnociencia/article/view/850 (Accessed: December 23, 2021).*

[16] *Ministry of the Environment (2019). Third National Communication on Climate Change of Panama. Government of the Republic of Panama. 232 p.*

[17] Vulnerabilidad, Reducción de Riesgos y Adaptación al Cambio Climático, Panamá. Perfil de país de adaptación y riesgo climático. Banco Mundial. 15 p.

[18] Autoridad Nacional del Ambiente (2012). Segunda Comunicación Nacional de Cambio Climático de Panamá. Gobierno de la República de Panamá. 158 p

Regional context

The national climate change strategy 2050 (MiAmbiente, 2019) has identified 6 climate regions in the country[19]. The proposed intervention area for the Programme is centered on the central Pacific climate area (from Arraiján to the mouth of the Parita River), made up for the most part by the so-called "Dry Arch". This zone includes areas in the provinces of Panamá Oeste, Coclé and Herrera (see map 4).

Economy: The economy in the provinces of Coclé, Herrera and Panamá Oeste depends on the sectors of agriculture, livestock, forestry, and the fishing sector, which have gradually decreased in recent years due to climatic consequences. The GDP for the province of Coclé is 2.5%, for Herrera it is 1.3% and for the province of Panamá Oeste it is 6.2%.[20]. In the Chitré district, 3.95% of the economically active population is concentrated in the primary sector in activities such as agriculture, livestock, hunting and forestry; 9.38% are employed in the manufacturing industry; 9.32% work in construction; and 23.60% is dedicated to commerce and provision of services.

Coclé - Statistics from the Office of the Comptroller General of the Republic show that Coclé's GDP is distributed in the tertiary sector (55.4%), secondary sector (36.3%) and primary sector (24.3%). The relevant economic activities in these sectors are government; agriculture, livestock and forestry; Hotels and restaurants; transportation, storage and communications; and wholesale and retail trade (9.6%).[21] The tourist potential is evidenced by its contribution to GDP and the diversity of hotels on the beautiful beaches of the Pacific coast and the large number of tourists. Mainly in the Antón district, there are important hotels with international fame such as: Decameron, Playa Blanca, Buena Ventura, Sheraton, Riu Playa Blanca and Bijao. In this sense, it is important to highlight that these hotels contribute directly to the employment of the region, since they represent many jobs that improve the economy of the province. On the other hand, support for agrotourism farms is growing, generating economic benefits to the community, however, salary inequality persists in the Coclesan labor market, for equal work women do not receive equal salary.[22] The province of Coclé is recognized for being one of theregions of the country with the greatest development of aquaculture activities (shrimp production) distributed along the coast. This activity is also important in generating jobs. As for artisanal fishing, this is carried out mainly by residents of coastal areas, as a subsistence activity. The districts of the province with the greatest presence of this are the districts of Antón and Aguadulce within the study area.[23]

Herrera - In this province, in the Monagrillo area, its main economic activities revolve around livestock, agriculture, pig farming, trade and fishing, aquaculture concessions. In the Boca Parita area and in Llano Bonito there are trade, fishing, aquaculture concessions, salt mines and pig farming.[24]

Panama Oeste - In this area there is an important industry for the processing of fishmeal by Promarina S. A., around Puerto Caimito and the growing industrial development of different companies that produce many manufactured products. Agriculture, livestock and fishing are the most important primary activities in the province. Additionally, in the towns of Veracruz, Puerto Caimito and Vacamonte, where a port with great fishing activity is located. In this region there is an economic boom with the opening of shopping centers, supermarkets, warehouses, restaurants and banks, which respond to the demographic growth of these towns as bedroom cities of the capital. In Veracruz, Chame and San Carlos the tourist industry develops, with various beach hotels. In Capira and Chame, ecological tourism is developed, especially in the mountainous areas of the Campana National Park.[25]

Population: The population according to the 2010 census[26] in the proposed Programme area is distributed as indicated in table 1.1. See map 4 and map 6.

Table 1.1 Population by disctrict and township in the programme area

Province	District	Township	Inhabitants	Province	District	Township	Inhabitants
Panamá Oeste	San Carlos	San José	2,703	Coclé	Antón	Río Hato	13,676
		Higo	2,700			El Chirú	3,502
		La Ermita	1,564			Juan Díaz	2,634
		Las Uvas	1,578			Antón	9,736
		San Carlos Cab.	3,431		Natá	Natá Cabecera	5,974
	Chame	Chame Cabecera	2,392		Aguadulce	Barrios Unidos	9,337
		Nueva Gorgona	3,978			El Roble	8,276
		Las Lajas	3,296	Herrera	Chitré	Monagrillo	12,324
		El Líbano	200			Llano Bonito	9,713
		Punta Chame	421		Parita	Parita	3,723

[19] Ministerio de Ambiente (2019). Tercera Comunicación Nacional de Cambio Climático de Panamá. Gobierno de la República de Panamá. 232 p.

[20] Contraloría General De La República. Instituto Nacional de Estadística y Censo (2019). *Producto Interno Bruto Provincial, a Precios Corrientes y en Medidas de Volumen Encadenadas Con Año de Referencia* 2007: años 2016-19

[21] Luzcando V., Viedma E. (2017) *Evolución de la economía de Coclé: modelo educativo de género y ecoturismo.* Guacamaya, 1. 85-94. ISSN 2616-9711

[22] Recopilación de información elaborada por las regionales de Herrera, Coclé y Panamá Oeste del Ministerio de Ambiente (2021).

[23] Idem.

[24] Ibidem.

[25] Ibidem

[26] Instituto Nacional de Estadística y Censo (2010). *Censo Nacional de Población y Vivienda 2010*. Contraloría General de la República de Panamá.

Province	District	Township	Inhabitants	Province	District	Township	Inhabitants
	Capira	Sajalices	2,280			París	1,070
		Cermeño	1,917				
	La Chorrera	Puerto Caimito	16,901				
		Playa Leona	8,236				
	Arraiján	Vista Alegre	55,143				
		Cerro Silvestre	23,311				
		Veracruz	17,982				
	Total						**227,998**

Human development: Regarding the IDH, in the proposed intervention area the results are indicated in table 1.2.[27]

Table 1.2 Human development

Province	District	HDI[28]
Coclé	Antón	0.689
	Natá	0.712
	Aguadulce	0.780
Herrera	Chitré	0.803
Panamá Oeste	San Carlos	0.723
	Chame	0.739
	Capira	0.659
	La Chorrera	0.765
	Arraiján	0.798

Risk factors: the climatic risks for the population in the provinces of Coclé, Herrera and Panamá Oeste include (i) the rise in sea level (see map 5); (ii) saline intrusion; (iii) coastal erosion and (iv) the increase in extreme events such as severe storms and droughts. It is important to note that the most evident effects of coastal erosion, related to the rise in sea level, are evident on the coastlines of the Antón district, specifically in communities such as Farallón, Juan Hombrón and Los Azules. In Herrera there has been a strong erosion of the river mouth areas of both the Rio La Villa and the Rio Parita. In the river mouth areas, you can already see the fall of trees of mangrove species, caused by coastal erosion, and by the impact of waves.

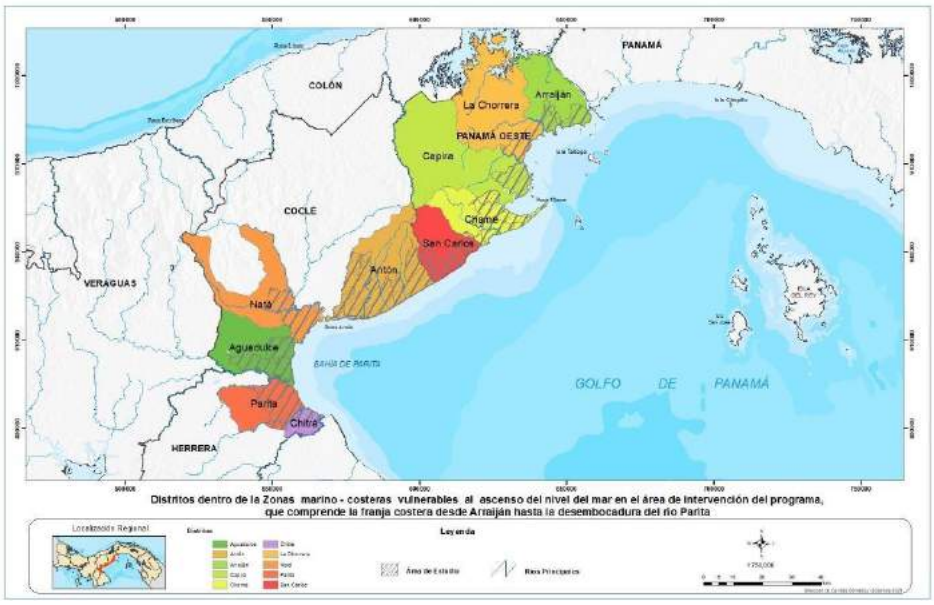
Regarding non-climatic risk factors, these include (i) the degradation of ecosystems, for example the elimination of mangroves for the establishment of infrastructures and other activities; (ii) the filling of areas that adjoin or are within the mangrove ecosystem zone; (iii) solid waste generation and poor disposal; (iv) the marked sedimentation that reaches the mangrove areas as a result of the activities carried out in the upper middle and lower watershed, and that there is no sewerage system for the final disposal of wastewater, which implies greater contamination of the ecosystem.[29]

ENSO: Given the occurrence of climatic events with the Southern Oscillation known as "**El Niño-La Niña**" it is important to note that the impacts throughout the country are catastrophic but are especially severe in the proposed intervention area - the central Pacific of Panama. "Between 1982-1983, at the national level ENSO seriously affected agriculture with losses of US $ 14 million in livestock and US $ 6 million in crops. Then, in 1997 -1998, this phenomenon again produced losses that reached US $ 40 million. As an example, only milk production lost 7.4 million liters, which translates into US $ 1,847,263. Due to ENSO, agricultural GDP contracted by 3.7%. The 2001 drought event caused a reduction in the yields of many crops, as well as the production area of these, due to the uncertainty of the producers regarding the possible changes in the rain patterns of that period. Dairies were affected again, reducing their volume by 10.4 million liters and losing 2,500 head of cattle. Then, the seasonal crops in Coclé and Herrera were affected by droughts during critical periods of production (July, August, September and October), when the most important volume of precipitation is expected, prior to the harvest season. As defined by the Ministry of Agricultural Development (MIDA), the most severe effects of the drought and ENSO in Panama are registered in Herrera, Los Santos, Coclé, Veraguas, the west and east of the province of Panama".[30]

[27] PNUD. (2020). Índice de Pobreza Multidimensional (IPM-C), a nivel de distritos y corregimientos, usando los Censo de Población y Vivienda de Panamá. [28] PNUD. (2020). Índice de Pobreza Multidimensional (IPM-C), a nivel de distritos y corregimientos, usando los Censo de Población y Vivienda de Panamá. [29] Recopilación de información elaborada por las regionales de Herrera, Coclé y Panamá Oeste del Ministerio de Ambiente. (2021).

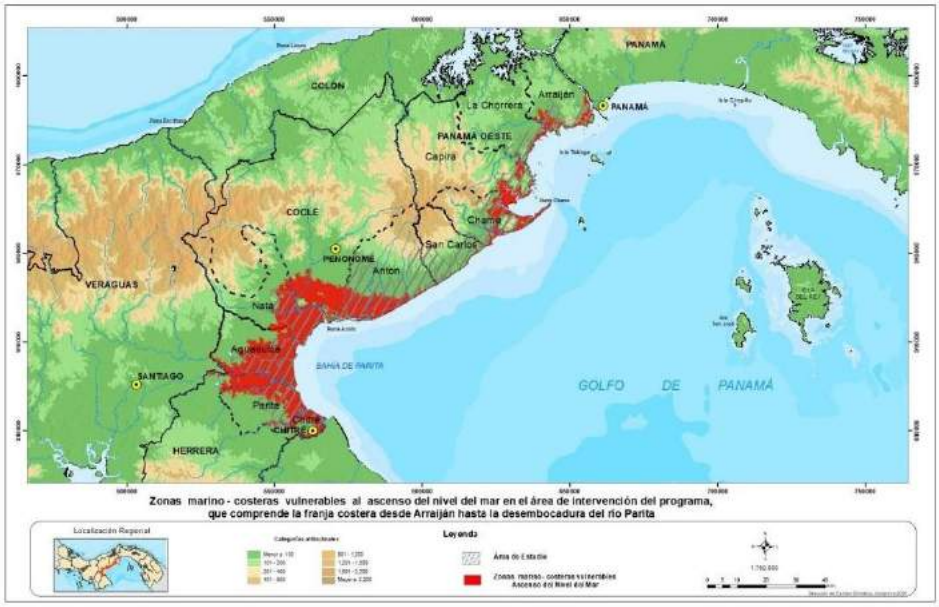
[30] Documento Borrador. Nota conceptual. Borrador final de la propuesta de financiamiento de Panamá para presentar al Fondo de Adaptación. Mayo de 2013.

Map 4. Districts within the coastal marine zone vulnerable to sea level rise in the Programme intervention area - Coastal strip from Arraiján to the mouth of the Parita River



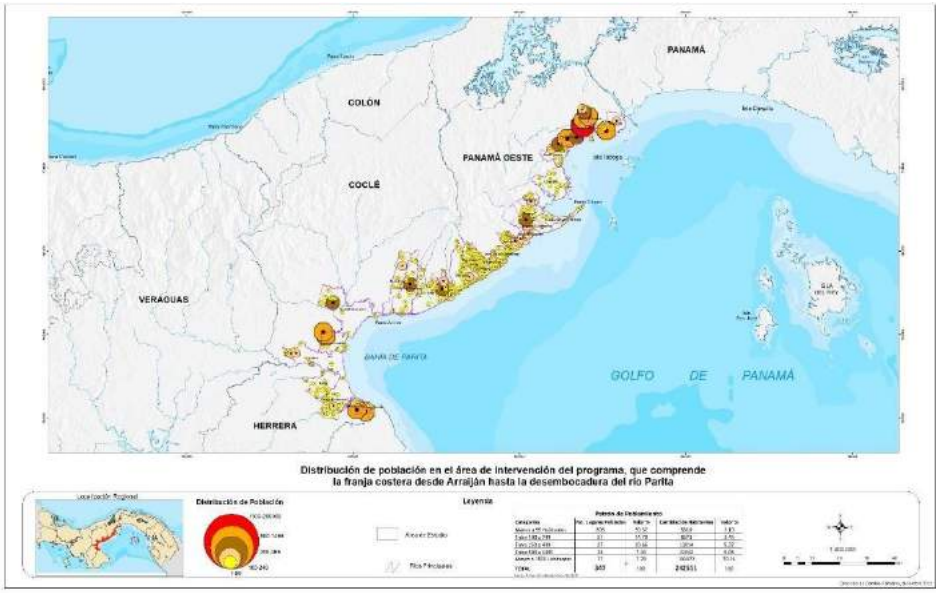
Source: Ministerio de Ambiente (2021).

Map 5. Coastal marine zones vulnerable to sea level rise in the Programme intervention area - Coastal strip from Arraiján to the mouth of the Parita river



Source: Ministerio de Ambiente (2021).

Map 6. Population distribution in the Programme intervention area - Coastal strip from Arraiján to the mouth of the Parita river



Source: Ministerio de Ambiente (2021).

List the main objectives of the Programme

The goal of this Programme is to increase the resilience of the most vulnerable coastal communities and their livelihoods; communities located in the climate region of the Arco Seco of Panama and improve the management of high-value ecosystems such as blue carbon sinks in the Central Pacific of Panama, recognizing their value and contribution through the various ecosystem goods and services that they provide to the communities and the region.

General objective that the Programme seeks is to increase the resilience of the communities and their livelihoods in the coastal zone of the Central Pacific of Panama, through the generation of climate information applied to the development of tools and plans that guide key adaptation actions and the strengthening of actors' capacities, while improving the management of high-value ecosystems as sinks of blue carbon and other important ecosystem services they provide. To meet this objective, the Programme has identified three specific objectives:

Specific objective 1: Generate greater resilience in essential livelihoods through climate-smart management and productive diversification actions; as well as the development of actions for the conservation and restoration of high value coastal marine ecosystems.

Specific objective 2: Improve local and national capacity to respond to climate threats by developing effective tools for science-based decision-making, as well as risk reduction systems with a nature-based approach.

Specific objective 3. Build and improve climate governance, the management and appropriation of knowledge on the matter, at the local, regional, and national levels, for the implementation of tangible adaptation and resilience measures to climate change.

Programme Components and Financing

Table 1.3. Programme omponents, expected concrete outputs and outcomes, and the corresponding budgets

Programme Components	Expected Concrete Products	Expected results	Amount (US $)
1. Increase the resilience of ecosystems and vulnerable productive sectors through diversification and nature-based solutions.	• At least 50 farm management plans developed and implemented to strengthen sustainable livestock and climate-smart agriculture, incorporating nature-based technologies and solutions. • Installed at least 4 apiaries and about 12 hives, including the training of beneficiaries (beekeepers) and the provision of equipment. • Installed at least four pilot experiences of cultivation of others, including the training of beneficiaries and the provision of equipment. • 12 Comprehensive home garden Programmes established with water harvesting and drip irrigation systems. • Installed at least 12 pilot tilapia farming Programmes with implemented aquaponics techniques, including training and provision of equipment. • Three community tourism experiences strengthened including the development of criteria or guidelines to reduce climate risk in the tourism operation and the development of a local community tourism strategy incorporating considerations for risk reduction and increased climate resilience. • Ten community fishing pilot Programmes developed with the incorporation of nature-based technologies and solutions.	1.1 Strengthening of livelihood management through productive diversification, incorporation of technology and nature-based solutions in traditional production systems.	**US$4,800,000**
	• Five business plans prepared and implemented for products or services with the greatest potential in the Programme. • Reports on strategic investments for the development of business plans and more specialized studies.	1.2 Value chains for the production, marketing and commercialization of climate-smart and gender-inclusive products and services have been strengthened.	
	• The management of five rural aqueducts in the Programme area has been strengthened. • 18 multipurpose water harvesting systems installed using efficient and low-cost technologies.	1.3 Improved water resource management in coastal communities through strengthening the management of rural aqueducts and water harvesting with the use of efficient and low-cost technologies.	
	• A loss / gain analysis of forest coverage in the Programme intervention area through the use of geographic information systems. • An action plan for the recovery of high-value ecosystems that considers vulnerability scenarios and connectivity requirements for the benefit of biodiversity. • Installed and operating at least two community nurseries in the Programme area. • 150 ha reforested, enriched and / or restored high value ecosystems.	1.4 Reduced pressure on high-value ecosystems and improved ecosystem services through actions for the protection, reforestation, enrichment and / or restoration of these ecosystems.	
	• Establishment of a finance Programme for local climate action that allows financing adaptation actions through Programmes proposed by CBOs and municipalities. • Microfinance scheme for the coastal-marine sector with considerations of adaptation and climate risk. • Enabling conditions established for the efficient operation of the National Climate Change Adaptation Fund.	1.5 Promotion of climate financing for the implementation of climate adaptation and resilience actions of communities and their livelihoods.	
2. Improve local and national capacity to face exposure to climate-related hazards and threats, through	• Five climate vulnerability analyzes and adaptation measures for each of the hydrographic basins in the Programme area. • A model of sea level rise for the Central Pacific of Panama that identifies the areas of greatest vulnerability according to IPPC scenarios. • Three Environmental Territorial Planning plans for prioritized districts.	2.1 Developed baseline studies on climate change with application in planning and environmental land use planning	**US$2,400,000**

Programme Components	Expected Concrete Products	Expected results	Amount (US $)
planning tools and risk reduction systems.	• Six municipal strategic plans that incorporate environmental information and actions for adaptation and strengthening of climate resilience in their territories.		
	• Improved meteorological stations of the hydrographic basins of the Programme area to generate complementary agroclimatic and hydrological information. • Acquired, installed and connected three sea level gauges to the national and global tsunami monitoring network. The Early Warning System for floods, waves and tsunamis strengthened for the Central Pacific sector of Panama.	2.2 Strengthening the network of meteorological stations and tide gauges, and related Early Warning Systems	
	• A climate vulnerability and environmental risk modeling platform installed and operating. • Protocol for the management of information and the use of the platform for modeling vulnerability and environmental risks.	2.3 Developed a platform for modeling climate vulnerability and environmental risk	
	• A cost-effectiveness analysis of the main adaptation measures and their feasibility analysis that allows their prioritization. • Implementation of prioritized adaptation measures, their monitoring, evaluation and systematization of the experience.	2.4 Prioritized adaptation measures implemented according to cost effectiveness analysis.	
	• Analysis of the implementation of the Monitoring and Evaluation System for Adaptation to climate change with evaluation of the results and goals set and with recommendations for improving the indicators and monitoring and evaluation protocols.	2.5 Strengthening the Monitoring and Evaluation System for Adaptation to Climate Change.	
3. Strengthen the capacity of key stakeholders and improve knowledge on climate adaptation and resilience at the local and national levels, with gender perspective.	• Actors training plan on climate change and ecosystem-based adaptation. • Design of training modules with content validated by the Ministry of the Environment. • Evaluation reports of each training process developed.	3.1 The capacities of key actors on Climate Change and adaptation based on ecosystems have been strengthened and successful experiences implemented.	**US$1,216,977**
	• Action plan for the integration of the gender perspective in the project. • Reports on implementation and memories of gender capacity building workshops.	3.2 Strengthened national and local capacities and developed the tools that allow participation with a gender perspective in project activities.	
	• Special modules designed and implemented for the implementation of adaptation strategies and plans at the local level and the management of Programmes for 200 beneficiaries. • Evaluation of capacity building processes. • At least 15 proposals for adaptation Programmes of CBOs and municipalities prepared. • Inter-municipal agreements established for the development of joint adaptation actions.	3.3 Strengthened capacities of Community Based Organizations and Municipalities on climate change, ecosystem-based adaptation and comprehensive Programme management.	
	• Comprehensive knowledge management Programme designed and in operation with established goals and indicators that facilitate its evaluation. • Adaptation Platform strengthened and operating. • Systematization of experiences and lessons learned from Programmes carried out in the Programme.	3.4 Increased knowledge management on adaptation to climate change at the national level, by strengthening the adaptation portal and a Programme for systematizing experiences, lessons learned and their appropriation.	
4. Total Direct Costs			8,416,977.00
5. Programme Execution Cost (9.5%)			799,613.00
6. Total Programme Cost			9,216,590.00
7. Programme Cycle Management Fee charged by the Implementing Entity (8.5%)			783,410.00
Required Financing Amount			**10,000,000.00**

Projected calendar

Table 1.4 Proposed programme milestones

Milestone	Expected Dates
Start of Programme implementation	First semester of 2023 (June 2023, pc)
Mid-term review (if planned)	December 2024 (e)
Programme closure	December 2026 (of) (Project/Program Completion)
Terminal Evaluation	November 2026 (e)

PART II: PROJECT / PROGRAMME JUSTIFICATION

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

A1. Programme components

Component 1. Increase the resilience of ecosystems and vulnerable productive sectors through diversification and nature-based solutions.

Budget: US $ 4,800,000

The first component of the programme will be focused on improving the livelihood management of coastal communities through productive diversification and adaptation of traditional productive systems. This will be achieved with the incorporation of technology and nature-based solutions that allow (i) greater resilience of productive systems to climate vulnerability and (ii) diversification of the income sources of these communities. This includes the analysis of the value chain of the products with the greatest potential that allow the generation of added values and the inclusion of gender. The development of water resource management models is also considered as a key element in food security; This includes strengthening the management of local aqueducts and water harvesting systems with efficient and low-cost technology. In addition, it is contemplated the reduction of pressures of high value ecosystems -such as mangroves and other ecosystems- through conservation, reforestation, enrichment and / or restoration actions to maintain and improve the ecosystem services that they provide to communities and communities. region. In addition, this component includes the establishment of a fund aimed at Community Based Organizations and Municipalities, so that innovative actions are promoted through small projects from the local perspective to strengthen community adaptation and resilience and their livelihoods. for this purpose, a capacity building project for these actors will be designed and implemented in Component 3.

1.1 Strengthened livelihood management through productive diversification and the incorporation of technologies and solutions based on nature in traditional production systems.

The development of farm management plans is considered as a planning tool and inclusion of good practices and productive diversification, considering the limitations and potential of each farm and its environmental goods and services. It is estimated that approximately 1,000 hectares will be positively impacted by these activities. Field school methods will be used in order for the beneficiaries to strengthen their capacities by practically experiencing the different actions and activities identified in the farm planning processes. Productive diversification will be considered as one of the key adaptation measures and the development of beekeeping, oyster farming, aquaponics, community tourism, among others, will be considered as alternatives to productive diversification. Pilot projects for climate-smart production will be developed on more traditional activities (livestock, agriculture, fishing, harvesting of black shell and crabs) so that they are carried out in a

more sustainable way, incorporating technology and adaptation techniques based on nature. For the selection of beneficiaries, selection processes will be developed based on variables that will include gender inclusion.

Expected concrete products:

- At least 50 farm management plans developed and implemented to strengthen sustainable livestock and climate-smart agriculture, incorporating nature-based technologies and solutions.
- Installed at least 4 apiaries and about 12 hives, including the training of beneficiaries (beekeepers) and the provision of equipment.
- Installed at least four oyster farming pilot experiences, including training of beneficiaries and provision of equipment.
- Installed at least 12 pilot tilapia farming projects with implemented aquaponics techniques, including training and provision of equipment.
- Three strengthened community tourism experiences including the development of criteria or guidelines to reduce climate risk in the tourism operation and the development of a local community tourism strategy incorporating considerations for risk reduction and increased climate resilience.
- Ten pilot community fishing projects developed with the incorporation of nature-based technologies and solutions.
- 10 pilot projects for efficient irrigation with the use of a water harvesting system and the use of innovative and low-cost technology.

Technical specifications of the solution:

Diversification of livelihoods is one of the best solutions to face climate variability and other effects generated by global climate change. The preparation of 40 farm management plans will allow the development of a specific diagnosis of the current situation of the farm and its problems, which includes determining the impacts of climate change and proposing solutions based on nature that improve the climate resilience of the livelihoods, this includes productive diversification, the incorporation of efficient and low-cost technology, among other options for the development of climate-smart production systems. It also includes the implementation of actions to improve traditional practices towards more efficient systems and with greater climate resilience, including agroforestry, forestry, edible forests, comprehensive home gardens and productive diversification with actions identified by beneficiaries of the programme's communities and institutions of government (MIDA, ARAP and ATP) that includes beekeeping, aquaponics, oyster farming, community fishing (including collection of black shell and crabs) and community tourism that will also serve as a model to be replicated in other areas of the country.

Climate change threat:

The climatic variability in the Dry Arc of Panama, characterized by altered patterns of seasonal precipitation and high water stress during the dry season, which are aggravated by causing droughts during the El Niño seasons and severely impacting traditional agricultural and livestock activities is the main threat climate in this area. Additionally, the rise in sea level is also impacting on coastal area livelihoods having an effect on the yields or use of services such as fishing or tourism.

Clear link between the threat of climate change and the solution:

The high altered patterns of seasonal precipitation and the high-water stress that occurs in the area during the dry season are negatively affecting the performance of livelihoods, a situation that becomes more serious during periods of El Niño. The application of the farm planning methodology with the determination of adaptation measures, improvement of resilience and productive diversification, is one of the best measures to face climate variability according to the current and potential conditions of each farm, as well as also of its main problems.

Measures to mitigate environmental risks:

To minimize the loss of fertile soil due to erosion and sedimentation, special measures will be ensured according to each production system that may include the application of different techniques such as rotation in silvopastoral systems, establishment of forage banks, isolation and recovery of areas affected by erosion (gullies) and other measures. For agricultural activities, the management of soil loss could include the application of good practices, live barriers, spatial arrangement of crops, contour planting (contour lines), combination of reforested species, among other measures. To avoid soil contamination, organic fertilizers will be used, and for this, as part of the capacity-building actions, actions to produce organic fertilizers will be included with the application of techniques such as compost management and worm farming.

Additional description and context of the activity:

The proposed actions are in accordance with the National Climate Change Plan of the Agricultural Sector of the Republic of Panama, which promotes sustainable production schemes and productive diversification that incorporate variables for adaptation to global climate change that contribute to the food and nutritional security of the populations. most vulnerable to the effects of global climate change.

Solution specifics / details:

The design of the solution includes elaboration of farm management plans with the determination of best productive practices based on nature to improve productivity, adapting livelihoods to climatic effects and improving their resilience. It incorporates productive diversification as an important part of climate adaptation with the support of the use of efficient and low-cost technologies that contribute to the food and nutritional security of the coastal communities in the programme area.

Magnitude / scope: Coastal communities located in the Dry Arc of Panama.

- ✓ Location: Coastal townships of the Dry Arch of Panama.
- ✓ Beneficiaries: Coastal communities with greater vulnerability.

- ✓ Objectives: Strengthen adaptation and improve resilience of the livelihoods of vulnerable coastal communities through diversification, nature-based solutions and the incorporation of efficient and low-cost technology.
- ✓ Inter-institutional coordination: with government entities responsible for each matter: Ministry of Agricultural Development, Panama Aquatic Resources Authority and Panama Tourism Authority.
- ✓ Applicable technical standards: National Climate Change Plan for the Agricultural Sector of the Republic of Panama and Action Plan for Food and Nutrition Security 2030. Law 46 of August 31st of 1999. That rules the apiarian activity. Resolution N° 025 -CNTA – 2018 "By which it is recommended to the Ministry of Environment the approval of the technical rule for the apiarian improvement and development." to establish beneficiaries of the Law N° 25 of June 4 of 2001, Executive Order No. 11. of February 5 of 1997. By which it is regulated the Single Window, for the procedure of concession requests, certifications and permissions for the development of apiarian activities, Law 24 of June 4, 2001, modified by the Law 20 of February 22, 2018 that adopts measures to support the agricultural producers affected by adverse weather conditions and other contingences, creates the Special Fund for Contingency Credits and the Law 204 of March 18, 2021, rules and incentives activities as aquaculture, sport fishing, industrial and handcrafted according to the international standards and the most advanced technologies.

Product Summary:

Table 2.1 Product overview 1.1

Adaptation Measure	Livelihood management strengthened through productive diversification, incorporation of technology and nature-based solutions in traditional production systems
Scope:	Local: Coastal settlements and replicable at the national level.
Adaptation benefits	These systems will contribute to increasing the food and nutritional security of coastal communities and improving the resilience of livelihoods to the effects of Climate Change, including water stress, temperature rise and the impact of rising sea levels.
Technical solutions	Solutions based on nature in situ, in the selected farms, productive diversification and improvement of conditions for the sustainability of the subprojects, which includes strengthening the capacities of the beneficiaries. Incorporation of efficient and low-cost technology that contributes to diversification, adaptation, and improvement of productivity.
Adaptation additionality	It will allow the link between the adaptation action and the National Climate Change Plan for the Agricultural sector.

Adaptation reasoning:

Table 2.2. Adaptation reasoning for product 1.1

Type of measure	CC risk or impact identified	Expected result on the ground	Difference with BAU handling
Productive diversification, use of efficient and low-cost technology and nature-based solutions for traditional production systems.	Altered seasonal patterns of precipitation and runoff; water stress or water scarcity and sea level rise.	Less dependence on a single livelihood. Greater food and nutritional security.	Climate-smart production programme incorporating efficient and low-cost technology. They include better productive practices through nature-based solutions.

1.2 Strengthened value chains for the production, marketing and commercialization of climate-smart and gender-inclusive products and services

The evaluation of the different products and services generated with the support of the adaptation programme is contemplated in order to determine those that show the greatest potential for the development of its value chain, which must include, among other aspects, the increase in added value that is It can generate from the processing of the product, which guarantees the inclusion of gender in the production scheme and its benefits and that its development is carried out in compliance with sustainable production standards. For this purpose, it is contemplated to develop five business plans for the products or services with the greatest potential selected and it also contemplates strategic investments that will include the purchase and installation of equipment and its maintenance, training, and development of more specialized studies on the marketing and commercialization of these products.

Expected concrete products:

- Five business plans prepared and implemented for products or services with the greatest potential in the programme
- Reports on strategic investments for the development of business plans and more specialized studies.

Technical specifications of the solution:

A diagnosis will be developed that allows evaluating and prioritizing climate-smart products with greater development potential, considering fair and responsible market criteria, and greater participation in gender-inclusive development processes of the chain. Business plans will be drawn up for the five products with the greatest potential and these will be supported with strategic investments that allow the implementation of key actions. The strengthening of capacities will be a key element as part of the development of strengthening the value chains of the selected products and of great importance also for the long-term sustainability of the sub-projects and maintenance of the adaptation measures and strengthening of the climate resilience of the same.

Climate change threat:

Strengthening the value chain is key to the sustainability and development of the potential of livelihoods and thus also the long-term maintenance of nature-based solutions. The development of value chains will allow the inclusion of gender in the production process and also in the benefits, but it will also help to assess climate adaptation and resilience measures, generating greater empathy with them. In addition, the development of awareness campaigns for stakeholders on fair and responsible markets will help to understand and assess not only the efforts of producers, but also the costs and risks they face in the face of the effects and impacts of climate change.

Clear link between the threat of climate change and the solution:

The adaptation measures and strengthening of climate resilience in the field can be maintained and improved in the long term if there are resources after the programme that allow for sustainability to the actions financed by the programme, in this sense the strengthening and development of the the value chain constitutes that key element of the production process that could contribute economically to the sustainability of the adaptation and resilience actions implemented in the livelihoods. Consumers sensitized and more responsible to the effects of climate change will be an additional benefit that is contemplated as part of the marketing and positioning actions of climate-smart products.

Measures to mitigate environmental risks:

Information on climate variability and risks will be considered, as well as vulnerability analyzes with part of the variables for prioritizing productive items and in addition to strategic investments for the development of value chains. Consumer awareness will be key to positioning climate-smart products.

Additional description and context of the activity:

Fair and responsible markets for climate-smart products, as well as brand positioning and added value of these products, must continue to be managed.

Solution specifics / details:

The design of the solution includes: the preparation of a diagnosis that allows evaluating the productive areas with the greatest potential for the improvement or development of its value chain and that allows inclusion of gender and participation of its benefits. A business plan will be drawn up for the selected products that allows the selection of business objectives and goals that, through key strategic investments that promote the development of the value chain of these selected products and that at the same time generate opportunities for participation by young people and women in the different tasks or job opportunities and in their benefits. In addition, a marketing strategy will be developed for the selected products in order to promote fair and responsible markets for climate-smart products and generate awareness and understanding in consumers of the context, risk and productive development of the products they consume.

- ✓ Magnitude / scope: Five projects with the greatest potential with elaboration and implemented business plans that allow the development of their value chain with the inclusion of gender in their development and benefits of the communities of the coastal townships in the programme area. Fair and responsible market drive for climate-smart products strengthened and increased awareness through market strategy development.
- ✓ Location: Communities of the coastal townships of the Dry Arc of Panama
- ✓ Beneficiaries: Selected community members and beneficiaries of the implementation of Result 1.1 of this programme. Consumers more aware.
- ✓ Objectives: Improve the income of the local population, incorporate women and young people in the value chain and benefits of the development of the value chain of key products and contribute to the sustainability and strengthening of adaptation measures and resilience to livelihoods. In addition, strengthen the market for fair and responsible consumers in Panama.
- ✓ Technical specifications: Diagnosis of prioritization of livelihoods for development of the value chain according to prioritization variables selected and validated with government institutions counterparts. Preparation of business plans and implementation of key strategic actions (strategic investments) that generate impact and allow participatory inclusion in the development of the value chain and benefits, considering climate variability, vulnerability and environmental risks. Preparation and implementation of a market strategy for the positioning of climate-smart products and greater consumer awareness.
- ✓ Inter-institutional coordination. In coordination with competent government institutions according to the selected product.
- ✓ Applicable technical standards: Executive Decree No. 135 of April 30, 2021, which regulates Chapter I of Title V of the Sole Text of Law 41 of July 1, 1998, General Environment of the Republic of Panama, on adaptation to Global Climate Change, and dictates other provisions.

Highlights of the consultation process:

For prioritization, consultations with the same potential beneficiaries and other key actors in the value chain should be considered.

Product Summary:

Table 2.3. Product summary 1.2

Adaptation Measure	Value chains for the production, marketing and commercialization of climate-smart and gender-inclusive products and services strengthened
Scope:	Local: Coastal settlements and replicable at the national level
Adaptation benefits:	Maintain the long-term sustainability of climate resilience and adaptation actions for livelihoods. Contribute to increase food and nutritional security in coastal communities, expand the participation of beneficiaries including gender in the

	production process and its benefits. Consumers' awareness of the importance and impact of purchasing climate-smart products.
Technical solutions:	Design of key strategic instruments that will make it possible to increase community benefits and the inclusion of gender in production processes and their benefits; and consumer awareness about fair and responsible markets.
Adaptation additionality:	It will allow the link between the adaptation action and the National Climate Change Plan for the Agricultural sector and will also allow to maintain and strengthen adaptation and resilience actions in long-term livelihoods.

Adaptation reasoning:

Table 2.4. Adaptation reasoning for product 1.2

Type of measure	CC risk or impact identified	Expected result on the ground	Difference with BAU handling
Preparation and implementation of base studies to strengthen the value chain of products with high potential that allow the inclusion of gender in their development and benefits	Altered seasonal patterns of precipitation and runoff; water stress or water scarcity and sea level rise	Generation of added value in productive processes and inclusion of women and youth in benefits that contribute to their food security and strengthen their resilience to the effects of CC.	Inclusion of good production practices, technology and capacity building in value chain development and awareness of actors about fair and responsible markets.

1.3 Improved water resource management in coastal communities through the implementation of rural aqueduct management models and water harvesting with the use of efficient and low-cost technologies.

Considering that water is considered a critical key resource for food security and the well-being of the communities and considering that the programme is carried out in the climatic area called Arco Seco de Panamá -where water stress is an important factor during the dry season-, The programme contemplates improving the management of at least five rural aqueducts through coordinated work with the Rural Aqueduct Administration Boards (JAAR) and the implementation of 18 water harvesting systems with the use of efficient and low-cost technology. For the installation of these rainwater harvesting systems (SCALL), farms that have management plans developed in product 2.1 and that are multipurpose for the benefit of people's quality of life and the provision of water for systems will be considered. efficient irrigation systems with the use of low-cost technology.

Expected concrete products:

- Strengthened the management of five rural aqueducts in the programme area.
- 18 multipurpose water harvesting systems installed using efficient and low-cost technologies.

Technical specifications of the solution:

Selection of five rural aqueducts in the programme area that face management problems because of global climate change or land use conflicts and that are causing effects on coastal populations and their livelihoods. Options will be selected through the municipal authorities in accordance with criteria determined jointly by the competent institutions (Ministry of Health and Ministry of the Environment). An evaluation of the status of each rural aqueduct will be carried out and actions will be planned and developed to improve management considering risks and impacts on communities and their livelihoods that incorporate adaptation measures based on nature and climate resilience to face climate variability. characteristic of the area. Administrators and technicians responsible for the rural aqueducts of all the Water Administration Boards (JAAR) located in the coastal zone of the programme will be included in the actions to strengthen capacities for the management and maintenance of their community aqueducts.

On the other hand, it is proposed to install a total of 18 multipurpose water harvesting systems with the use of efficient and low-cost technologies, which includes training beneficiaries in their installation and maintenance. With the support of local authorities (mayors and village representatives) and the assistance of the Ministry of Agricultural Development, the beneficiaries will be selected based on the communities that have experienced severe and recurrent droughts in the programme area and that also face significant variability scenarios. in precipitation (MIDA Database of losses and damages) and dry seasons with high water stress. For the development of this product, the lessons learned and experiences in the installation of a water harvesting system with the use of efficient and low-cost technologies developed in the programme for Adaptation to Climate Change through Integrated Resource Management will be taken into consideration. Water in Panama financed by the Adaptation Fund.

The solutions for the water harvesting establishment will be given based on the conditions and needs of each site, for which the technicians must develop an evaluation and propose the best water harvesting system with the incorporation of efficient and low-cost technologies. cost that contributes to the household needs and livelihoods of the beneficiaries.

The water collected through these water harvesting systems will be used for domestic use such as sanitation, garden irrigation and, where appropriate, for human consumption. In the case of access needs to water for human consumption, a basic membrane filtration system (for physical treatment, such as slow sand filtration) and chlorination / boiling will be used, in accordance with MINSA recommendations for treatment of water for small homes. In these cases, the coordination and evaluation of the water systems for human consumption will be done jointly with the MINSA in accordance with compliance with national and international norms and standards. In both cases, the technical

solutions will be implemented following the recommendations and specifications of the manual: "Rainwater harvesting and storage, technical options for family farming in Latin America and the Caribbean" (FAO, 2013).
For the selection of the beneficiaries, criteria of limited access to water in households, households headed by women, households headed by the elderly, loss of productivity due to water shortages, among other criteria that will be established and agreed with the Ministry of Environment, the Ministry of Health and local authorities.

Climate change threat:

The climatic variability with heavy rains in short times and lack of rainfall in prolonged periods and at times that affects the availability of quality water for coastal communities and their livelihoods, putting their health and food security at risk.

Clear link between the threat of climate change and the solution:

The seasonal scarcity of water that worsens during periods of the El Niño phenomenon, in addition to precipitation patterns that are more variable in intensity and frequency, the installation of water harvesting systems with the use of efficient and low-cost technology is an adaptation measure for mitigate the need for water for human use and maintain key livelihoods for the food security of beneficiary families.

Measures to mitigate environmental risks:

Comprehensive management of rural aqueducts with the application of adaptation measures based on nature that help protect and improve the environment of water catchment areas and micro-basins and strengthening the capacities of the JAARs for better management of rural aqueducts. The design of the adaptation solutions will consider the soil conditions and the possible effects of runoff due to excess water on the area and cultivation zones, measures beyond the design will be implemented in the areas where the greatest risk is determined. To avoid contamination of drinking water, family members will be trained in installation processes, system maintenance and treatment of drinking water.

Additional description and context of the activity:

Evaluation and selection of five rural aqueduct systems based on the greatest needs for support and impact on the number of beneficiaries and their livelihoods. Determination of comprehensive measures to improve the environment and management of rural aqueducts and development of comprehensive capacity-building processes for the management of rural aqueducts that include programme beneficiaries and other JAARs in the area to allow greater impact.
The installation of 18 multipurpose water harvesting systems with the use of efficient and low-cost technologies should be understood as an adaptation action to the effects of climate change with the aim of improving the quality of life of beneficiary households and their livelihoods.This action is in line with the National Water Security Plan that seeks to guarantee the supply of water for human uses, productive uses and reduce the risk associated with extreme climate events such as droughts or floods.

Solution specifics / details:

For rural aqueducts, a joint evaluation will be developed with the Ministry of Health in order to select the five rural aqueducts that require the most support. Based on a comprehensive evaluation, a comprehensive action plan will be developed that considers actions to improve the environment of the catchment and micro-basin areas, improvement of the supply sites and water mobilization systems, its maintenance and strengthening of JAAR capacities.
For water harvesting systems, the design of the solution requires the development of a coordinated process for the selection of beneficiaries based on various criteria and variables that allow selecting households whose need to install multipurpose water harvesting systems is a priority. for your quality of life and your immediate food security. This process must be carried out jointly with competent institutions such as the Ministry of the Environment, the Ministry of Health, the Ministry of Agricultural Development, and local authorities (mayors and Representatives of the Township).
The design of every system must adjust to an environment evaluation where the system will be developed, considering the environmental risks and the climate data of the area. Within this process it must be included also the capacities generation inside the beneficiary households about installation, operations and management of the systems; as well as the water treatment whenever it is required.

Highlights of the consultation process:

The Ministry of Agricultural Development with the support of their local authorities and the knowledge of their technicians who offers technical support to the producers, prioritized the installation of 18 water harvest systems with the use of low-cost efficient technologies as an adaptation solution to the climate change of high importance for the coastal areas of the climatic zone called Dry Arch of Panama.

Product Summary:

Table 2.5. Product summary 1.3

Adaptation Measure	Improved water resource management in coastal communities through strengthening the management of rural aqueducts and water harvesting with the use of efficient and low-cost technologies
Scope:	Local: 18 families from coastal townships, replicable on a national scale.
Adaptation benefits:	Improvement of the well-being or quality of family life, greater security in the provision of food by ensuring water for livelihoods in the face of periods with variability in precipitation.
Technical solutions:	Design and installation of water harvesting systems that help mitigate its scarcity in times of decreased rainfall so that it contributes to family well-being and maintenance of their livelihoods.
Adaptation additionality:	It will allow the linking of concrete adaptation actions through the implementation of the National Water Security Plan, strengthening the resilience of the beneficiaries and their livelihoods to variability in precipitation patterns and periods

	of water stress. Actions with the capacity for replication at the national level and for the systematization of experiences and lessons learned.

Adaptation reasoning:

Table 2.6. Adaption reasoning for product 1.3

Type of measure	CC risk or impact identified	Expected result on the ground	Difference with BAU handling
Better management of rural aqueducts and establishment of water harvesting systems with efficient and low-cost technology	Variability in precipitation patterns and water stress during the dry season	Increase in the resilience of communities due to better management of their rural aqueducts and of beneficiaries through water harvesting systems	Ecosystem-based adaptation measures are applied as part of comprehensive solutions for rural aqueducts and improves the resilience of beneficiaries with adaptation actions in the face of variability in precipitation and water scarcity in the dry season; improves their quality of life and food security.

1.4 Reduced pressure on high-value ecosystems and improved ecosystem services through actions for the protection, reforestation, enrichment or restoration of these ecosystems.

The development of a loss / gain analysis of high value ecosystems (dry forest, mangroves, and gallery forests) in the programme area is contemplated using geographic information systems. This will be done by comparing past scenarios (from at least 30 years ago) and present ones, which will make it possible to identify areas with potential for the recovery of these ecosystems and for the improvement of connectivity, through reforestation, enrichment, or restoration. The establishment of community nurseries and training for their management are included, as a productive alternative that will allow the generation of seedlings of native species characteristic of the area to meet the demand for the different actions of reforestation, enrichment, and restoration of these ecosystems. The goal is the reforestation, enrichment, or restoration of at least 150 ha of high-value ecosystems such as dry forests, mangroves, and gallery forests, which also includes protection and reforestation actions on farms through the implementation of the plans. farm management.

Expected concrete products:

- An analysis of loss / gain of forest coverage in the area of intervention of the programme through the use of geographic information systems.
- An action plan for the recovery of high value ecosystems that considers vulnerability scenarios and connectivity requirements for the benefit of biodiversity.
- Installed and operating at least two community nurseries in the programme area.
- 150 ha reforested, enriched and / or restored of high value ecosystems.

Technical specifications of the solution:

An analysis of the loss / gain of vegetation and land uses in the programme area will be developed in order to determine the sites and possible causes of important losses of key ecosystems to face the impacts generated by climate change or improve ecosystems of high value as carbon sinks. The results of the study will allow the development of an action plan that allows considering the climatic impacts and the maintenance or improvement of the provision of ecosystem goods and services provided by the different types of vegetation, including the conservation of biodiversity. This action plan will determine the sites and potential actions for the recovery of ecosystems such as restoration, enrichment, reforestation and / or natural regeneration actions. The plan will also consider the installation of nurseries with the incorporation of community members as part of productive alternatives to facilitate the generation of seedlings for the different ecosystem recovery processes. A training process will be developed with inclusive participation of youth and women in actions to improve the forest coverage of strategic sites determined by the process.

Climate change threat:

The variability in precipitation patterns, the scarcity of water in the dry season and the rise in sea level are causing direct and indirect effects on ecosystems in the programme area.

Clear link between the threat of climate change and the solution:

The recovery of ecosystems is one of the key measures for adaptation to climate change, since part of the environmental services that these provide are protection against storms, water regulation, protection against runoff and sedimentation, and the reduction of impacts from rising sea levels. Additionally, it is important to highlight their high value as carbon sinks, especially ecosystems such as wetlands and mangroves (Blue Carbon).

Measures to mitigate environmental risks:

The areas should be selected considering the establishment of agreements with the owners and the possible risks of loss of seedlings due to variations in rainfall or prolonged periods of droughts. Likewise, the projections of sea level rise should be considered for enrichment, restoration, or reforestation processes in mangroves. The selection of native species must be made based on the ecosystems and vegetation characteristic of the area.

Additional description and context of the activity:

The proposed actions are in accordance with the National Forestry Strategy 2050, which is aimed at guaranteeing the conservation of this important resource, stimulating a sustainable forest industry, conserving forest heritage as an important basis for ecosystems, and mitigating the effects of global climate change. Additionally, the actions are also in line with the Practical Guide for Adaptation to Climate Change in Marine-Coastal Zones of the Panamanian Pacific, which aims to formulate a series of measures that make the way in which climate change is planned safer and more sustainable. development of coastal communities and the development of measures to strengthen the resilience of these communities in the face of the current climate with its extremes and fluctuations, in a way that allows them to adapt to global climate change, such as actions for the protection and recovery of high-value ecosystems such as wetlands and mangroves for their various goods and services they provide to local coastal populations and their recognition as important carbon sinks.

Solution specifics / details:

The solution design includes:

- ✓ Magnitude / scope: 150 ha reforested, enriched and / or restored of high value ecosystems, greater knowledge of the state of vegetation and land use in the programme area, as well as its main pressures. Strengthened local capacity for the development of initiatives for reforestation or enrichment of ecosystems.
- ✓ Location: Coastal areas prioritized in coastal townships.
- ✓ Beneficiaries: Local community.
- ✓ Objectives: Strengthening the protection and recovery of high value ecosystems for adaptation and mitigation of climate change.
- ✓ Technical specifications: focus on protection and recovery of high value ecosystems for adaptation and mitigation of climate change; at the local scale ecosystems that provide goods and services of significant value to communities.
- ✓ Inter-institutional coordination: Ministry of the Environment with partners of the Alliance for a Million Hectares.
- ✓ Applicable technical standards: In accordance with the National Forestry Strategy 2050 and the actions of the Alliance for One Million Hectares reforested. The National Program for the Forest Restoration with emphasis in protective water basins 2021 – 2025. The national goal proposed is to restore 54,000 hectares of land within this quinquennium, with the support of all the country and the Law No. 69 which creates the Incentives Program for the forest cover and the conservation of natural forests.

Highlights of the consultation process:

Non-profit organizations that support conservation actions and the Ministry of the Environment through its regional offices have identifiedthe need to strengthen actions for the protection and recovery of high-value ecosystems such as mangroves for the provision of services that generate to local communities especially the fishing and collection of black shell and its value as carbon sinks. It is highlighted that the coastal communities recognize the pressures that are maintained on mangrove ecosystems and with them the decline in fishery products and black shell associated with the mangrove.

Product Summary:

Table 2.7. Product Summary 1.4

Adaptation Measure	Reduced the pressures on high value ecosystems and improved ecosystem services through actions for the protection, reforestation, enrichment and / or restoration of these ecosystems.
Scope:	At the site scale within the programme area in the Dry Arch of Panama
Adaptation benefits:	Increased resilience to rising sea levels, storm protection, carbon sequestration, water regulation, sediment retention, fish production, and other important environmental services.
Technical solutions:	Increase in the protection and recovery of high value ecosystems and with this improvement of adaptation actions, improvement of resilience and mitigation of Climate Change at a local scale.
Adaptation additionality:	It will allow the link with the National Forest Strategy 2050 and recovery of high value ecosystems (wetlands and mangroves) and ecosystems that are under-represented in the National System of Protected Areas of Panama (dry forest)

Adaptation reasoning:

Table 2.8. Adaption reasoning for product 1.4

Type of measure	CC risk or impact identified	Expected result on the ground	Difference with BAU handling
Improvement in the protection, reforestation, enrichment and / or restoration of high value ecosystems	Decrease in precipitation due to variability that affects ecosystem recovery actions. Sea level rise causing coastal erosion.	Recovered 150 ha of high value ecosystems for their environmental goods and services they provide.	Planned process in accordance with base studies developed that allow orienting actions in areas of greater impact.

1.5 Promotion of climate financing for the implementation of climate adaptation and resilience actions of communities and their livelihoods

The establishment of a small donations programme for Community Based Organizations (CBOs) and municipalities is included. Its objective will be to promote adaptation actions from the local perspective and the inclusion of solutions based on nature, with innovations and the use of efficient and low-cost technologies. To this end, a comprehensive process to strengthen the capacities of CBOs and municipalities will be established in Component 3. It will include the design of pilot projects and their management (implementation, monitoring, and evaluation). It is also contemplated to promote sector support through climate financing instruments. In this sense, it is expected to involve

the financial sector in adaptation efforts, reaching out to financial institutions - which traditionally support the agricultural sector - to have a better understanding of climate-related risks and impacts in specific regions. It is also expected to socialize the concept of microfinance based on ecosystems and the adaptation to climate change, to promote the will to design and develop a microfinance scheme for the marine-coastal sector. It also includes the development of actions to promote the operation of the National Climate Change Adaptation Fund (FONAC), which is intended to finance prioritized initiatives for adaptation to global climate change, and whose income will be made up of donations and / or contributions from national or international organizations for this purpose, as well as for a percentage of the benefits from climate change mitigation projects.

Expected concrete products:

- Establishment of a finance programme for local climate action that allows financing adaptation actions through projects proposed by CBOs and municipalities.
- Enabling conditions established for the efficient operation of the National Climate Change Adaptation Fund.
- Microfinance scheme for the coastal-marine sector with considerations of adaptation and climate risk.

Technical specifications of the solution:

A donation programme will be established aimed at community-based organizations and municipalities so that they can have access to climate finance for the implementation of initiatives or projects designed from a local perspective, promoting innovation and the use of efficient and low-cost technologies. This result is complemented by Result 3.1 of Component 3, which aims to strengthen the capacities of Community-Based Organizations (CBOs) and Municipalities on climate change, nature-based adaptation, and comprehensive programme management. At the same time, actions will be developed to strengthen and operationalize the Climate Change Adaptation Fund (FONAC), a financial instrument promoted by the Ministry of the Environment that will allow the channeling of resources from national and international sources to finance prioritized actions for adaptation to global climate change. These actions will include the design and validation of enabling instruments for the operation of FONAC that guarantee its objectivity, transparency, and accountability (Operations Manual, Strategic Plan, Compliance, and Impact Indicators, among other instruments).

Complementarily, work will be done on the socialization of the concept of microfinance based on ecosystems and adaptation to climate change, for which microfinance entities with an interest in these issues will be identified. These entities will work on strengthening their capacities and designing financial instruments for the marine-coastal sector (fishing, sustainable community tourism) in order to facilitate access to credit for this sector, considering climate risks, but also opportunities for its developing.

Climate change threat:

The variability in precipitation patterns, the scarcity of water in the dry season and the rise in sea level are causing direct and indirect effects on ecosystems and livelihoods of coastal communities and municipalities that have limited capacities to manage financing and implementation of nature-based solutions.

Clear link between the threat of climate change and the solution:

The impact of variability in precipitation patterns, scarcity of seasonal rainfall, and rising sea levels on communities and livelihoods in the coastal sector require innovative and sustainable solutions, and more importantly, access to financing so that they are able to pay for these adaptation actions and manage the effects and impacts of global climate change.

Measures to mitigate environmental risks:

Access to financing for adaptation initiatives and projects should include an analysis of environmental and climate risks, which will help reduce the risk of financial entities and the success of programmes and investments. In this sense, the development of the platform for climate vulnerability and environmental risks (Component 2, Result 2.3), constitutes a support tool that will facilitate this type of analysis based on updated scientific information and projections based on scenarios validated by the IPPC.

Additional description and context of the activity:

The grants program for CBOs and Municipalities will become a pilot that will generate many lessons that must be systematized to take them into account for their scaling up. The learning that this process will generate will be key to guiding actions of financial instruments such as FONACC and other instruments. The variability in precipitation patterns, the scarcity of water in the dry season and the rise in sea level are causing direct and indirect effects on ecosystems and livelihoods of coastal communities and municipalities that have limited capacities to manage financing and implementation of nature-based solutions. The establishment of the enabling conditions for FONACC will be key to its operationalization and even to facilitate the development of their first experiences of financing adaptation programmes that they could develop using and complementing the opportunities offered by the programme. The knowledge acquired will be important for escalating this financial mechanism according to the strategic plan designed with the support of this programme. The development of the microfinance scheme for the coastal marine sector will allow companies and cooperatives from other areas of the country to have opportunities for climate-smart strategic investments that allow them to improve their business models and develop value chains for their products.

Solution specifics / details:

The solution design includes:

- ✓ Magnitude / scope: Dry Arc of Panama with national escalation

- ✓ Location: Arco Seco de Panamá.
- ✓ Beneficiaries: Community-Based Associations, Municipalities, micro-enterprises and cooperatives with marine-coastal activities.
- ✓ Objectives: Promote climate finance and create enabling conditions for access.
- ✓ Technical specifications: Development of financial mechanisms to facilitate actors access to resources for adaptation to climate change in their communities and livelihoods.
- ✓ Inter-institutional coordination: Ministry of the Environment, Panamanian Banking Sector.
- ✓ Applicable technical standards: Executive Decree No. 135 of April 30, 2021, which regulates Chapter I of Title V of the Sole Text of Law 41 of July 1, 1998, General Environment of the Republic of Panama, on adaptation to Global Climate Change, and dictates other provisions.

Highlights of the consultation process:

In the consultation process with non-profit Non-Governmental Organizations such as CREHO, the strategic importance of the participation of local community-based organizations and municipalities in the development and implementation of programmes was sustained, which is key to the practical strengthening of their capacities, and the integral development of a programme from the local conception or perspective, until its closure.

Product Summary:

Table 2.9. Product Summary 1.5

Adaptation Measure	Promotion of climate financing for the implementation of climate adaptation and resilience actions of communities and their livelihoods.
Scope:	Dry Arch of Panama, scalable nationwide.
Adaptation benefits:	Community Based Organizations (CBOs), Municipalities, small companies, and cooperatives of the marine-coastal sector.
Technical solutions:	Development of financial instruments for adaptation to climate change.
Adaptation additionality:	Sustainability of actions through access to financing, complementarity of programmes, and other adaptation and sustainable development initiatives. Scaling up and impact at the national level.

Adaptation reasoning:

Table 2.10. Adaptation reasoning for product 1.5

Type of measure	CC risk or impact identified	Expected result on the ground	Difference with BAU handling
Promotion of climate financing for the implementation of adaptation actions from a local perspective.	Consideration of risks as part of financial sector decision analysis.	New opportunities to access financing for adaptation to climate change.	Process considers climate information for environmental and climate risk assessment.

Component 2. Improve local and national capacity to face exposure to climate-related hazards and threats, through planning tools and risk reduction systems

Budget: US $ 2,400,000

This component is focused on the development of baseline studies applied to environmental planning and land use planning processes. For this purpose, it is contemplated (i) the development of vulnerability analysis studies in five basins, emphasizing a coastal-marine approach; and (ii) the development of a sea level rise model for the Central Pacific of Panama in accordance with IPPC scenarios. The information generated by these studies will be key for the preparation of three Environmental Territorial Planning Plans in districts that have areas with very high vulnerability according to the vulnerability index due to sea level rise. These include the district of Antón, Capira and San Carlos. Additionally, the information generated will allow the inclusion of environmental and climate information in the strategic plans for the municipal development of six coastal districts: Aguadulce, Antón, Capira, Chorrera, Natá and Parita. The strengthening of the network of climate stations and the network of tide gauges is also contemplated, which are key to strengthening the capacity of early warning systems in the programme area. The development of a free access platform for modeling vulnerability and climate risks will be a key tool that will be available to users to consider the projections of vulnerability and climate risks in planning, ordering, environmental management, development of infrastructure and risk analysis for public and private investments. Based on the baseline studies and other vulnerability studies, a cost-effectiveness analysis will be developed that will allow prioritizing the main adaptation actions to be implemented by the programme. Finally, this component will allow the implementation and strengthening of the Monitoring and Evaluation System for Adaptation to Climate Change that is being developed by the Ministry of the Environment of Panama.

2.1 Developed baseline studies on climate change with application to planning and environmental land use planning.

It includes the development of two types of key studies: (i) climate vulnerability analysis studies and adaptation measures for hydrographic basins and (ii) the development of a sea level rise model for the Central Pacific of Panama that identifies the areas of greatest vulnerability according to IPPC scenarios. The analysis of climate vulnerability and adaptation measures for hydrographic basins will be developed in the Parita river basin (basin 130), the Rio Grande basin (basin 134), the basin of the river Antón (basin 138) and the Caimito river basin (basin 140). This analysis will focus on the marine-coastal zone and includes updating the climate vulnerability study and adaptation measures with a focus on the marine-coastal zone of the Santa María river basin (basin 132) developed by the Adaptation Fund programme "Adapting to Climate Change Through Integrated Water Management in Panama". The development of these studies will be key for the elaboration of three plans of Environmental Territorial Ordering of prioritized coastal districts due to their high vulnerability to sea level rise according to the projections of sea level rise from Climate Central, which includes the districts: Chame[31] (Figure 1), Chitré[32] (Figure 2) and San Carlos[33] (Figure 3). This will be key to guiding the development of these districts in a more sustainable way by including information on vulnerability and risks to climate variability. The information generated by the vulnerability analyzes will also be incorporated into municipal strategic plans of six coastal districts of the programme area: Chorrera (Figure 4), Parita (Figure 5), Natá (Figure 6), Capira (Figure 7), Antón (Figure 8) and Aguadulce (Figure 9), as a key element for local governments to begin to include environmental information. and actions for adaptation and strengthening of climate resilience in their municipal strategic plans that are financed by decentralized resources from the central government.

Expected concrete products:

- Five climate vulnerability analyzes and adaptation measures for each of the hydrographic basins in the PROGRAMME area.
- A model of sea level rise for the Central Pacific of Panama that identifies the areas of greatest vulnerability according to IPPC scenarios.
- Three Environmental Territorial Planning plans for prioritized districts.
- Six municipal strategic plans that incorporate environmental information and actions for adaptation and strengthening of climate resilience in their territories.

Technical specifications of the solution:

It will begin with the development of climate vulnerability analysis studies with a focus on marine-coastal areas of the five basins in the programme area: the Parita river, the Grande River, between the Antón river and the Caimito river and the Caimito river. In the case of the Santa María river basin, prepared by the previous programme, a review and update will be made with a focus on the marine-coastal zone and the development of the sea level increase model for the Central Pacific of Panama that identifies the areas of greatest vulnerability according to IPPC scenarios. The information generated by these studies will be the basis for the inclusion of environmental and climatic considerations in the preparation of key instruments such as environmental land use planning plans and strategic municipal development plans that will guide the sustainable development of the selected municipalities in the coming years. The experience generated will be key for other planning and ordering processes that consider the inclusion of environmental and climate information from the phase of preparation of the Terms of Reference (ToR) or tender documents for public tenders, for which work should be done with the responsible institutions. planning processes. The lessons and experience generated should be systematized in order to be able to use them to generate experiences with other actors and municipalities in other areas.

[31] https://chame.municipios.gob.pa/64/1520015755_PLAN%20ESTRAT%C3%89GICO%20DISTRITAL%20PARTE%201.PDF.pdf - https://www.miambiente.gob.pa/miambiente-coordina-plan-de-ordenamiento-territorial-ambiental-del-distrito-de-chame-2/?print=pdf

[32] http://www.oas.org/juridico/PDFs/mesicic5_pan_res_ane_con_fun_15.pdf

[33] https://sancarlos.municipios.gob.pa/65/1556048479_PLAN%20ESTRATEGICO%201.pdf

Figura 1. Sea level rise projection for Chame district

Figure 2. Sea level rise projection for Chitré district

Figure 3. Sea level rise projection for the San Carlos district

Figure 4. Sea level rise projection for the Chorrera district

Figure 5. Sea level rise projection for the Parita district

Figure 6. Sea level rise projection for the Natá district

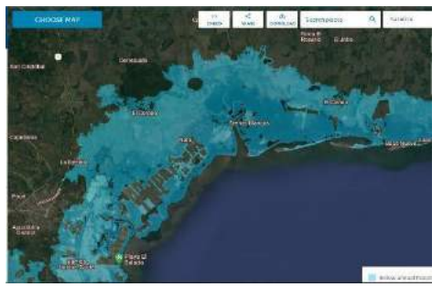


Figure 7. Sea level rise projection for the Capira district

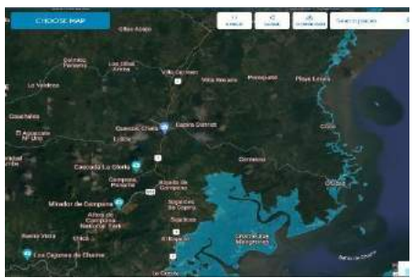


Figure 8. Sea level rise projection for the Antón district

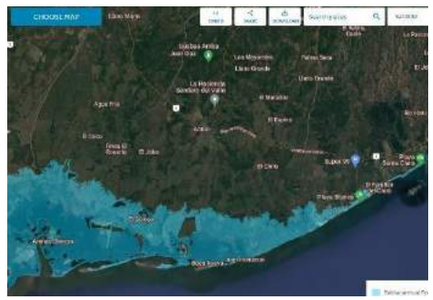
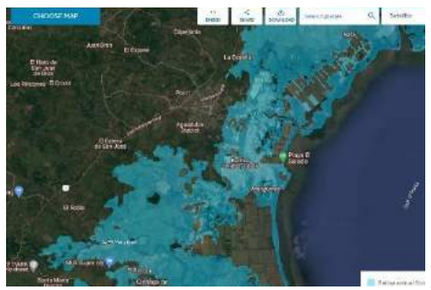


Figure 9. Sea level rise projection for the Aguadulde district



Climate change threat:

Seasonal variations in rainfall, with intense rains in very short periods of time, as well as the rise in sea level and waves of greater magnitude affect communities including their infrastructures, livelihoods and even endanger the life of the community. population settled in areas with a higher risk of flooding.

Clear link between the threat of climate change and the solution:

The development of comprehensive studies such as analysis of vulnerability at the scale of hydrographic basins and determination of vulnerability and risks due to sea level rise from models developed based on scenarios determined by IPPC, will allow the development of planning instruments and land use planning as well as plans. Municipal development strategies that incorporate the results of vulnerability and climatic risks to guide planned and safer development of the territory with environmental and climatic considerations. This will significantly increase the ability to deal with exposure to climate-related hazards and hazards in the programme's action area.

Measures to mitigate environmental risks:

The development of comprehensive studies such as analysis of vulnerability at the scale of hydrographic basins and determination of vulnerability and risks due to sea level rise from models developed based on scenarios determined by IPPC, will allow the development of planning instruments and land use planning as well as plans. Municipal development strategies that include incorporating the results of vulnerability and climate risks into the tools that guide planned and safer development of the territory with environmental and climatic considerations.

Additional description and context of the activity:

These pilot experiences should serve to improve planning and land use planning processes in Panama, so that beyond local impact, a national impact is expected in terms of process improvement and additional considerations to improve planning, planning and development tools. territorial.

Solution specifics / details:

- ✓ Magnitude / scope: at the municipal level, nationally scalable for municipalities in Panama.
- ✓ Location: Priority municipalities of the PROGRAMME area in the Dry Arch of Panama.
- ✓ Beneficiaries: local population, public and private sector investments.
- ✓ Objectives: To generate tools that guide planning and ordering. territorial for local territorial development environmental and climatic considerations.
- ✓ Inter-institutional coordination: Ministry of Housing, Ministry of Economy and Finance, Ministry of Environment and Municipalities.
- ✓ Applicable technical standards: Executive Decree No. 135 of April 30, 2021, which regulates Chapter I of Title V of the Sole Text of Law 41 of July 1, 1998, General Environment of the Republic of Panama, on adaptation to Global Climate Change, and dictates other provisions. Law No 209 of April 22, 2021, that created the Meteorology and Hydrology Institute of Panama (IMPHA). Law 37 of 2009, modified by the Law 66 of 2015, that establish the planification pluriannual of municipal development, who are object of the decentralization, and which was done with the help for the private sector and civil society.

Product Summary:

Table 2.11. Product Summary 2.1

Adaptation Measure	Base studies on climate change with application in planning and environmental land use planning.
Scope:	Municipal, scalable nationwide.
Adaptation benefits	Planning and land use planning tools with environmental and climatic considerations that will guide sustainable development at the municipal level.
Technical solutions	Reduction of vulnerability and risks generated by climate variability for the sustainable development of the territory, which includes livelihoods, communities, and infrastructure.
Adaptation additionality	Key instruments to guide local development with considerations of impacts and effects of global climate change, which will reduce risks in any public and / or private initiative

Adaptation reasoning:

Table 2.12. Adaptation reasoning for product 2.1

Type of measure	CC risk or impact identified	Expected result on the ground	Difference with BAU handling
Development of tools and plans with environmental and climatic considerations that guide a development with less exposure to the vulnerability and risks of climate variability	Seasonal variations in rainfall, with intense rains in very short periods of time, as well as rising sea levels and waves of greater magnitude.	Development process for the next few years based on planning and ordering tools that consider vulnerability and climate risks.	Design of planning, ordering and local development tools based on the results of vulnerability analysis and projection models of sea level rise.

2.2 Strengthening the network of meteorological stations and tide gauges and the related Early Warning Systems.

The strengthening of the existing network of climatic information stations that is managed by ETESA is contemplated, destined to measure and regularly record diverse meteorological variables of strategic importance for the generation of climatic projections of interest for

productive planning, planning of adaptation measures, the mitigation of climate impacts and the reduction of risks induced by climate variability. This includes strengthening the early warning systems for floods and waves managed by SINAPROC in the programme area. The acquisition, installation and maintenance of three tide gauges is also contemplated, which will help strengthen the regional network of tide gauges, essential for the generation of climate information (sea level rise, salinity, and others) and strengthen the early warning system for tsunami.

Expected concrete products:

- Improved meteorological stations of the hydrographic basins of the programme area to generate complementary agro-climatic and hydrological information.
- Acquired, installed, and connected three sea level gauges to the national and global tsunami monitoring network.
- Strengthened Early Warning System for floods, waves, and tsunamis for the Central Pacific sector of Panama.

Technical specifications of the solution:

Improvement of the network of agro-meteorological and hydrological stations located in the basins of the programme area for the generation of complementary climate information in real time (satellite communication). This includes installation of temperature and humidity sensors, water velocity sensors, sensors for measuring flow, water quality and river levels. The strengthening of the capacity and generation of agro-climatic and hydrological information will be of importance for the planning of productive processes and support for the generation of information for the Early Warning Systems. The installation of three tide gauges will contribute to strengthening the network of national and international tide gauges and the tsunami early warning systems. The acquisition of these tide gauges will be made in accordance with international standards that allow incorporation into international networks, ensuring the quality of the equipment, its installation, maintenance and training of personnel for data maintenance, processing and analysis. The Early Warning Systems for floods, waves and tsunamis managed by SINAPROC and the AMP will be strengthened for the benefit of coastal communities and visitors.

Climate change threat:

The variability in seasonal patterns of precipitation causes alteration in the frequency and intensity of rainfall, causing flooding. The rise in sea level and larger waves affect the coastal population, livelihoods and put tourists at risk in the tourism zone of the Dry Arc of Panama.

Clear link between the threat of climate change and the solution:

The strengthening of the network of agro-meteorological and hydrological stations will help reduce or mitigate threats to livelihoods, additionally it will generate key information for the early warning systems of floods with which it will be possible to guide actions to reduce the impacts of floods in risk areas, which includes the lives of residents and their assets. The establishment of tide gauges will help strengthen the national and international tsunami warning network that will allow us to be better prepared to avoid or reduce all types of losses due to tsunami events.

Measures to mitigate environmental risks:

The installation of new agro-meteorological and hydrological equipment is not contemplated, but rather their improvement with the incorporation of new tools and sensors, which reduces environmental risks. The process of installing tools and sensors will be done in coordination with competent entities (ETESA) considering their protocols and security measures and risks. For the selection of sites for the installation of tide gauges, the sites previously evaluated and determined by the National Tsunami Commission will be validated and protocols of the Intergovernmental Oceanographic Commission (IOC) of UNESCO will be followed to avoid environmental risks for technicians and equipment.

Additional description and context of the activity:

The improvement and establishment of these teams will not only be key to improve the information for Early Warning Systems, but also generate important information for many other actions ranging from support to agricultural planning, to information for the development of studies and flood models and tools to support decision-making.

Solution specifics / details:

- ✓ Magnitude / scope: at basin scale (agro-meteorological and hydrological stations), for the coastal sector of the Central Pacific (Network of tide gauges and SAT).
- ✓ Location: Watersheds and marine-coastal zone of the Central Pacific.
- ✓ Beneficiaries: Communities of the Central Pacific of Panama.
- ✓ Objectives: Strengthening the network of agro-meteorological and hydrological stations and tsunamis in Panama and their related Early Warning Systems.
- ✓ Inter-institutional coordination: National Civil Protection System (SINAPROC), Panama Maritime Authority (AMP), Tommy Guardia National Geographic Institute, Ministry of the Environment, ETESA and Institute of Meteorology and Hydrology of Panama (IMPHA).
- ✓ Applicable technical standards: Executive Decree No. 135 of April 30, 2021, which regulates Chapter I of Title V of the Sole Text of Law 41 of July 1, 1998, General Environment of the Republic of Panama, on adaptation to Global Climate Change, and dictates other provisions Law No. 209 of April 22, 2001, that creates the Meteorology and Hydrology Institute of Panama (IMPHA)

Product Summary:

Table 2.13. Product Summary 2.2

Adaptation Measure	Strengthening of the network of meteorological stations in the area of influence of the PROGRAMME and of tide gauges, and related Early Warning Systems
Scope:	Hydrographic basins and marine-coastal zone
Adaptation benefits	Communities of the Central Pacific of Panama
Technical solutions	Strengthening of the network of agro-meteorological, hydrological and tsunami stations to improve Early Warning Systems.
Adaptation additionality	Prevention of risks on a larger scale and generation of agro-climatic and hydrological information whose analysis can contribute to different adaptation processes (planning, ordering, Agro-production, among others)

Adaptation reasoning:

Table 2.14. Adaptation reasoning for product 2.2

Type of measure	CC risk or impact identified	Expected result on the ground	Difference with BAU handling
Strengthening and installation of networks to collect climate information to support SAT and other adaptation actions	Variability in seasonal patterns of precipitation causes alteration in the frequency and intensity of rainfall causing flooding. Rising sea levels and waves cause flooding and coastal erosion.	Network of agro-meteorological and hydrological stations and tsunamis strengthened that provide key information to SAT and other adaptation actions.	Adaptation actions to climate variability based on better information and climate data from strengthened meteorological and tsunami networks.

2.3 A platform for modeling climate vulnerability and environmental risk has been developed.

The information generated (by 1- the vulnerability analysis studies in the basins of the programme area, 2- the sea level increase model for the Central Pacific of Panama that identifies the areas of greatest vulnerability according to IPCC scenarios, and 3- other relevant information that includes vulnerability and risk analysis in the programme area) will be processed and incorporated into a platform that will allow users to generate information on the levels of vulnerability and risks in the programme area. This tool will facilitate the inclusion of climatic considerations in planning, ordering, and environmental management activities. In addition, it will allow considering climate risks in investments of public and private sector programmes. This platform will be developed in the programme area as a pilot model that could scale at the national level, which will be under evaluation and improvement to guide climate adaptation for the sustainable development of the country. The platform will be hosted on the adaptation portal of the Ministry of the Environment of Panama and will have a protocol to facilitate use by interested users.

Expected concrete products:

- A climate vulnerability and environmental risk modeling platform installed and operating.
- Protocol for the use of the vulnerability and environmental risk modeling platform.

Technical specifications of the solution:

Design and start-up of a platform for modeling vulnerability and environmental and climatic risks for the Central Pacific of Panama that would be hosted on the adaptation platform of the Ministry of the Environment. This platform will be built from the results of the vulnerability studies and sea level rise modeling developed in Result 2.1 of this Component. It will also have a protocol for the management of the information that will be available on the platform and the use or access by different actors. For this, a programme will be developed that through the introduction of geographic coordinates or polygons (global positioning points) generate information on vulnerability and environmental and climate risks of value for planning processes, ordering, infrastructure development and investments in particular programmes and state.

Climate change threat:

The variability in seasonal patterns of precipitation causes alteration in the frequency and intensity of rains causing floods and water shortages in the dry season, aggravated during periods of the child with impacts on the health and sanitation of the communities and their livelihoods. Rising sea levels and larger waves cause flooding and coastal erosion that affect the coastal population, their livelihoods and infrastructure.

Clear link between the threat of climate change and the solution:

The tool will allow access to projections of vulnerability and environmental and climatic risks from studies developed and validated that will allow a development with environmental and climatic considerations.

Measures to mitigate environmental risks:

The platform is a tool precisely to mitigate or consider environmental and climate risks in any development initiative.

Additional description and context of the activity:

Capacity must be generated in key actors for the adequate and efficient use of this tool and its application in different processes of planning, ordering, risk analysis of public and private investments, establishment of infrastructure, among other activities. Its continuous evaluation and updating based on new studies that are developed will be important, so it should be a flexible tool with the opportunity to scale at the national level.

Solution specifics / details:

- ✓ Magnitude / scope: Central Pacific of Panama.
- ✓ Location: Coastal districts of the programme area.
- ✓ Beneficiaries: Ministry of the Environment, Ministry of Economy and Finance, Ministry of Housing, Municipalities, Banking Sector, Communities and investors.
- ✓ Objectives: Free access tool that will allow to consider vulnerability and environmental and climatic risks for decision making.
- ✓ Inter-institutional coordination: Ministry of the Environment, Ministry of Economy and Finance, Ministry of Housing, Municipalities.
- ✓ Applicable technical standards: Executive Decree No. 135 of April 30, 2021, which regulates Chapter I of Title V of the Sole Text of Law 41 of July 1, 1998, General Environment of the Republic of Panama, on adaptation to Global Climate Change, and dictates other provisions

Product Summary:

Table 2.15. Product Summary 2.3

Adaptation Measure	Developed a platform for modeling climate vulnerability and environmental risk
Scope:	At the district level in the programme area, Central Pacific of Panama or Dry Arc of Panama
Adaptation benefits	Tool that will allow considering projections of vulnerability and environmental risks to guide planning, ordering and development actions in the programme area
Technical solutions	Solutions based on technical and scientific information that will reduce risks to public and private sector investments and guide local development.
Adaptation additionality	Pilot who must evaluate its effectiveness and scope to scale nationally.

Adaptation reasoning:

Table 2.16. Adaptation reasoning for product 2.3

Type of measure	CC risk or impact identified	Expected result on the ground	Difference with BAU handling
Design of a platform for modeling climate vulnerability and environmental risks to guide development with considerations of vulnerability and environmental and climate risks	Seasonal variations in rainfall, with intense rains in very short periods of time causing flooding, as well as rising sea levels and higher magnitude waves that cause flooding and coastal erosion.	Use of the tool to include vulnerability and environmental and climate risks in planning, ordering, investment and programme actions.	Tool that facilitates decision-making with considerations of vulnerability and climate risks to facilitate adaptation and resilience measures to climate change.

2.4 Implementación de medidas adaptación priorizadas de acuerdo con análisis de costos efectividad.

The different studies developed in this component, such as, for example, the vulnerability analyzes for the basins of the programme area, and the development of the sea level rise model, will generate different adaptation measures to the different impacts derived from global climate change. Additionally, for the study area it is expected to have the analysis of marine dynamics, the evaluation of impacts and vulnerability due to rising sea levels as part of a programme financed by the Climate Technology Center & Network (CTCN). This programme will develop recommendations for nature-based adaptation measures. In order to prioritize some of the recommended adaptation measures, a cost-effectiveness analysis of the main measures and their economic, political, social and environmental viability will be prepared, in order to select those that could be more cost-effective and feasible considering the different variables. As part of the process, it is expected to monitor and evaluate the implementation of these measures and to systematize this experience.

Expected concrete products:

- A cost-effectiveness analysis of the main adaptation measures and their feasibility analysis that allows their prioritization.
- Implementation of prioritized adaptation measures, their monitoring, evaluation, and systematization of the experience.

Technical specifications of the solution:

The programme has prioritized the implementation of different adaptation measures based on nature according to the climate information that is managed, strategies and the different development plans of the country. However, with the implementation of this programme and other initiatives, new adaptation recommendations will be generated, so these adaptation recommendations will be analyzed according to their impact, scope and feasibility (cost / effectiveness analysis) to be prioritized and implemented. with programme resources.

Climate change threat:

Seasonal variations in rainfall, with intense rains in very short periods of time that cause floods and water shortages in the dry season. Sea level rise and higher magnitude waves that cause flooding and coastal erosion.

Clear link between the threat of climate change and the solution:

The implementation of adaptation measures based on nature prioritized according to cost-effectiveness analysis will allow mitigating the climate threats identified for the programme area.

Measures to mitigate environmental risks:

Adaptation measures based on selected nature are implemented to generate a greater impact on the mitigation of environmental risks.

Additional description and context of the activity:

The selection of prioritized measures according to cost effectiveness analysis should complement the measures that the programme executes and not duplicate efforts. Evaluation and monitoring of these will be included to analyze and evaluate their impact, and generate lessons learned from the process.

Solution specifics / details:

- ✓ Magnitude / scope: Coastal districts of the PROGRAMME area.
- ✓ Location: prioritized coastal settlements.
- ✓ Beneficiaries: Coastal communities.
- ✓ Objectives: Mitigation of impacts and risks derived from climate variability.
- ✓ Inter-institutional coordination: Ministry of the Environment, Ministry of Agricultural Development, Aquatic Resources Authority, Panama Tourism Authority.
- ✓ Applicable technical standards: Executive Decree No. 135 of April 30, 2021, which regulates Chapter I of Title V of the Sole Text of Law 41 of July 1, 1998, General Environment of the Republic of Panama, on adaptation to Global Climate Change, and dictates other provisions

Product Summary:

Table 2.17. Product Summary 2.4

Adaptation Measure	Prioritized adaptation measures implemented according to cost effectiveness analysis
Scope:	Coastal communities, livelihoods, ecosystems
Adaptation benefits	Increased climate resilience of communities, livelihoods and ecosystems.
Technical solutions	Implementation of nature-based adaptation to improve the climate resilience of communities, livelihoods, and ecosystems
Adaptation additionality	Greater impact on actions and investments in adaptation.

Adaptation reasoning:

Table 2.18. Adaptation reasoning for product 2.4

Type of measure	CC risk or impact identified	Expected result on the ground	Difference with BAU handling
Prioritized adaptation measures implemented according to cost effectiveness analysis	Seasonal variations in rainfall, with intense rains in very short periods of time that cause floods and water shortages in the dry season. Sea level rise and higher waves causing flooding and coastal erosion	Enhanced climate resilience of high value communities, livelihoods, and ecosystems.	Implementation of prioritized adaptation measures according to their cost effectiveness analysis.

2.5 Strengthening the Monitoring and Evaluation System for Adaptation to Climate Change.

The implementation of the System for Monitoring and Evaluation of Adaptation to Climate Change is contemplated, a platform that was developed through the Adaptation Fund that includes a set of indicators (21 in total) were selected based on factors that define vulnerability to change. climate (exposure, impacts, sensitivity and adaptive capacity) which will help to follow up on national adaptation plans and guides in each of the sectors identified in Panama's CDN1. It also includes the evaluation of the achievement of the results and the goals set, as well as recommendations to improve the system in a comprehensive manner, including the improvement of the indicators and the design of monitoring and evaluation protocols. Additionally, the incorporation of new loss and damage indicators and aquiculture with its monitoring and evaluation protocols at a local level.

Expected concrete products:

- Analysis of the implementation of the Monitoring and Evaluation System for Adaptation to climate change with evaluation of the results and goals set and with recommendations for improving the indicators and monitoring and evaluation protocols.

Technical specifications of the solution:

Implementation of the Monitoring and Evaluation System for Adaptation to climate change that includes a set of 21 indicators selected based on factors that define vulnerability to climate change (exposure, impacts, sensitivity and adaptive capacity). The implementation of this system will allow the monitoring of progress and compliance with the national adaptation plans and guides in each of the sectors identified in the CDN1 of Panama. This process will help improve monitoring and evaluation protocols for the defined indicators and / or improve them.

Climate change threat:

Seasonal variations in rainfall, with intense rains in very short periods of time that cause floods, putting the safety of communities and their livelihoods at risk. Water shortage in the dry season that increases during periods of El Niño that affect productive activities such as agriculture and livestock. Sea level rise and waves of greater magnitude that cause flooding affecting communities and their livelihoods and coastal erosion that affects infrastructure and ecosystems.

Clear link between the threat of climate change and the solution:

It allows evaluating the progress in the implementation of strategies and plans for adaptation to climate change and generating recommendations for the more effective management of the country's adaptation actions and investments.

Measures to mitigate environmental risks:

Take into consideration climate information, predictions, and warnings from Early Warning Systems during the field activities of evaluation and monitoring of indicators.

Additional description and context of the activity:

The Implementation of the System for Monitoring and Evaluation of Adaptation to climate change will make it possible to test the tool and generate recommendations for its improvement and scaling up at the national level.

Solution specifics / details:

- ✓ Magnitude / scope: At the municipal level, scalable at the national level.
- ✓ Location: Coastal municipalities in the programme area.
- ✓ Beneficiaries: Communities and their livelihoods, government institutions that develop strategies and plans for adaptation to climate change.
- ✓ Objectives: Evaluate the Monitoring and Evaluation System for Adaptation to climate change and generate recommendations for its improvement and national scaling.
- ✓ Inter-institutional coordination: Ministry of the Environment, Ministry of Agricultural Development, Fisheries Resources Authority, Ministry of Housing, Panama Maritime Authority, Municipalities.
- ✓ Applicable technical standards: Executive Decree No. 135 of April 30, 2021, which regulates Chapter I of Title V of the Sole Text of Law 41 of July 1, 1998, General Environment of the Republic of Panama, on adaptation to Global Climate Change, and dictates other provisions

Product Summary:

Table 2.19. Product Summary 2.5

Adaptation Measure	Strengthening the Monitoring and Evaluation System for Adaptation to Climate Change
Scope:	At the municipal level, scalable at the national level
Adaptation benefits	Key information to improve adaptation strategies and plans and guide investments. Improvement of the evaluation and monitoring system for adaptation to Climate Change.
Technical solutions	Generation of information for informed decision-making that facilitates improving adaptation strategies and plans with more effective investments.
Adaptation additionality	Generation of information to improve national adaptation strategies and plans and investments in adaptation to climate change. Validation of the adaptation monitoring and evaluation system with its indicators and protocols.

Adaptation reasoning:

Table 2.20. Adaptation reasoning for product 2.5

Type of measure	CC risk or impact identified	Expected result on the ground	Difference with BAU handling
Strengthening the Monitoring and Evaluation System for Adaptation to Climate Change with its indicators and protocols	Seasonal variations in rainfall, with intense rains in very short periods of time, rising sea levels and waves of greater magnitude.	Monitoring and Evaluation System for Adaptation to Climate Change implemented and improved with its indicators and protocols. Generation of recommendations to improve adaptation strategies and plans.	The adaptation monitoring and evaluation system is a key tool for evaluating progress in the implementation of adaptation strategies and plans and generating recommendations to improve them.

Component 3. Improve the capacity of key stakeholders and generate knowledge on climate adaptation and resilience at the local and national level.

Budget: US $ 1,216,977

Component three will be oriented to the development of capacities of key actors for understanding and understanding about climate change in general and adaptation based on ecosystems with a gender perspective. A gender equality participation plan will be developed, and, in addition, the capacities of these actors will be strengthened in the knowledge of national policies and plans to face global climate change and their implementation at the local level. A process will be developed to strengthen the capacities of CBOs and municipalities so that they can prepare, implement, monitor and evaluate adaptation proposals with a community approach that allows them to develop adaptation actions and strengthen their climate resilience in their communities and livelihoods. The establishment of inter-municipal agreements for the development of pilot adaptation programmes will be promoted, considering that (i) climatic effects and adaptation actions go beyond geographical limits and (ii) the existence of key ecosystems -such as mangroves- that they are shared between municipalities. It also includes the development of a knowledge management programme that includes the communication of the progress and results of the programme, the systematization of experiences and lessons learned, the promotion of exchanges at different levels, the dissemination of

results and the strengthening of the portal of adaptation established during the development of the country's first adaptation programme as a key tool for communication, dissemination, training and installation of the climate vulnerability and risk modeling platform.

3.1 Strengthened the capacities of key actors on Climate Change and adaptation based on ecosystems and successful experiences implemented

A training programme for actors on climate change and ecosystem-based adaptation will be developed, including information on successful experiences implemented in Panama and in other parts of the world. This programme will include the design of a training plan and the development of modules that will cover different topics related to climate change, adaptation based on ecosystems, national policies and plans to face the effects of climate change, successful experiences, among other topics. The training modules and contents will be validated with the Ministry of the Environment of Panama and must contemplate the option of digital training through the adaptation platform of the Ministry of Environment, and local training that must be developed in the communities contemplating security measures of the Ministry of Health and the World Health Organization (WHO) to prevent COVID-19 and its variants. The process will contain participant evaluation systems and final evaluation of the implementation of each module. The goal is to train at least 500 key actors in the area of programme implementation.

Expected concrete products:

- Actors training plan on climate change and adaptation based on ecosystems.
- Design of training modules with content validated by the Ministry of the Environment.
- Evaluation reports of each training process developed.

Technical specifications of the solution:

Strengthening the capacity of actors on knowledge of climate change and adaptation based on ecosystems through the elaboration and implementation of a training plan for identified key actors. Training modules will be developed, and strategies will be developed through digital media and networks, as well as face-to-face, following the security protocols of the Ministry of Health and WHO in the face of the COVID-19 pandemic. Evaluation processes of each process are included to have feedback applied to the improvement of the training process.

Climate change threat:

Seasonal variations in rainfall, with intense rains in very short periods of time causing flooding, runoff and sedimentation. Water shortage in dry season aggravated by periods of El Niño with increased water stress and water availability for communities, livelihoods, and ecosystems. Sea level rise and higher magnitude waves that cause flooding and coastal erosion.

Clear link between the threat of climate change and the solution:

Strengthening the capacities of key actors is strategic so that key actors understand and can make informed decisions. The local capacities generated will allow adaptation actions to have a greater impact in the field and a commitment to their sustainability.

Measures to mitigate environmental risks:

Environmental risk measures will be considered for any face-to-face training process, as well as the measures and protocols of the Ministry of Health and WHO to prevent the spread or contagion of COVID-19.

Additional description and context of the activity:

The adaptation platform hosted by the Ministry of the Environment will be used as a means of hosting and facilitating access to users of the training modules that are developed, as well as their evaluation. This strategy will allow access to many other actors to strengthen their capacities on issues related to climate change and adaptation.

Solution specifics / details:

- ✓ Magnitude / scope: Key actor of coastal districts in the programme area
- ✓ Location: MiAmbiente Adaptation Platform with access to key stakeholders from coastal districts.
- ✓ Beneficiaries: Communities, local authorities, institutional officials, businessmen from different sectors, among others.
- ✓ Objectives: Strengthen capacities to improve knowledge of climate change and nature-based adaptation.
- ✓ Inter-institutional coordination: Ministry of the Environment with other key actors such as: Ministry of Agricultural Development, Aquatic Resources Authority, Tourism Authority of Panama, Ministry of Housing and Territorial Planning (MIVIOT), local authorities, Community, Cooperatives, Associations.
- ✓ Applicable technical standards: Executive Decree No. 135 of April 30, 2021, which regulates Chapter I of Title V of the Sole Text of Law 41 of July 1, 1998, General Environment of the Republic of Panama, on adaptation to Global Climate Change, and dictates other provisions

Product Summary:

Table 2.21. Product overview 3.1

Adaptation Measure	Strengthened the capacity of key actors and improved knowledge on climate adaptation and resilience at the local and national levels
Scope:	Coastal District Actors
Adaptation benefits	Increased knowledge capacity on Climate Change, adaptation measures based on nature and successful experiences

Technical solutions	Preparation and implementation of training plan and modules and their evaluation.
Adaptation additionality	It will make it possible to strengthen the adaptation platform to generate the capacity of actors to improve knowledge of climate change and adaptation measures based on nature.

Adaptation reasoning:

Table 2.22. Adaptation reasoning for product 3.1

Type of measure	CC risk or impact identified	Expected result on the ground	Difference with BAU handling
Capacity building through the development and implementation of a training plan for actors with modules on climate change and nature-based adaptation measures	Seasonal variations in rainfall, with intense rains in very short periods of time that cause floods and water shortages in the dry season. Sea level rise and higher waves causing flooding and coastal erosion	Improving the capacity of actors to understand and deal with climate change with nature-based adaptation measures.	Generation and strengthening of capacities in climate change and adaptation that will facilitate the implementation of PROGRAMME actions.

3.2 Strengthened national and local capacities and developed the tools that allow participation with a gender perspective in project activities

An action plan will be prepared for the integration of the gender perspective into the project, which must be aligned with the National Gender and Climate Change Plan of Panama and the gender policy and the gender action plan of the Adaptation Fund and considering the Gender orientation document for executing entities on compliance with the gender policy of the Adaptation Fund updated to 2022. A gender specialist will be hired who will be in charge of preparing the gender integration action plan in a widely participatory manner and its implementation. As a transversal strategy, this plan must be integrated into the implementation of the project's components and activities.

Expected concrete products:

- Action Plan for the integration of the gender perspective into the project.
- Implementation reports and memories of training workshops

Technical specifications of the solution:

The preparation of the Action Plan for the integration of the gender perspective will be based on surveys and interviews with interested parties from the coastal districts of the project area and considering national gender strategies and plans and determining the opportunities for participation in the benefits, capacity building and decision-making that the project will promote. The project contemplates the hiring of a gender specialist who will facilitate the process of preparation and implementation of the gender action plan and its evaluation. This plan must contain indicators aligned with the project and the national gender and climate change plan of Panama.

Climate change threat:

Water scarcity in the dry season aggravated by El Niño periods with increased water stress and availability of water for communities, livelihoods, and ecosystems. Rise in sea level and larger waves that cause flooding and coastal erosion.

Clear link between climate change threat and solution:

The action plan with a gender perspective must be comprehensive and aligned with the action plan for gender and climate change in Panama, so that it guarantees not only the inclusion of gender in benefits, training, and project activities, but also strengthens the local capacity of the most vulnerable groups to improve their adaptation and resilience to climate change.

Measures to mitigate environmental risks:

Environmental risk measures will be taken into account for any face-to-face consultation and training process. The measures and protocols of the Ministry of Health and WHO will be considered to prevent the spread or contagion of COVID-19.

Additional description and context of the activity:

The action plan from the gender perspective will offer one of the first opportunities to align the project's gender actions with the new gender and climate change action plan of Panama. The process must generate experiences and lessons learned that must be documented, systematized, and shared.

Solution specifics / details:

- ✓ Magnitude / Scope: Stakeholders from coastal districts in the program area
- ✓ Location: Coastal districts of the project area.
- ✓ Beneficiaries: Communities, their livelihoods, CBOs and municipalities in the program's intervention area.
- ✓ Objectives: Integration of the gender perspective in the implementation of the project.
- ✓ Inter-institutional coordination: Ministry of the Environment with other key actors such as: Ministry of Agricultural Development, Authority of Aquatic Resources, Tourism Authority of Panama, local Authorities, Community, Cooperatives and Associations.
- ✓ Applicable technical standards: Executive Decree No. 11 of June 16, 2022, that adopts the National Gender and Climate Change Plan of Panama.

Product Summary:

Table 2.23. Product Summary 3.2

Adaptation Measure	Strengthened capacity from a gender perspective and improved knowledge on adaptation and climate resilience at the local and national level
Scope:	Actors from coastal districts
Adaptation benefits	Increased knowledge capacity on Climate Change, gender inclusion in benefits and decision-making, nature-based adaptation measures and project management
Technical solutions	Preparation and implementation of an action plan with a gender perspective.
Adaptation additionality	Opportunity to align the tool with the country's Gender and Climate Change Action Plan, to learn from the experience, systematize it and disseminate it.

Adaptation reasoning:

Table 2.24. Adaptation reasoning for product 3.2

Type of measure	CC risk or impact identified	Expected result on the ground	Difference with BAU handling
Strengthened national and local capacities and developed the tools that allow participation with a gender perspective in project **activ**ities.	Seasonal variations in rainfall, with intense rains in very short periods of time that cause flooding and water shortages in the dry season. Rise in sea level and larger waves that cause flooding and coastal erosion.	Improvement of the actors capacity to understand and face climate change with nature based adaptation measures and the management of adaptation projects with a gender perspective.	Generation and strengthening of capacities in climate change, adaptation, implementation of adaptation policies and plans at the local scale and comprehensive project management.

3.3 Strengthened capacities of Community Based Organizations and Municipalities on climate change, nature-based adaptation and comprehensive programme management

A special group of stakeholders from CBOs and municipalities will be established to develop a capacity-building process on climate change, ecosystem-based adaptation, and on the implementation of adaptation policies and plans at the local scale. This process will be the basis for the development of another second-level training process, which will allow the development of capacities for the comprehensive management of adaptation programmes. For this, special modules will be designed to train these actors in programme management, but also work will be done on the preparation of small adaptation proposals for the communities and municipalities that will be evaluated and those that meet the criteria established by an evaluation committee will be selected; and they will have funds for the practical development of the programme execution experience. The training processes will include evaluation actions of the participants and final evaluation of the process. It will also promote the establishment of inter-municipal agreements for the development of joint adaptation actions and improvement of climate resilience, recognizing that adaptation actions do not have geographic limits and that high-value ecosystems such as mangroves are shared among municipalities.

Expected concrete products:

- Special modules designed and implemented for the implementation of adaptation strategies and plans at the local level and the management of projects for 200 beneficiaries.
- Evaluation of capacity building processes.
- At least 15 proposals for adaptation projects of CBOs and municipalities prepared.
- Inter-municipal agreements established for the development of joint adaptation actions.

Technical specifications of the solution:

The Community-Based Organizations (CBOs) and Municipalities will constitute a special group in the process of capacity-building on issues of climate change and ecosystem-based adaptation (Result 3.1 of this component). These will be developed additional modules on policies and strategic plans for adaptation and their implementation at the local level and comprehensive programme management. Special workshops will be developed, following security measures against COVID-19, for the preparation of an adaptation proposal for their communities, livelihoods and / or municipal interest. The proposals prepared will have access to financing opportunities through the donations programme for adaptation actions directed at CBOs and Municipalities from the local perspective. The establishment of agreements between municipalities will be promoted as a strategy for the development of adaptation programmes of greater scope and in order to eliminate the barriers of political limits of the local vision.

Climate change threat:

Seasonal variations in rainfall, with intense rains in very short periods of time causing flooding, runoff, and sedimentation. Water shortage in dry season aggravated by periods of El Niño with increased water stress and water availability for communities, livelihoods, and ecosystems. Sea level rise and larger waves that cause flooding and coastal erosion.

Clear link between the threat of climate change and the solution:

Strengthening the capacities of key actors is strategic so that they not only understand the dimensions of climate change and the adaptation measures that can be developed, but also how to implement adaptation policies and plans at the local level through programme management. and access to climate finance.

Measures to mitigate environmental risks:

Environmental risk measures will be considered for any face-to-face training process and as a variable to be considered in the preparation of proposals for programmes. The measures and protocols of the Ministry of Health and WHO will be considered to prevent the spread or contagion of COVID-19.

Additional description and context of the activity:

The development of this capacity-building process for CBOs and Municipalities will set a precedent that will open opportunities from other sources so that organized groups and municipalities with installed capacities can generate programmes and financing for the benefit of communities and their livelihoods. The process must generate experiences and lessons learned that must be documented, systematized, and shared.

Solution specifics / details:

- ✓ Magnitude / scope: Key actor of coastal districts in the programme area
- ✓ Location: MiAmbiente Adaptation Platform with access to OBC and Municipal staff.
- ✓ Beneficiaries: Communities, their livelihoods and the municipalities in the programme's intervention area.
- ✓ Objectives: Strengthen local capacities for the management of adaptation programmes with a local perspective.
- ✓ Inter-institutional coordination: Ministry of the Environment with other key actors such as: Ministry of Agricultural Development, Water Resources Authority, Tourism Authority of Panama, local authorities, Community, Cooperatives and Associations.
- ✓ Applicable technical standards: Executive Decree No. 135 of April 30, 2021, which regulates Chapter I of Title V of the Sole Text of Law 41 of July 1, 1998, General Environment of the Republic of Panama, on adaptation to Global Climate Change, and dictates other provisions.

Product Summary:

Table 2.25. Product Summary 3.2

Adaptation Measure	Strengthened the capacity of key actors and improved knowledge on climate adaptation and resilience at the local and national levels
Scope:	Coastal District Actors
Adaptation benefits	Increased knowledge capacity on Climate Change, nature-based adaptation measures and PROGRAMME management
Technical solutions	Preparation and implementation of training plan and modules on climate change, nature-based adaptation, adaptation policies and plans, PROGRAMME management and evaluation of these.
Adaptation additionality	Opportunity to learn from the experience through its systematization and dissemination, in addition to scaling this pilot to other sites in Panama.

Adaptation reasoning:

Table 2.26. Adaptation reasoning for product 3.2

Type of measure	CC risk or impact identified	Expected result on the ground	Difference with BAU handling
Capacity building through the preparation and implementation of a training plan for actors with modules on climate change and adaptation measures based on nature, strategy and adaptation plans and comprehensive PROGRAMME management	Seasonal variations in rainfall, with intense rains in very short periods of time that cause floods and water shortages in the dry season. Sea level rise and higher magnitude waves that cause flooding and coastal erosion.	Improvement of the capacity of actors to understand and deal with climate change with adaptation measures based on nature and the management of adaptation PROGRAMMEs with a local perspective.	Generation and strengthening of capacities in climate change, adaptation, implementation of adaptation policies and plans at the local scale and comprehensive management of PROGRAMMEs.

3.4 Escalation of knowledge management on adaptation to climate change at the national level, by strengthening the adaptation portal and a programme for systematizing experiences, lessons learned and their appropriation

It includes the development of a comprehensive knowledge management programme with the communication of the progress in the implementation of the programme, the communication of results and activities developed by the programme. This programme will contain goals and indicators that will make it possible to evaluate the fulfillment and scope of the communication actions carried out by the programme. This comprehensive knowledge management programme should also identify and systematize the most relevant experiences and lessons learned that the programme would develop; It should include the identification and programming of opportunities for the exchange of experiences of actors at different levels, including knowledge of successful experiences implemented in Panama and in other parts of the world. This programme will also create spaces for the dissemination of results and that the programme can share experiences and lessons learned during its execution. It includes the hiring of a communications specialist in charge of directing and facilitating all communication activities through the various media, communicating the results and progress of the project and their experiences and lessons learned. The adaptation platform will be strengthened as a key means for communicating progress, results and experiences generated by the programme; in addition to serving to promote the strengthening of actors' capacities through virtual modules. Additionally, this adaptation platform must host and allow access to the climate risk and vulnerability modeling platform.

Expected concrete products:

- Comprehensive knowledge management programme designed and in operation with established goals and indicators that facilitate its evaluation.
- Adaptation Platform established in the Ministry of Environment strengthened and operational.
- Systematization of experiences and lessons learned from programmes carried out in the programme.

Technical specifications of the solution:

It includes the development and implementation of a programme with goals and indicators for the evaluation of its fulfillment that allows the integral management of the knowledge generated by the programme to be executed, which includes the communication actions of progress, results and activities developed by the programme. It must integrate the adaptation platform to facilitate training actions, dissemination of experiences and lessons learned, and facilitate access to tools such as a platform for modeling vulnerability and environmental and climate risks.

Climate change threat:

Seasonal variations in rainfall, with intense rains in very short periods of time causing flooding, runoff and sedimentation. Water shortage in dry season aggravated by periods of El Niño with increased water stress and water availability for communities, livelihoods, and ecosystems. Sea level rise and higher magnitude waves that cause flooding and coastal erosion.

Clear link between the threat of climate change and the solution:

Comprehensive knowledge management is a key action that allows access to information, experiences, lessons learned, training and awareness regarding the climate issue and nature-based solutions.

Measures to mitigate environmental risks:

Environmental risk measures will be considered for any face-to-face process of systematizing experiences or knowledge-sharing sessions, as well as the measures and protocols of the Ministry of Health and WHO to prevent the spread or contagion of COVID-19.

Additional description and context of the activity:

Knowledge management is a key tool to generate a greater impact on the fulfillment of the objectives and goals of the programme.

Solution specifics / details:

- ✓ Magnitude / scope: Key Actors of the programme and national and international actors interested in issues of adaptation to climate change
- ✓ Location: Ministry of the Environment, the adaptation platform and, at the local level, the opportunities for systematization, exchange, and dissemination.
- ✓ Beneficiaries: Communities, local authorities, institutional officials, entrepreneurs from different sectors, associations, cooperatives, among others.
- ✓ Objectives: Strengthen capacities to improve knowledge of climate change and nature-based adaptation and facilitate the dissemination of knowledge, lessons and experiences of the implementation of the programme.
- ✓ Inter-institutional coordination: Natura and the Ministry of the Environment with other key actors such as: Ministry of Agricultural Development, Water Resources Authority, Tourism Authority of Panama, Ministry of Housing, local authorities, Community, Cooperatives, Associations.
- ✓ Applicable technical standards: Executive Decree No. 135 of April 30, 2021, which regulates Chapter I of Title V of the Sole Text of Law 41 of July 1, 1998, General Environment of the Republic of Panama, on adaptation to Global Climate Change, and dictates other provisions

Product Summary:

Table 2.27. Product Summary 3.3

Adaptation Measure	Increased knowledge management on adaptation to climate change at the national level, by strengthening the adaptation portal and a programme for the systematization of experiences, lessons learned and their appropriation
Scope:	Key actors of the programme, nationals and foreigners with an interest in the subject
Adaptation benefits	Increased knowledge capacity on Climate Change, nature-based adaptation measures and dissemination of experiences and lessons from the programme
Technical solutions	Planned development of a comprehensive knowledge management programme that allows measuring its scope and goals through indicators.
Adaptation additionality	It will make it possible to strengthen the adaptation platform (of MiAmbiente) and share results, knowledge and lessons learned from the programme.

Adaptation reasoning:

Table 2.28. Adaptation reasoning for product 3.3

Type of measure	CC risk or impact identified	Expected result on the ground	Difference with BAU handling

Strengthening of capacities through the elaboration and implementation of a comprehensive knowledge management programme	Seasonal variations in rainfall, with intense rains in very short periods of time that cause floods and water shortages in the dry season. Sea level rise and higher waves causing flooding and coastal erosion	Improvement of the capacity of actors to understand and deal with climate change with adaptation measures based on nature and access to results, lessons, tools and experiences generated by the programme	Generation and strengthening of capacities in climate change and adaptation that will facilitate the implementation of programme actions and access to results, lessons, tools and experiences generated by the programme.

A2. Contribution of the programme to the overall increase in resilience capacity, compared to stand-alone individual projects

The proposed adaptation programme has taken into consideration some aspects to promote the increase of resilience in a more effective way compared to independent individual projects, which is the usual practice

a) The main strategy of the proposed programme is the comprehensive approach, contrary to the sectoral approach that is traditional practice. The reasoning behind the programme assumes that adaptation is a complex process that cannot be approached successfully from a sectoral or fragmented perspective. The proposed programme addresses the complexity of the visible and expected effects of climate change in the social, environmental, and economic spheres in an area of Panama with high vulnerability, a Pacific coastal strip. The use of the integral, interrelated, and connected approach between the components will help to address and understand (to actuate and replicate) the complex and dynamic interrelationships between sustainable livelihoods; use and protection of high value ecosystems; knowledge and tools for decision making for adaptation. The approach allows efficient and effective use of limited resources to manage the adaptation of a priority climate region for the country, while generating experience and know-how that can be replicated in other areas. In this way, the proposed programme has been designed so that, during its execution, the relationship between the components and how the interventions of one sector affect the others become more evident, creating synergies and better results. For example, the sea level rise model for the Central Pacific of Panama is a vital element to take into consideration in land use planning interventions, in municipal strategic investment planning, in water resources management and in diversification of sustainable livelihoods. These interventions, otherwise, would be approached from a sectoral point of view, for example, by the Ministry of Housing and Territorial Planning, local authorities (municipalities), the Panama Aquatic Services Authority, the Ministry of the Environment, and others.
b) Another means to promote increased resilience derived from the comprehensive approach is that the programme has been conceived in such a way that it intends to include actions in: i) evidence, promoting the generation of reliable climate data and scenarios; (ii) the application of adaptation measures and increased resilience of livelihoods on the ground; and iii) local and national capacity building options for adaptation and resilience.
c) Another difference with traditional projects is that the programme presents a combination of adaptation activities on the ground and actions to inform and influence decision-making processes in the sectors involved (i.e.: sea level rise model for the Central Pacific of Panama that identifies the areas of greatest vulnerability; environmental land use planning plans and municipal strategic plans that consider strengthening climate resilience, inter-municipal agreements for joint adaptation actions, and an effective and functioning protocol to monitor and evaluate progress of the interventions). Stand-alone projects that do not apply an integrated approach often focus on implementation (generation of evidence, for example through pilot projects) or on policy processes that foster technical or policy dialogue without specific activities on the ground.
d) Finally, the components of the programme have been designed in such a way that the components are connected, since the results of one component serve as inputs for products of other components. For example, the resulting technical data from 2.1 will serve as input for 2.4.

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

B1. Expected economic, social and environmental benefits from the Programme

The combined effect of various program activities will result in direct and indirect tangible economic benefits for local communities in the Central Pacific - Arco Seco climate region. The expected benefits of the implementation of the program, from the social-economic-environmental perspectives (stipulated by the AF Environmental and Social Policy, and the AF Gender Policy) are shown in table 2.29:

B2. Process for the selection of beneficiaries

The final selection of beneficiaries is part of the implementation of the program. The description and justification of the specific targeting methodology will form part of the terms of reference for each proposed activity, taking into consideration the provisions of the Social and Environmental Policy and the Gender Policy of the Adaptation Fund. However, the general facts / conditions to be considered are presented in table 2.30.

It is valid to note that:

• In the proposed program area there are no settlements or indigenous populations or other minorities that inhabit either permanently or sporadically.

• In the design of terms of reference for each specific expected product, it will be taken into consideration that the actions to be developed will not increase the vulnerability of the beneficiaries or non-beneficiaries, nor will they reduce their capacity to adapt to climate change. In addition, to design each term of reference, an analysis of the different needs, capacities, roles and knowledge resources of women and men will be carried out.

• Indicators that measure and provide evidence of gender equity in the beneficiaries of each intervention will be included.

• A requirement will be included for the final reports of each intervention to offer a balance of the impact of the equity measure on its success and expected sustainability, beyond the end of the AF financing.

Table 2.29. Social, economic and environmental benefits of the Program, by component propose

COMPONENT	*SOCIAL BENEFITS*	*ECONOMIC BENEFITS*	*ENVIRONMENTAL BENEFITS*
1. Increase the resilience of ecosystems and vulnerable productive sectors through diversification and nature-based solutions.	• Improved food safety. • Higher level of participation and dialogue with stakeholders. • Population with less risk exposure due to climate-resistant sources of income and adapted livelihoods. • Improved awareness of fair and responsible consumers regarding goods and services from the program area. • Better access to water for households (for consumption and for irrigation in areas of hydrological stress).	• Greater income generation for program participants. • Discourage the unsustainable exploitation of fishery resources, avoiding the total loss of sources of income for coastal communities. • Increase productivity per hectare of farm. • Use of low-cost technologies. • Generate evidence to support the hypothesis that financial risk to support adaptation initiatives could be appropriately quantified and managed. • Encourage microfinance for the coastal marine sector with adaptation and climate risk considerations. • Access to resources for prioritized actions for adaptation to global climate change through FONAG.	• Soil erosion and flood control. • Water purification and biological control. • Benefits for biodiversity. • Aesthetic and recreational values for the communities involved in the project. • Recovery of high value ecosystems and improvement of connectivity, through reforestation, enrichment or restoration. • Protection of blue carbon sink ecosystem services.
2. Improve local and national capacity to face exposure to climate-related hazards and threats, through planning tools and risk reduction systems.	• Early warning systems save lives and help protect livelihoods. • Local authorities are better able to evacuate or shelter people in advance; and have a faster response to situations of climatic vulnerability. • Informed decisions produce positive impacts on food security and social well-being. • Improved response capacity to extreme weather events: more communities and people trained. • Availability of climate information and data to stakeholders - public and private - on an equal access basis. • Higher level of participation and dialogue with stakeholders. • Municipalities that actively participate in adaptation actions. • Sustainable livelihoods.	• Access to information generated on the levels of vulnerability and risks in the program area. • inclusion of climatic considerations in land planning, land and environmental management activities. • Potential economic losses -due to extreme events- avoided through strengthened SATs. • Information available to consider climate risks in public and private sector project investments. • More informed decisions result in positive impacts on production and diversified incomes of the vulnerable population. • The evaluation of the monitoring system can increase the number of potential beneficiaries. • Greater possibility of success selecting suitable productive activities (and cost-effective) and compatible areas to increase their performance and economic benefits.	• Development process for the next years based on planning and management tools that consider vulnerability and climate risks. • Prevention of risks on a larger scale and generation of agroclimatic and hydrological information whose analysis can contribute to different adaptation processes (planning, management, agro-production, among others). • Updated management plan with data on climate change and a clear understanding of future scenarios for the region. • Access to better data to help make informed decisions about the protection of conservation sites; restore heavily intervened areas; and adapt to climate change.
3. Strengthen the capacity of stakeholders and improve knowledge on climate adaptation and resilience at the local and national levels, with gender perspective.	• Dimension of climate change included in the decision-making processes of local organizations. • Up-to-date information on adaptation available for public use (increased capacity to develop and implement efficient approaches to adaptation to climate change). • Users of ecosystem goods and services and institutions with related competencies (water, agricultural production, fisheries resources, environment, land use planning, local authority and others) use climate data on a regular basis for planning, budgeting and reporting purposes. • Higher level of participation and dialogue with stakeholders. • Strengthening national and local capacities for participation and inclusion with a gender perspective. • Incorporation of the gender perspective by participation and dedication share in the program.	• Increased capacity to develop and implement efficient climate change adaptation approaches that lead to the protection of property and income of communities in the Central Pacific climate region. • Greater equity in the benefits derived from the implementation of project activities. • Future planning and analysis carried out at different levels using climate data. • Updating of adaptation information available for public use, to make informed decisions about the economy.	• Increased knowledge and awareness about climate change and its impacts will help raise awareness about protecting the environment. • Dimension of climate change included in the decision-making processes of local organizations with gender perspective. • Increased public awareness of the causes of climate change, impacts and adaptation options. • Improved understanding of adaptation experiences, translated into improvements in adaptation project planning and implementation skills, both locally and nationally. • Implementation of the National Plan of Gender and Climate Change.

Table 2.30. Criteria for the selection of beneficiaries by proposed outcomes and outputs

Expected outcomes	Expected concrete outputs	Criteria for the selection of beneficiaries
1.1 Strengthened livelihoods management through productive diversification, incorporation of technology and nature-based solutions in traditional production systems.	At least 50 farm management plans developed and implemented to strengthen sustainable livestock and climate-smart agriculture, incorporating nature-based technologies and solutions.	• Small farmers. • Physical location of the farms. • Interest and commitment to the farm management plan process. • Co-financing commitment in cash or in kind (manpower) depending on financial capacity; willingness to participate in replication activities; Long-term legal commitment through the formalization of the farm management plan. • Site connectivity with prioritized ecosystem values. • Potential general and local benefits of adaptation to climate change. • Equal participation of women.
	Installed at least 4 apiaries and about 12 hives, including the training of beneficiaries (beekeepers) and the provision of equipment.	• Small farmers. • Possibility of improving productivity per unit of production. • Co-financing commitment in cash or in kind (manpower) depending on financial capacity; willingness to participate in replication activities. • Equal participation of women. • Equity in the distribution of benefits (similar support for all). • Limited access to traditional financial sources.
	Installed at least four oyster farming pilot experiences, including training of beneficiaries and provision of equipment.	• Families in a condition of socioeconomic vulnerability, with a background in the activity, according to updated inventories of the ARAP-MiAmbiente. • Commitment to complete the pilot project cycle. • Equal participation of women. • Equity in the distribution of benefits (similar support for all).
	12 projects of integral home gardens with water harvesting and drip irrigation systems established.	• Families in a socioeconomic vulnerability condition, with a background in the activity, according to updated information provided by MIDA. • Equity in the distribution of benefits: similar coverage of the productive model for all. • Establish a maximum limit and an average area for the garden. • Responsibility of the user with the conservation of water. • Identification of the type of soil and crop. • Equal participation of women. • Co-financing commitment in cash or in kind (manpower) depending on financial capacity; willingness to participate in replication activities.
	Installed at least 12 pilot tilapia farming projects with implemented aquaponics techniques, including training and provision of equipment.	• Families in a socioeconomic vulnerability condition, with a background in the activity, according to updated inventories of the ARAP-MiAmbiente. • Commitment to complete the pilot project cycle. • Commitment to transfer knowledge to other producers. • Equal participation of women. • Equity in the distribution of benefits (similar support for all).
	Three experiences of community tourism strengthened including the development of criteria or guidelines to reduce climate risk in the tourism operation and the development of a local community tourism strategy incorporating considerations for risk reduction and increased climate resilience.	• Communities with a background in the activity, according to updated inventories of the ATP-MiAmbiente. • Commitment of the participating communities to complete the cycle of the pilot project. • Commitment to transfer knowledge to other residents who are interested in the activity. • Equal participation of women. • Equity in the distribution of benefits (similar support for all).

Expected outcomes	Expected concrete outputs	Criteria for the selection of beneficiaries
	Ten pilot community fishing projects developed with the incorporation of nature-based technologies and solutions.	• Families in a socioeconomic vulnerability condition, with a background in the activity, according to updated inventories of the ARAP-MiAmbiente. • Commitment to complete the pilot project cycle. • Commitment to transfer knowledge to other producers. • Equal participation of women. • Equity in the distribution of benefits (similar support for all).
1.2 Strengthened value chains for the production, marketing and commercialization of climate-smart and gender-inclusive products and services.	Five business plans prepared and implemented for products or services with the greatest potential in the program.	• Existence of commercial potential. • Families in a condition of socioeconomic vulnerability, with a background in the activity, and who are participants in productive activities served by the program. • Commitment to complete the technical and financial cycle of the project. • With limited access to traditional financing sources. • Commitment to transfer knowledge to other producers. • Equal participation of women. • Equity in the distribution of benefits (similar support for all).
1.3 Improved water resource management in coastal communities through strengthening the management of rural aqueducts and water harvesting with the use of efficient and low-cost technologies.	Improved management of five rural aqueducts in the program.	• Communities in a condition of environmental and socioeconomic vulnerability, according to updated information to be provided by MINSA-MiAmbiente. • Physical location of the aqueduct. • Equity in the distribution of benefits for the five communities: similar coverage for all, adjusted to the initial condition of the aqueduct. • Interest, responsibility and commitment of the JAAR with the project. • Equal participation of women.
	18 multipurpose water harvesting systems installed using efficient and low-cost technologies.	• Families in a socioeconomic vulnerability condition, according to updated information provided by MIDA-MiAmbiente. • Climate vulnerability: beneficiaries are affected by severe recurrent droughts and / or contaminated water sources, according to information provided by SINAPROC, MIDA. • Equity in the distribution of benefits: similar system coverage for all. • Responsibility of the user with the conservation of water. • Equal participation of women. • Commitment to transfer knowledge to other producers.
1.4 Reduced pressure on high-value ecosystems and improved ecosystem services through actions for the protection, reforestation, enrichment and / or restoration of these ecosystems. .	Installed and operating at least two community nurseries in the program area.	• Communities in a condition of environmental and socioeconomic vulnerability. • Location close to high value ecosystems and offer a better opportunity to create connectivity between currently isolated segments. • Equity in the distribution of benefits for the two communities. • Interest, responsibility and commitment of the community with the project. • Equal participation of women.
	150 ha of high value ecosystems reforested, enriched and / or restored.	• Communities in condition of environmental and socioeconomic vulnerability. • Location in high value ecosystems for the environmental goods and services that they provide. • Opportunity to create or restore connectivity. • Interest, responsibility and commitment of the communities involved with the project. • Equal participation of women.
1.5 Fostered climate financing for the implementation of climate adaptation and resilience actions of communities and their livelihoods.	Established a finance program for local climate action that allows financing adaptation actions through projects proposed by CBOs and municipalities.	• Interest and commitment of OBC and municipalities to promote innovative actions of adaptation; get training and compete for access to the financing opportunity. • Commitment of completing the required technical and financial cycle. • With limited access to traditional financing sources. • Commitment to transfer knowledge to others. • Equal participation of women. • Equity in the distribution of benefits (similar support for all).

Expected outcomes	Expected concrete outputs	Criteria for the selection of beneficiaries
2.1 Developed baseline studies on climate change with application in planning and environmental land management	Three environmental land management plans for prioritized districts.	The criteria for your prioritization are: • Marine - coastal areas vulnerable to the rise of sea level, with populations categorized as highly vulnerable according to the Environmental Atlas of the Ministry of Environment of the Year 2010. • Towns that will disappear according to the projections of rising sea level at 2050 of MiAmbiente u Central Climate. • High level of vulnerability according to the Vulnerability Index to Climate Change 2021. • A low human development index. • High poverty values according to the UNDP multidimensional poverty (IPM) index, 2015.
	Six municipal strategic plans that incorporate environmental information, adaptation actions and strengthening of climate resilience in their territories.	These districts have district strategic plans; an update of them is proposed including environmental information and adaptation actions and strengthening of climate resilience in their territories. The Strategic District Plans of La Chorrera, Parita, Capira and Aguadulce are valid until 2022, meanwhile those of Anton and Natá were valid until 2019. The criteria for their selection were: • Affected by the sea level rise, which requires establishing adaptation actions to climate change. • High frequency of flooding. • They are a source of important livelihoods such as fishing, aquaculture, among others. • Plans do not have strategic lines related to climate change.
3.1 Strengthened the capacities of key actors on climate change and adaptation based on ecosystems, and successful experiences implemented.	Training Plan for key actors on climate change and ecosystem-based adaptation.	• With a presence in the area of the program and interest in the objectives of this. • Academic / experience requirements based on the technical specifications of the course / training. • Equity in the distribution of benefits for inhabitants of the communities of the program. • Interest, responsibility and commitment to the project. • Equal participation of women.
3.2 Strengthened national and local capacities and developed the tools that allow participation with a gender perspective in project activities	Prepared an action plan for the integration of the gender perspective in the project aligned with the National Gender and Climate Change Plan of Panama, which must include actions to strengthen and include gender in project activities.	• Interested parties, including institutions and beneficiaries for gender strengthening. • Beneficiaries who live in the communities of the area's coastal districts. • Participation of vulnerable groups: women, youth, the elderly.
3.3 Strengthened the capacities of community-based organizations (CBO) and municipalities on climate change, ecosystem-based adaptation, and comprehensive project management.	Designed and developed special training modules for implementation of adaptation strategies and plans at local level and project management for 200 beneficiaries.	• With the presence / experience in the area of the program and interest in the objectives of this. • Academic / experience requirements based on the technical specifications of the course / training. • Equity in the distribution of benefits for CBO and municipalities in the program area. • Interest, responsibility and commitment to the project. • Equitable participation of women and men.
3.4 Escalation of knowledge management on adaptation to climate change at the national level, by strengthening the adaptation portal and a Programme for systematizing experiences, lessons learned and their appropriation.	A comprehensive knowledge management program has been designed with indicators that facilitate its evaluation and a strengthened adaptation platform. Systematized experiences and lessons learned.	• With presence in the program area and interest in its objectives. • Interest, responsibility, and commitment to the project. • Equal participation of women.

B3. Equal access and distribution of the adaptation benefits among beneficiaries

The programme is sensitive to gender equity (promoting equal opportunities) and also equal benefits, by recognizing the different situations of women and men, and developing strategies to ensure that both sexes can benefit from the adaptation experience and results. For purposes of the Programme, Equality refers to ensuring project resources, activities and opportunities are equally available to women and men and treating both sexes in the same way. Equity refers to the process of treating women and men fairly so that the project generates similar benefits. To achieve this the key will be to find out the gender-based barriers to full participation for each specific group of women and men.

The programme strategy to do this and overcome the barriers for each group includes the development of indicators that will help measure how effectively each project is addressing the different needs, interests and resources of both women and men (as beneficiaries, workers and citizens).

The following criteria and principles will be observed to ensure an equitable distribution of the adaptation benefits among beneficiaries:

1. Facilitating participation of individuals/families whose land rights are not clear, through collaborative agreements or similar contract figures.
2. Working with both men and women is essential to the process. This involves supporting continued dialogue—at both household and community levels—about the roles of women in supporting agricultural innovation, while working to reduce structural deficits (access to resources) and encouraging more male support.
3. Free, prior and informed consent (FPIC) approach, when inviting individuals/families to participate in AP activities.
4. Co-design of the adaptation measures among the project implementers and the communities
5. Distributing AP activities across the different sections of the territory, to the extent possible, depending on the technical requirements of each one.
6. Establish coordination with conditional cash transfers programs (CCTs) to identify specific cases of socio-economic and climate vulnerability.
7. Encourage participation of community organizations (cooperatives, associations, other), without limiting participation of non-associated individuals or families.

Through the different components of the adaptation programme, a series of gender-sensitive measures have been proposed, particularly in:

- ✓ For all components: ToR for each subproject will require the inclusion of social and gender experts as part of the project staff, whenever pertinent.
- ✓ Regarding the installation of apiaries, the cultivation of oysters, the integral house gardens with water harvest and drip irrigation, and tilapia cultivation, will be given preference to households headed by women. This will require information disaggregated by gender that will be obtained through local instances and will be checked with the available statistical information.
- ✓ In materials for different audiences (farmers, institutions, academia, etc.) on adaptation to climate change (as part of the process of generating knowledge products), it will contain a specific material to address the vulnerability of women, measures taken to overcome this and examples of the adaptation program that could be replicated by other projects.
- ✓ Trainings will include a gender awareness section to ensure the understanding of specific gender issues of the project.
- ✓ Affirmative actions will be carried out to promote the participation of women in the implementation of a gender perspective, as well as the participation of young people.

B4. Complaints Handling Mechanism

To ensure that the Programme maintains an open and permanent communication channel with beneficiaries and community stakeholders, Fundacion Natura will put in place a Complaints Handling Mechanism as a critical tool for promoting adaptation programme transparency and accountability. According to the World Bank proposed methodology to design and operate these mechanisms, it will ensure, at least, the following dimensions:

- ✓ A complaint handling committee integrated by representatives from all municipalities in the program area.
- ✓ The members of the committees will be given the authority to take or demand remedial action
- ✓ The members of the committee will not necessarily be obliged to act on all complaints. Indicative lists of situations and exceptions will be developed.
- ✓ The mechanism will define measures to ensure that project-affected people feel that they can file complaints without fear of retaliation.
- ✓ Inform project beneficiaries of their right to file a complaint and about the complaints handling process in general.
- ✓ The mechanism will put in place an internal process to record, track and monitor the action taken on complaints.

✓ The mechanism should provide timely feedback (written or otherwise) to the petitioner on actions taken.

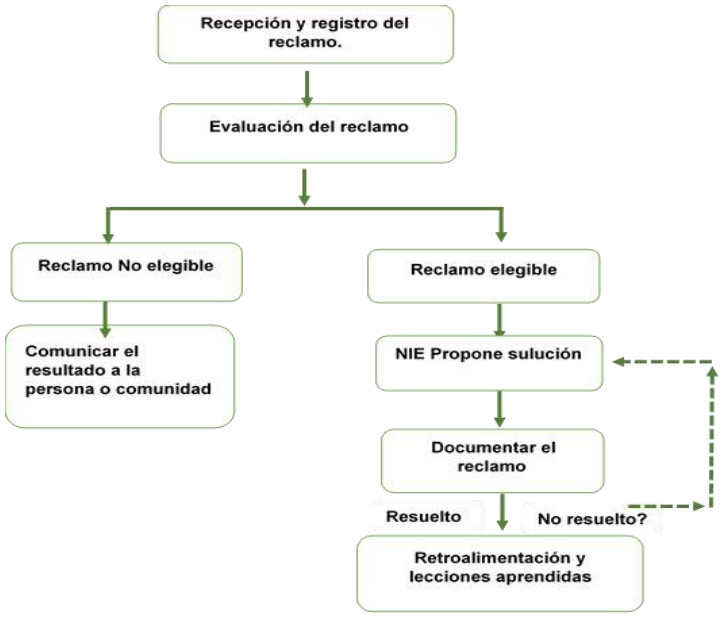
The proposed mechanism will serve as a tool for the NIE to evaluate and resolve the complaints of the communities in relation to the design and implementation of program activities. In the event that the claimants are not satisfied with the management or solution of complaints, a Special Committee of the Natura Foundation Board will serve as appeal instance.
NIE and executors must provide information to communities on a regular basis, to clarify expectations about what the mechanism may or may not do; encourage people to use it; submit the results and gather information to improve system claims.
The following indicative criteria will be used to determine the admissible claims that will be included in the claim mechanism.

Table 2.31. Criteria for determining the admissible claims that will be included in the claim mechanism

Elegible	Non-Elegible
• The claim is related to the Program • The issues raised in the complaint fall within the issues that the grievance mechanism is authorized to serve • The claimant is positioned to present it.	• The claim is not clearly related to the program • The nature of the complaint is outside the mandate of the grievance mechanism • The claimant is not positioned to present • Other procedures are more appropriate to address the claim.

If the claim is rejected, the claimant is informed of the decision and the reasons for rejection.
Examples of form used by Natura Foundation for complaints of environmental and social safeguards are included in Annex 3.

Figure 10. Proposed mechanism for handling the Programs claims



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

C1. Data on cost-effectiveness of the Program

The program is highly profitable for Panama, since it is focused on generating benefits for vulnerable coastal communities with limited income -which keeps them close to the poverty line and would contribute to improving their food security. It is also profitable by facilitating the development of tools and the acquisition of equipment that will strengthen scientific data/knowledge on climate change; and will advance conditions for the planned and orderly development -with climate considerations- in the area of intervention. The program is highly profitable by strengthening human capacities of key actors in the understanding of climate change and its effects on decision-making; and in coping

with the effects of climate change with the implementation of best practices, use and management of technologies and tools that contribute to livelihoods adaptation to face adverse effects of climate change.

Table 2.32 Shows a scenario analysis on the program´s profitability and the importance of implementing it.

Components/Results	**Base line (without resources from the AF)**	**Alternative scenario (with resources from the AF)**
1. Increase the resilience of ecosystems and vulnerable productive sectors through diversification and nature-based solutions.		
1.1 Strengthening of livelihood management through productive diversification, incorporation of technology and nature-based solutions in traditional production systems.	Although there are national plans and strategies to deal with the effects of climate change on livelihoods, at the local level there is limited technical capacity and scarce resources to train beneficiaries and make significant investments with the incorporation of tools and technologies that allow developing more effective processes and diversification of livelihoods to the effects of climate change.	It will allow to advance -at the local level- national adaptation strategies and plans for improving livelihoods and food security. It will also allow the generation of capacity at different levels (technical and beneficiaries) to implement best production practices and livelihood diversification; the development of capacities for the installation, management and maintenance of technologies and equipment that contribute to the adaptation of livelihoods; and the improvement of the population´s quality of life. It will permit the development of extension programs and strengthen the training of technicians and beneficiaries.
1.3 Improved water resource management in coastal communities through strengthening the management of rural aqueducts and water harvesting with the use of efficient and low-cost technologies.	Panama has a state policy for promoting water security. However, in areas with scattered communities and where water is a scarce resource through the dry season (such as in the program area known as Arco Seco de Panamá), the situation has become more difficult in recent years. This is especially true considering that the management responsibility of local aqueducts in small towns falls on the Ministry of Health, whose priority has been to attend to the national emergency related to the COVID-19 Pandemic. This has left the Ministry of Health with even more limited resources to support rural aqueducts. Combined with climate change challenges, there are greater repercussions in the decrease in quality of life, a greater number of effects on health and a decrease in productivity in livelihoods, affecting the communities.	The program will replicate the experience already developed in the Santa María and Chiriquí Viejo River basins with the installation of water harvesting systems using efficient and low-cost technology, which will help improve the quality of life and beneficiary productivity important from a food security perspective. Investments in strengthening the management of rural aqueducts will also be important, due to the impact that it will generate in a greater number of beneficiaries, especially considering the effects of global climate change. The strengthening of capacities through practical training, exchanges and systematization of experiences and lessons learned with actions that the program will facilitate and that will allow them to be scaled and shared at the national level.
1.4 Reduced pressure on high-value ecosystems and improved ecosystem services through actions for the protection, reforestation, enrichment and / or restoration of these ecosystems.	The value and importance of ecosystems such as wetlands and mangroves is recognized, but resources are limited for recovery and restoration actions.	The program will enable the development of studies to guide efficient recovery and reforestation efforts of high-value ecosystems. It will also allow the generation of local capacity for the development of these recovery and reforestation actions and, more importantly, the local understanding of the importance of these ecosystems for the provision of the different environmental goods and services they provide to the communities.
2. Improve local and national capacity to face exposure to climate-related hazards and threats, through planning tools and risk reduction systems		
2.1 Developed baseline studies on climate change with application in planning and environmental land use planning 2.3 Developed a platform for modeling climate vulnerability and environmental risk	The development of studies and basic tools on climate change with applications to planning and that contribute to local development with climate considerations is limited due to scarce knowledge and local budget managed by the municipalities. Additionally, access, use, and application of vulnerability analysis and studies developed at the national level are limited, since there are no tools that allow easy access and application according to the interests of the actors.	The program would facilitate the development of studies and tools on climate change that are key to local development with climate considerations. The development of a free access platform that allows climate vulnerability risks to be considered would be a significant contribution to guide local decision-making based on projection information and climate data, and of incalculable value in risk considerations for various public and private projects. so that the investments are profitable.
3. Strengthen the capacity of key stakeholders and improve knowledge on climate adaptation and resilience at the local and national levels		
3.1 The capacities of key actors on Climate Change and adaptation based on ecosystems have been strengthened and successful experiences implemented. 3.2 Strengthened national and local capacities and developed the tools that allow participation with a gender perspective in project activities 3.3 Strengthened the capacities of community-based organizations (CBO) and municipalities on climate change, ecosystem-based adaptation, and comprehensive project management.	Funding for capacity building in the national budget is scarce and extremely limited for communities and other local actors. Despite the efforts of the competent institutions, there is still a great gap in the understanding (both in local, technical and community decision makers) of climate change and its effects, as well as the alternatives to adapt and mitigate the effects.	The program is highly profitable from the perspective of creating and strengthening the capacities of different actors, especially local ones, in understanding climate change and its effects. In addition to generating capacities through learning processes in the field of adaptation actions, exchange and systematization of experiences will allow their replication and scaling at the national level.

3.4 Escalation of knowledge management on adaptation to climate change at the national level, by strengthening the adaptation portal and a Programme for systematizing experiences, lessons learned and their appropriation.		

The proposed program will directly address the implementation of adaptation measures and strengthening livelihoods resilience to the effects and impacts of climate change in the climate region called Arco Seco. This climate región is characterized by seasonal variations in rainfall, with intense rains in very short periods of time, that cause flooding, and shortage of water in the dry season; In addition to the increase in the sea level and greater waves that affect the well-being of communities and their livelihoods.

The program's approach is to promote comprehensive actions for the adaptation and improvement of climate resilience of livelihoods and contribute to improving productivity supported by farm planning tools that consider climate variables, analysis of soil, problems and potentialities of farms to incorporate the best solutions based on nature that allow improvements in livelihood yields, while strengthening the capacities of producers for long-term management and sustainability of these means of life.

The diversification of livelihoods as an important option of adaptation will be promoted, which will allow generating new capabilities and complement family food security. Productive diversification will also generate opportunities for new income to families to satisfy their other basic needs.

The development of value chains with products of greater potential will allow the gender inclusion (women and young people) in the productive process, incorporating benefits, which is key to family well-being and capacity generation in the local population. In this sense, the cost-effectiveness of these investments is given in creating capacity in vulnerable groups and their incorporation into productive processes at a time when health crisis has increased unemployment in Panama. It will foster greater involvement of women and young people who do not count with enough experience to join the active workforce and the limited employment opportunities that exist today in the country. This approach will create a scale economy which is key and strategic for the program, since it promotes the main objective of this initiative that is to promote the generation of capacities and exchanges for the adaptation and resilience of the livelihoods of vulnerable coastal communities, allowing the incorporation from the gender perspective in productive processes and benefits.

The cost-effectiveness is based in the recovery of high-value ecosystems, as it is much more profitable to make investments in improvement or restoration of green infrastructure today, to mitigate impacts on communities and their livelihoods, than having to make investments in gray infrastructure or gray/green infrastructure to contain the impacts that, for example, the sea level rise will cause to communities, their infrastructure and their livelihoods in the future. Additionally, investments in recovery (reforestation, enrichment, restoration) of value ecosystems such as mangroves are highly profitable not only because of their high absorption capacity of CO2 as carbon sinks, but by the maintenance of important long-term ecosystem services such as fishing, protection against storms and waves, tourism, sediment retention, among others.

According to the economic impact analysis of sea level rise, on the coastal strip of San Lorenzo, San Felix and Remedios districts, carried out by UNDP[34], for the most optimistic scenario B1, if adaptation measures are not implemented, the mangrove forest continues to produce economic benefits yet with the level of flooding that this scenario presents. However, the other mangrove forest benefits will be lost. The balance, comparing the positive value of mangrove forests with the negative values of other uses, there is a negative balance of US$26,000. For the most pessimistic scenario A1F1, the mangrove forest continues to produce economic benefits yet with the level of flood. However, the other benefits will have losses. The balance, comparing the positive value of the mangrove forests, with the negative values of the other uses, is just positive US$10,441. But when adaptation measures are implemented (actions of enrichment and mangrove forest restoration), a positive balance of US$3.8 million is observed, because the new areas of mangrove forest generate environmental and economic benefits. The project is viable, because it can cover the cost of restoration of the mangrove forest, equivalent to US$730,000; considering a cost of US$500 per hectare as a cost of reforestation.

A cost-benefit analysis will be made for the implementation of (i) additional adaptation measures generated by vulnerability studies, modeling impacts by rising sea level and (ii) the adaptation measures that are recommended from other complementary studies of vulnerability analysis that will be developed in the country -and that incorporate the program area, considering its economic, political, social and environmental viability. This exercise will allow to select the adaptation measures that, not only have greater impact in communities and their livelihoods, but also those possessing greater viability. The development of this process is expected to generate experience and lessons that will contribute to the generation of knowledge and capabilities of actors at different levels, and the development of a model or case study that contributes to facilitate decision-making / effectiveness of adaptation measures.

[34] PNUD. 2018. Impacto económico del aumento del nivel de mar, sobre la franja costera de los Distritos de San Lorenzo, San Félix y Remedios. Proyecto Protección de Sumideros y Reservas de Carbono en Manglares y Áreas Protegidas de Panamá. Conservación Internacional. Serie Técnica 4. República de Panamá, 34 pp.

C2. Cost effectiveness of investments from a sustainability point of view

The proposals for actions contained in the program are designed considering the sustainability of them from the environmental, social and economic perspective; given the implementation of nature-based solutions that allow the generation and strengthening of local capacities for field monitoring and technical capabilities of institutional counterparts, non-profit organizations and local authorities, in order to provide support and technical advice that contribute to the sustainability of long-term actions.

The actions proposed in component 1 (Result 1.1, livelihoods), are aligned with component 3 (Result 3.1 and 3.2) in order to generate capacities of key actors that allow appropriation and sustainability of actions and processes carried out. As a strategy, each institutional entity has been identified to work in a coordinated manner during the implementation of each proposed result; these institutional actors will be incorporated through the capacity building processes in order to generate appropriation of the program model and the intervention logic. As part of the sustainability strategy, the main livelihood adaptation activities to be developed in the program were identified by the the incumbent institutions and key actors, as part of the consultation process. This type of process allows to generate appropriation of activities, commitment in its implementation, technical advice, monitoring and, evaluation and technical follow-up after the culmination of the program. It is proposed to develop, at the beggining of the program- an awareness creation session with key institutional actors which are committed to supporting the implementation, follow up and monitoring of the program; and to draft and validate a sustainability plan with commitments and follow-up actions to be carried out during execution and after completing the implementation of the program.

C3. Benefits from implementation of proposed activities aiming at generating revenues

From the strategic point of view, the adoption of actions based on nature, under the climate-smart agriculture approach, is the best solution to face the effects of climate change and generate better economic benefits (higher productivity = higher surplus for sales), social (food safety), and environmental (production more friendly to the environment). This is so because these solutions seek the implementation of good production practices that contribute to improving productivity while strengthening the capacity and resilience of livelihoods to climate change, and that can incorporate the use of efficient and low-cost technologies. cost.

Under this approach, economic evaluations of specific activities such as Silvopastoral Systems (SSP) have already been developed, which have proven to be more profitable than traditional livestock systems; Furthermore, these can generate incremental net benefits due to the adoption of new technologies for adaptation to climate change.

Table 2.33. Economic analysis of traditional livestock versus improved silvopastoral systems

Economic analysis	Traditional	Improved SSP
VAN (10%)	1,464.52	1,796.35
VAN BENEFITS (10%)	7,202.15	7,672.88
VAN COSTS (10%)	5,737.63	5,876.53
Costs / Benefit rate	1.26	1.31

Source: Fundación Natura

The development of value chains of products with greater potential will provide the opportunity to transform those products, with added value. This will generate greater economic benefits to the communities, but more importantly, it will open the opportunity for the inclusion of gender in the production process and its benefits. For this, the program will facilitate the preparation of business plans and strategic investments that are key to the significant improvement of the "business".

The program will promote establishment of a fair and responsible market for climate-smart products, where not only the value of the product *per se* is recognized, but also the additional efforts of the implementation of good sustainable production practices for the benefit of society. This will allow fairer prices and consistent with the efforts of adaptation and protection of the environment that will encourage better benefits to the producers and the recognition of their effort.

On the other hand, the maintenance and recovery of high-value ecosystems such as mangroves is of utmost importance to maintain the flow of goods and ecosystem services provided by them in the long term for the safety and economic benefit of coastal communities. In this sense, the study of valuation of goods and services provided by the mangroves of the Western Pacific of Panama developed by Barsev, estimated that some 13,719 ha of mangroves in the districts of San Lorenzo, San Félix and Remedios generate an economic flow of US $ 27.1 million dollars per year, that is, about US $ 1,981 dollars per ha. of mangrove to the value of five ecosystem services, as observed in Table 2.34.

Table 2.34. Economic valuation of the main environmental goods and services of the mangroves of the Western Pacific of Panama

Environmental service	Economic Value perspective of environmental goods and services flow	VET (US$ / year)
Provision		
Food: Snapper, snook, tuna, *cherna*, mix, black shells, other species.	The commercial value of the identified species will be estimated, considering the volume extracted by period and market prices. The contribution of this item to the local economy will be analyzed. The behavior of the catch will be determined for the last 5 years.	447,139
Raw materials: Mangrove bark	The commercial value of the mangrove bark will be estimated, considering the volume extracted and market prices. The contribution of this activity to the local economy will be analyzed.	124,800
Black shells	The commercial value of the black shell is estimated, considering the volume extracted and market prices. The contribution of this activity to the local economy is analyzed.	93,600
Regulation		
Carbon fixation (sink):	Based on satellite images and field visits, the type of mangrove species and the volume of biomass and CO2 per hectare are determined. The stored stock is avoided emission, which is multiplied by the voluntary market prices of CO2 equivalent.	9,857,576
Eroded soil retention	The universal formula for soil loss is applied and the sediment volume is determined. The percentage retained in the mangroves is estimated. The avoided cost of mitigating such sediment is considered.	16,363,615
Cultural		
Recreation and tourism:	The volume of tourists visiting ecotourism products is estimated. The percentage of traditional tourists visiting the mangroves will be estimated.	292,140
Habitat		
Hatchery: Habitat of species: fish, crustaceans, reptiles, mammals, birds.	An analysis of the status of these species has been made, however, it has not been translated into monetary values (except for the fishing that has market records).	
TOTAL		**27,178,870**

The recovery of high-value ecosystems such as the mangrove will be key to maintaining and improving environmental goods and services that are used by the coastal populations of the study area and that generate important economic benefits for them.

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

The proposed program is consistent with national sustainable development strategies, policies and plans. According to the Government Strategic Plan 2019-2024, Panama is committed to complying with the Sustainable Development Goals (SDG), which implies eradicating extreme poverty and reducing by at least half the proportion of men, women and children of all ages living in poverty in all dimensions by 2030. In September 2015, Panama adopted by Executive Decree No. 393 the 2030 Agenda and the SDGs as part of its national development agenda, promoting actions that contribute to achieving the goals, seeking the alignment of efforts with all sectors of society. This proposal seeks to support the most vulnerable regions by contributing directly, not only to Objective 13 where the need to adopt urgent measures to combat climate change and its effects is established; but to other Sustainable Development Goals such as Goal No. 10 that refers to the reduction of inequalities, since throughout history it has been recorded and proven that the less economic inequality a community or population system has, the greater the capacity to respond to the impacts of disasters; Objective No. 11 refers to sustainable cities and communities, which seeks to improve the safety and sustainability of cities and implies guaranteeing access to safe and affordable housing and the improvement of settlements. This includes making investments in improving urban planning and management in a way that is participatory and inclusive from all social axes. All these actions proposed by the Sustainable Development Goals must go hand in hand with efforts to integrate disaster risk reduction measures into national policies and strategies.

On the other hand, in 2017 through the National Agreement for Development and the United Nations System, the Government of Panama presented its National Strategic Plan with a State Vision, aligning priority social actions to achieve the Sustainable Development Goals. The SDGs that are linked to the project are based on: Goal No. 1 for the End of Poverty, Goal No. 2 on Zero Hunger, Goal No. 3 on Health

and Well-being, Goal No. 6 on Clean Water and Sanitation, No. 11 on Sustainable Cities and Communities, Goal No. 13 on Climate Action, Goal No. 14 deals with Underwater Life and finally Goal No. 15 which covers the Life of Terrestrial Ecosystems.

The project offer overall benefits, taking into consideration international environmental treaties signed by the country. These include theAichi targets and the Paris Agreement, which establishe measures and encourages the 195 party states of the United Nations Framework Convention on Climate Change to establish commitments to reduce Greenhouse Gas (GHG) emissions, through the mitigation, adaptation and resilience of ecosystems to the effects of global warming. In this sense, Panama has ratified its commitment to achieve the objectives of the Paris Agreement at the last Climate Action Summit held at the United Nations. It seeks to implement concrete actions to improve our Nationally Determined Contributions (NDCs) and in this way reduce greenhouse gas emissions by 45% in the next ten years and net zero emissions by 2050.

The project is related to the evolution of institutions in environmental matters and legal regulations, as well as laws, decrees, resolutions, and others. Some of these are: in 1972, a title of Ecological Regime was added to the National Constitution; in 1986, the Institute of Renewable Natural Resources (INRENARE by its acronym in Spanish) was created; In 1998, the General Environmental Law was passed and the National Environmental Authority (ANAM by its acronym in Spanish) and the Panama Maritime Authority (AMP by its acronym in Spanish) were created; in 1999, the First National Environmental Strategy was approved; in 2006, the Panama Aquatic Resources Authority (ARAP, by its acronym in Spanish) was created and the Territorial Ordinance Law was approved in the Ministry of Housing; in 2008, a Second National Environmental Strategy was approved; The National Policy on Climate Change (Executive Decree No. 35 of 2007) iscreated, which has improved the regulation of its policy of mitigation and adaptation to climate change, which has been incorporated into the General Environmental Law of Panama (Executive Decree 100 of 2020 and Executive Decree 131 of 2021); The National Climate Change Strategy 2050 was approved by Executive Decree No. 34 and was officially published on June 4, 2019 in the Official Gazette of the Republic of Panama. In addition, it is aligned with its National Footprint Reduction program, which aims to incorporate sustainable development indicators into existing production practices and reduce the impact on national resources and GHG emissions. The project is aligned with these policy instruments and focuses on sectors vulnerable to the climate, including communities that are in the marine-coastal zone, as well as seeking solutions that reduce their vulnerability to the effects of climate change.

The project is also supported by the Practical Guide for Adaptation to Climate Change in Marine-Coastal Zones of the Panamanian Pacific, which aims to formulate a series of measures that make the way for the development of coastal communities. In addition, that such measures strengthen the resilience of these communities in the face of the current climate with its extremes and fluctuations, in a way that allows them to adapt to global climate change.

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

Overall, the project meets all environmental requirements established in the 1998 General Law for the Environment. In particular, the project was designed taking into consideration compliance to environmental requirements, studies, and regulatory standards for better agricultural practices, water quality, climate risks control, and the protection of coastal-marine resources.

The NIE (Fundación Natura) will ensure observance of environmental and social policy of the Adaptation Fund during design, implementation, monitoring and evaluation of the proposed program, in order to identify, prevent and minimize any damage that the intervention could cause to people and the environment.

A preliminary Environmental and social risks analysis was performed as part of the proposal design to ensure that environmental and social concerns, and communities were taken into account and represented in the design and implementation of projects.

Among the requirements to be met are:

- Compliance with the laws pertinent to the activities included in the 3 proposed components.
- Projects provide fair and equitable access to benefits in a manner that is inclusive, without impeding access to basic supply of clean water and sanitation, energy, education and safe and decent work conditions, and the right to the land. The program, through theproposed projects, will not exacerbate existing inequities, especially related vulnerable groups (no marginalized groups are present in the program area).
- In analyzing the proposed projects, the NIE reviewed and considered the particular impacts on vulnerable groups. No marginalized groups are present in the program area.
- During the entire program international human rights will be respected and promoted.
- Equal participation of men and women will be encouraged; both will receive comparable social and economic benefits, and they will not be subject to disproportionate adverse effects during the development process that the proposed program promotes.
- A citizen participation plan will be developed and implemented through the entire program execution period.

- The national labor standards will be met, as well as those identified by the International Labor Organization.
- Projects financed will not involve unnecessary conversion or degradation of critical natural habitats.
- Projects designed will be implemented in a manner that avoids any unnecessary or significant reduction or loss of biological diversity, as well as the introduction of known invasive species.
- The program will not generate significant and / or unjustified increase in greenhouse gases emissions or any other cause of climate change.
- The program was designed in such a manner that will meet applicable international standards for maximizing energy efficiency and minimizing material resource use, waste generation, and release of pollutants.
- Proposed projects were designed and will be implemented in a way that avoid significant and negative impacts on health.
- Proposed projects were designed and will be implemented in such a way that promote soil conservation and prevent degradation or conversion of productive lands, or lands that provide valuable ecosystem services.

Legal or technical standards relevant to program components

The general rules / regulations / guidelines / instruments listed below will serve as a reference for compliance with the general components of the program.

The Constitution of the Republic of Panama is the predominant norm of the state, setting out the fundamental principles on which the organization, limits and powers of the State rests, as well as the duties and rights of individuals. Since 1983, the National Constitution of Panama has an Ecological Regime (articles 118 to 121), which establishes that it is the duty of the State to protect the environment and guarantee citizens to live in a healthy environment free of contamination.

In the marine-coastal zones there are different institutions with competencies for their administration, management and coordination of matters related to this type of ecosystems. They have been established through instruments of national legislation that ratify international and / or regional conventions and treaties. Among these institutions and the legal and technical standards relevant to the proposed program are:

a. Ministry of the Environment (MiAmbiente)

Created by Law No. 8 of March 15, 2015, it is rector of the state in matters of protection, conservation, preservation and restoration of the environment and the sustainable use of natural resources to ensure compliance and application of laws, regulations, and national environmental policy; in order to ensure sustainable development. Notwithstanding the functions assigned to other sectors, it is in charge of natural resources and the environment protection.

The General Environmental Law of the Republic of Panama (Law No. 41 of July 1, 1998) corresponds as the main legal instrument that guides environmental management because it establishes the guidelines of the environmental management policy, the State organization for environmental management and management instruments, among other provisions. Panama has adopted the United Nations Framework Convention on Climate Change (UNFCCC) through Law No. 10 of April 12, 1995. The Kyoto Protocol, through Law 88 of November 30, 1998; the Doha Amendment, through Law No. 38 of June 3, 2015; the Country Agreement, through Law No. 40 of September 12, 2016 and the Escazú Agreement, through Law No. 125 of February 4, 2020.

Through Executive Decree No. 35 of February 26, 2007, the National Climate Change Policy (PNCC by its acronym in Spanish) was approved and established as the guiding framework for the activities to be developed by the public, private and civil society sectors; it sought to contribute to the stabilization of greenhouse gases (GHG); promote adaptation measures; and ensure sustainable development. In 2018, through Executive Decree No. 36 of May 28, 2018, the new organic structure of the Ministry of the Environment is instituted, under which the Directorate of Climate Change (DCC) is created in accordance with those established in the Sole Text of Law No. 41 of July 1, 1998 (General Environmental Law), which by virtue of the modifications introduced by Law No. 8 of March 25, 2015, includes Title V on Climate Change and chapters I and II on mitigation and adaptation.

Executive Decree No. 125 of March 2, 2021, which establishes the new organic structure of MiAmbiente, establishes that the Department of Adaptation and Resilience of the Directorate of Climate Change, aims to generate, analyze and evaluate climate information, studies of climate risk and environmental, socioeconomic and infrastructure vulnerability for the development, promotion and construction of initiatives for adaptation to climate change that increase the country's resilience, with special emphasis on the population, ecosystems and all productive sectors of the country's economy.

b. Panama Aquatic Resources Authority (ARAP)

Entity created by Law No. 44 of November 23, 2006. Its competence lies in ensuring compliance and application of laws and regulationson aquatic resources (among those marine-coastal), aquaculture, fishing and related activities and national policies adopted by the Executive Branch. The mission of ARAP is to ensure the development of a productive and social culture of aquatic resources in a sustainable manner, in harmony with the environment, to improve the quality of life for the inhabitants of Panama. It has jurisdiction in all jurisdictional waters. The regulations that guide and are linked to the proposed program are the following:

- Law 9 of January 30, 1956, Territorial Waters - Panama Bay.

- Law 6 of January 3, 1989, whereby the Convention Relating to Wetlands of International Importance, especially as waterfowl habitat ("Ramsar Convention") and Protocol with a view to modifying it, is approved.
- Law 44 of November 23, 2006, which creates the Aquatic Resources Authority of Panama.
- Law 2 of January 7, 2006, which regulates concessions for tourism investment and the alienation of island territory for the purpose of tourist use and dictates other provisions.
- Law 8 of January 4, 2008, which approves the Inter-American Convention for the protection and conservation of sea turtles.
- Resolution ARAP No. 01 of January 29, 2008, "By means of which all marine-coastal wetland areas are established, particularly the mangroves of the Republic of Panama as special marine-coastal management zones and other measures are dictated".
- Resolution ADM / ARAP No. 88 of August 23, 2011, by which the Technical Guidelines for Preparation and Evaluation and Audits for Environmental Impact Studies for-Coastal Marine Zones and Inland Waters of the Republic of Panama are adopted.
- Administrative Resolution No. 103 of October 7, 2011, by which the Environmental Audit and Inspection Guides of Companies in Coastal Marine and Inland Waters of the Republic of Panama are adopted.
- Resolution ADM / ARAP No.012 of May 3, 2019, by which a marine area is established: the Co-management Zone for Responsible Fishing in Pixvae Bay.
- Law No. 204 of March 18, 2021, Regulates fishing and aquaculture in Panama.
- Resolution ADM / ARAP No. 022 of April 19, 2021, which creates the Technical Unit for Fisheries and Aquaculture Consultation for the regulation of Law 204 of March 18, 2021 and establishes the organization and operation of the Technical Consultation Process.

c. Panama Maritime Authority (AMP)

It is created by Decree Law No. 7 of February 10, 1998. It is responsible for strategic coordination for the integrated management of the country's coastal zone, with the aim of contributing to sustainable development and the protection of sea resources and its coastal areas.

Other policies related to the program:

- The National Policy of Oceans.
- Technical Guide on Climate Change for Public Investment Infrastructure Projects.
- Law 44 of August 5, 2002, which establishes the Special Administrative Regime for the management, protection, and conservation of the hydrographic basins of the Republic of Panama.
- Law No. 80 of December 31, 2009 which establishes the definition and use of the coastal zone in the Republic of Panama.
- Resolution CNA-002-2012 of July 24, 2012, which approves the National Plan for Integrated Management of Water Resources.
- Law No. 38 of December 2, 2014, which establishes "The obligatory teaching of environmental education and comprehensive disaster risk management and dictates another provision."
- Public Management Decentralization Law (No. 66 of October 2015), which proposes a new role for municipalities established in the prevention of disaster risks.
- Resolution No. JTIA 035 of June 26, 2019, through which the sustainable building regulations for the Republic of Panama are approved.

Table 2.35 Considering the expected products with the development of the program it will be followed the technical norms specific for these products.

Outcome N°	Description	Outputs	Compliance with relevant legal or technical standards
1.1	Strengthened livelihoods management through productive diversification, incorporation of technology and nature-based solutions in traditional production systems	Installed at least 4 apiaries and about 12 hives, including training of beneficiaries (beekeepers) and provision of equipment.	To run this solution, the recommendations and specifications comes from the Apiarian Improvement and Development Technical Norm, Law 46 of August 31st of 1989, that regulates the Apiarian activities.
		Installed at least four pilot oyster farming experiences, including training of beneficiaries and provision of equipment.	To run this solution, the recommendations and specifications come from the Technical Norm Law N° 204 of March 18th of 2021, that which regulates the fishing and aquaculture in Panama. In the chapter II General Dispositions, the article 5 establishes the Authority of Aquatic Resources of Panama as authorized to regulates the fishing, aquaculture, related activities and activities related with fishing within the whole country territory, within the inland waters and the marine water under sovereignty jurisdiction from Panama. Article 9, this law is intended to regulate activities such as fishing, aquaculture, related activities and activities related to fishing, with the the goal to develop them in a sustainable way, using the adequate methods that ensure the conservation, reproduction, production, renovation and permanence of the aquatic resources and the fishing activity and/or acuiculture activities for the benefit of the present and future generations. Resolution ADM/ARAP N° 022 Apirl 19th from April 2021, that creates the Fishering and Aquaculture Technical Consultation Unit for the regulation of the Law 204 from March 18th of 2021 and establishes the organization and functioning of the Technical Consulting Process.
		Established 12 projects of integral home gardens with water harvesting systems and drip irrigation	Law N° 127 from March 3rd of 2020 that dictate measures for the development of family farming in Panama, through the chapter III in its article 12, that recognizes the National Agriculture Plan as an instrument of the Family Policy in Panama and will be subject to changes according to the necessities that arises in the future.
		Installed at least 12 pilot tilapia farming projects with implemented aquaponics techniques, including training and provision of equipment.	Law 24 from June 4th of 2001, modified by the Law 20 from February 22nd of 2018, that adopts measures to support the agricultural producers affected by adverse climatic conditions and other contingencies that may arise, creates the Special Fund for Credits and Contingencies. Law 44, from November 23rd of 2006: for which it is created the Authority of Aquatic Resources of Panama, unites the different competencies about the Coastal Marine resources, the Aquaculture, the Fishing and Related Activities of the Public Administration and dictates other dispositions. Chapter VII Art. 33 It is created the Technical Support Coordination Office to the organization of the fishing and aquaculture sector of the Central America Isthmus attached to the General Administration Authority. Art. 39 The General Direction of Development for Productivity and Technical Assistance. Law 204 from March 18th of 2021, regulate and encourages activities as the aquaculture, sport fishing, industrial fishing and artisanal fishing according to the international standards and latest technologies.
		Ten pilot community fishing projects developed with the incorporation of nature-based technologies and solutions	Law 44, from November 23rd of 2006: by which it is created the Aquatic Resources Authority of Panama, unites the different competencies about the Coastal Marine resources, aquaculture, fishing and related activities from the Public Administration and dictates other dispositions. Chapter VII Art. 33 It is created the Technical Support Coordination Office to the organization of the fishing and aquaculture sector of the Central America Isthmus attached to the General Administration Authority. Art. 39 The General Direction of Development for Productivity and Technical Assistance. Law 204 from March 18th of 2021, regulate and encourages activities as the aquaculture, sport fishing, industrial fishing and artisanal fishing according to the international standards and latest technologies.

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

Table 2.36. Duplice of Programme with other funding.

Project	Characteristics	Description
Project for the Bay of Parita and Guararé coast wetlands, EcoBio Panama, 2021	The Project is based on the conservation and management of the wetlands located between Ciénaga de las Macanas and Cenegón del Mangle, District of Parita, in the province of Herrera, as well as the mangroves and tropical dry forest of the corridor near the lower course of the Guararé river, District of Guararé, Province of Los Santos, both located in the Republic of Panama.	This project has been coordinated with the Directorates of Seas and Coasts, the Directorate of Protected Areas and Biodiversity, the Regional Directorates of MiAmbiente of the province of Herrera and Los Santos, the Regional Center of Wetlands of the Western Hemisphere (CREHO), and owners of farms in the surrounding towns. The Littoral Zone of La Enea was declared a protected area. This includes the area from the mouth of the Guararé River to the mouth of the Quebrada de Las Tablas Abajo, including mangroves and albinas on the land and a marine strip parallel to the coast 5 (five) kilometers wide. **Synergy and actions without duplication** The project provided an installed capacity in groups of fishermen for environmental monitoring of the sectors in which they work and presents a joint work with the NGO Eco-Bio Panamá. The project, despite being carried out in the study area of the proposal, does not present a duplication of actions and offer opportunities for synergies in Bahía de Parita, specifically in conservation and recovery of mangroves.
Protection of mangrove reserves and carbon sinks, and protected areas of Panama (IKI, Ministry of the Environment, Wetlands International, Conservation International, UNDP) (2014-2017- 3.2 M USD)	It demonstrates the contribution that mangrove ecosystems make to risk management and climate change from both an adaptation and mitigation perspective. This research improves understanding of carbon dynamics in mangroves and associated ecosystems in Panama. This knowledge is incorporated into national strategies and reported to international conventions.	Capacitación en medidas de adaptación al Cambio Climático y conservación del manglar a nivel institucional y comunitario en conjunto con Autoridad de los Recursos Acuáticos de Panamá, Conservación Internacional, Ministerio de Ambiente, Municipios de San Lorenzo, San Félix y Remedios, PNUD Panamá, Wetlands International. El Proyecto finalizó hace más de 3 años. Training in adaptation measures to Climate Change and mangrove conservation at the institutional and community level in conjunction with the Panama Aquatic Resources Authority; Conservation International; Ministry of the Environment; San Lorenzo, San Félix and Remedios Municipalities; UNDP Panama; and Wetlands International. The Project ended more than 3 years ago. **Synergy and actions without duplication** The project provided an advance in the strengthening of capacities on measures to adapt to climate change and mangrove conservation, at the institutional and community level, these activities being a complement to component 3 of the proposal. Additionally, the project offers experiences that can be retaken by the program, in valuing the ecosystem services of the mangroves, the socioeconomic and environmental impact of rising sea levels at the site, as well as the design of municipal strategic plans with environmental information and vulnerability. to climate change. The project does not represent a duplication, but rather it is an advance in the restoration actions of the mangrove area, thus complementing the actions foreseen in component 1 of livelihoods. In this component, studies are expected to be carried out on the increase and decrease of the coverage of valuable ecosystems, to subsequently implement restoration actions in identified priority areas.
Program for adaptation to climate change through the integrated management of water resources in Panama (Adaptation Fund / Ministry of the Environment) (2018-2022)	This Adaptation Program to climate change, through the management of water resources in Panama, seeks to address this condition by placing water management at the center of adaptation efforts, promoting climate resilience and reducing vulnerability through improvement of food and energy security, based on an integrated water resources management approach that highlights the nexus between water-energy-food-adaptation to climate change.	This program is currently under execution and will conclude before the end of the first semester of 2022. The project focuses on integrated watershed management using water as the axis of integration of actions for the application of nature-based solutions for water and food security at communities of the Santa María River Basin and the Chiriquí Viejo River Basin. **Synergy and actions withut duplication:** Lessons learned and best production practices will be incorporated into the proposed program, such as sustainable production actions and water harvesting systems. The lessons learned to improve associativity between producers will be a useful input for component 3 of the proposal. There is no duplication due to the different scope and location; rather the incorporation of lessons and experiences is foreseen to generate greater impact in the new program.
Integrated Management of Watersheds (National Directorate	Establish integration mechanisms between civil society and public institutions as a platform for the administration of natural	This project is developed in conjunction with public entities such as the Ministry of the Environment, and civil society to work on the administration and distribution of environmental land use planning. **Synergy and actions withut duplication:**

Project	Characteristics	Description
of Water Security / Ministry of the Environment)	resources, promoting citizen participation in decision-making, for the sustainable management of hydrographic basins.	Promote the development of the necessary instruments for the creation of administrative units, for the performance of planning, administration and management in the corresponding hydrographic basins through the generation of Environmental Territorial Planning Plans at the hydrographic basin level, generating POAT for the basins del Río la Villa (128), Río Indio (111) and Río Miguel de la Borda (109). There is no duplication due to its different scope and location. The experience generated can serve to strengthen governance in the program's watersheds.
National Strategy for the Small Grants Program Ministry of the Environment / UNDP in partnership with the Panama Small Grants Program 2020-2023	National Strategy for the Small Grants Program 2020-2023 for environmental conservation, climate action and poverty alleviation in Panama. The topics that may be financed with the new Strategy are linked to 'Community conservation of ecosystems and endangered species',' Secondary benefits of access to a low-carbon energy source ', and 'Coalitions from a local level to a global level for the management of chemicals and waste ', connected with circular economy in the three prioritized landscapes.	**Synergy and actions withut duplication**: Small Grants Program-GEF-UNDP, in conjunction with the Ministry of the Environment, will invest in the next three years in three priority landscapes of Panama, which include the province of Darién, the La Amistad International Park - Caribbean Slope (PILA) and the South of the Azuero Peninsula, covering an estimated 816,544 hectares. It proposes to improve practices and methodologies, led by the community, that are respectful of biological diversity, such as the promotion of the blue green economy (for example, agriculture, fisheries, forestry, tourism, sustainable infrastructure, climate adapted, etc.). On the other hand, it seeks to promote the use of non-traditional renewable energy technologies (especially solar energy) and efficient from the energy point of view; offer socioeconomic benefits; and improve livelihoods. Through the projects that are intended to be carried out with the strategy, a collaboration could be forged for component 1, sharing sustainable experiences obtained with the development of this project.
Sustainable Azuero Project, Ministry of the Environment and UNDP in partnership with the Small Grants Program of Panama	It is expected to improve the living conditions of the men, women, girls and boys of Azuero by conserving biodiversity and avoiding the degradation of ecosystems in the marine-coastal areas of the south of the Azuero peninsula.	The project will contribute to promoting sustainable fishing practices, as well as various conservation actions, such as the protection of turtles, protection of the mangrove forest cover, the reduction of pollution (waste, solid waste and agrochemicals) and erosion control, ensuring the participation and leadership of women. **Synergy and actions withut duplication:** Among the synergies that can be highlighted, is to promote initiatives and strengthen the capacities of community organizations in the conservation of biodiversity, the strengthening of biodiversity-friendly fishing and sustainable tourism. The experiences and lessons in sustainable community fishing and tourism will be considered in order to replicate or improve the implementation of actions in this new program proposal. The project does not present duplication since it is developed in a different location.
Communication, Capacity-building, Education, Participation and Awareness (CEPA) plans for wetlands of Panama and Panama Bay (The Audubon Society of Panama and Ministry of the Environment 2017)	Project to rise awareness in communities and society in general about the ecological, cultural, social and economic importance of wetlands. Among its plans is to carry out coordinated education and communication actions for the benefit of local and migratory birds, especially the migratory shorebirds of the Bay of Panama.	The project has been led by The Audubon Society of Panama, in coordination with the Ministry of the Environment (Mi Ambiente), financial support from Fundación Natura, National Audubon Society and The David and Lucile Packard Foundation, as well as the collaboration of local experts in communications. Under this project, the National Plan for Communication, Education, Awareness and Public Participation (CECop) for wetlands in Panama and the CECoP Site Plan for the wetlands of the Bay of Panama were developed. **Synergies and actions without duplication:** The plans will help to sensitize communities about the importance of mangroves and their benefits. Also, the importance of nature-based solutions and its relevance to avoid sea level rise as a priority in the communities. The project does not present duplication since it is developed in a different location.
Colmena Strategy (Ministry of the Presidency / Ministry of the Environment)	In this context, the Ministry of the Environment (MiAmbiente) has been responsible for the development of three major projects: the development of the ecological stove program, water harvesting systems, and the generation of nurseries in rural areas.	**Synergies and actions without duplication:** The project aims to benefit the population with a high level of poverty according to the Multidimensional Poverty Index, representing an advance in adaptation actions with water harvesting systems and the nursery establishment. The project does not represent a duplication of actions, but rather proposes the complementarity of actions aiming to respond to the communities affected by saline intrusion and those that do not have a water service for consumption, focusing on the coastal areas of the project.
Development of a Marine Dynamics database on Panamanian coasts to assess impact and vulnerability due to sea level rise (Technical Assistance from Climate Technology Center & Network)	The objective of this project is to develop key tools for risk assessment in Panamanian coasts in order to implement adaptation to climate change in marine-coastal areas. This project seeks to develop data numbers of marine dynamics in high resolution, methodological tools for the generation of data and thus evaluate the coastal risk, including evaluating and recommending adaptation measures for the coastal zone with nature based solutions; create technical capacities for the officials	The project has been coordinated with the Directorate of Climate Change of the Ministry of the Environment of Panama. Other interested parties are: Directorate of Coasts and Seas of MiAmbiente, the Tourism Authority of Panama, the Authority of Aquatic Resources of Panama, Tommy Guardia Geographic Institute, Institute of Meteorology and Hydrology of Panama, SINAPROC, Association of Municipalities of Panama, AMP, Congress of Guna Yala, Ngäbe Buglé and Emberá Wounaan. **Synergies and actions without duplication**: The project to be developed by CTCN will be integrated into the proposed program, specifically in component 2 of adaptation planning, where the data generated will be used to develop effective and efficient adaptation measures based on the results obtained from rigorous studies. scientists, as well as in the development of sea level rise modeling with IPPC scenarios.

Project	Characteristics	Description
	of the MiAmbiente Climate Change Directorate; and lastly, developing high-impact graphic material for communities at risk.	
Increase forest cover to capture carbon and reduce vulnerability in priority watersheds in Panama (CABEI / GCF) (NC formulation stage - proposed implementation: 5 years and USD 92M)	Restoration, reforestation and sustainable management of productive ecosystems for clean and resilient development, by promoting approaches, knowledge, technologies and investments for climate action in vulnerable communities at priority watersheds.	**Synergies and actions without duplication:** Although the project has not yet started, potential synergies in terms of proposed climate-smart practices can be explored by establishing a channel for dialogue at the full proposal level. Examples are: investment to boost the green and blue economy in productive and conservation practices associated with mangroves as ecotourism communities, restoration and revegetation of mangrove areas and other associated wetlands to strengthen resilience, cultivation of oysters as a carbon sink, reduction of the Eutrophication and economic development in fishing communities that in turn contributes to the restoration of mangroves and marine-coastal zones, management and co-management of filtering marine species (black shell) to reduce eutrophication of the marine-coastal zone due to runoff from the watershed and increase the resilience of the productive ecosystem, restoration of marine biodiversity and its role in the carbon cycle through the extraction of ghostnets and sustainable management. The project does not represent a duplication of actions since it is proposed for a different location and the actions within the project will represent a complement to the actions of the present program proposal.
Regional Iniciatives		
Binational Cuba: Strengthening the adaptation capacity of the coastal communities of Cuba and Panama to climate change through the binational exchange of best practices for climate management and local food security.	Strengthen the adaptive capacity of coastal municipalities and their local livelihoods (agricultural and fishing production) in Cuba and Panama, as well as enrich, through the exchange of successful practices (including the use of a loss and damage methodology), the capacities of local decision makers to implement strategies to deal with climate change scenarios and protect local food security.	The project will be implemented in the Caribbean Coast, province of Colon, within the municipalities of Santa Isabel, Portobelo, Chagres and Donoso, seeking to guarantee an inclusive approach for vulnerable populations that face different needs and conditions for climate adaptation. **Synergies and actions without duplication:** Improve the organizational capacities of producer associations to optimize the livelihoods of vulnerable communities in coastal areas. Diversify local productive value chains to increase the income and food security of small producers, favoring livelihoods and resilience against the impacts of climate change. There is no duplication as the project will focus on the Western Caribbean Region of Panama and not the Central Pacific Region. However, there are important opportunities to make synergies related to actions in livelihoods and capacity building.
Binational Costa Rica: Improving the climate resilience of the coastal communities of Limón (Costa Rica) and Bocas del Toro (Panama) through nature-based solutions for local livelihoods.	The objective of the project is to increase the resilience to climate change of the coastal communities of Limón and Bocas del Toro to face the phenomena of climate change, both fast and slow, reinforcing and integrating local livelihoods around nature-based solutions to reduce vulnerability and build adaptive capacity. This will be accomplished by: a) Ensuring ecological resilience and the integrity of ecosystems that support sustainable livelihoods and reduce climate risks. climatic risks. b) Improving the adaptive capacity of livelihoods and nature-based value chains, as well as access to financial mechanisms that support adaptation processes. c) Increasing access to and use of information by key stakeholders, as well as cross-sectoral capacity for decision-making in a changing climate.	**Synergies and actions without duplication:** Through this project, nature-based solutions (NbS) will be applied to mitigate climate risk and create resilient local livelihoods (tourism and associated agriculture, fishing practices), while strengthening conditions conducive to the climate adaptation of coastal communities. The actions envisaged in the project could be used in collaboration to learn about their successful experiences obtained and leverage those envisaged within component 1 of the proposal. The project does not represent a duplication of actions since it contemplates an implementation location different from the present program proposal.
Climate Change Impact Assessment on the sandy coasts of the Caribbean: alternatives for control and resilience (Association of Caribbean States)	The objective is to improve the resilience of coastal communities towards climate change and sea level rise, through the establishment of a coastal erosion monitoring network and the exchange of best practices in beach rehabilitation, observation and conservation.	**Synergies and actions without duplication:** The project seeks to develop actions for the rehabilitation of beaches in those coastal sectors that, due to their social and economic importance, require immediate action. The project does not represent a duplication of actions since it contemplates an implementation location different from that of the present proposal, focusing on the Caribbean Region of Panama.

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

The proposed Adaptation Programme includes a specific component devoted to promote adaptation learning and knowledge management at the national and local levels: To do this, the Programme will undertake the following strategies:

G1. Strategy to capture the experiences and lessons learned on the ground

The different strategies of the Program to promote the systematization of experiences and lessons learned on the ground will be the following:

a) Establish a knowledge management subcommittee made up of communication experts from each executing entity, who will be given an awareness process about the Program, and work and monitoring activities will be established during the program execution.
b) This subcommittee will be in charge of the development, implementation, and monitoring of the Comprehensive Knowledge Management Program, which will have goals and indicators to facilitate evaluation for each Component, in accordance with the expected outcomes and outputs.
c) The representative of each executing institution will be responsible for capturing the experiences and lessons learned from the activities carried out under the responsibility of their institution.
d) The Terms of Reference for the contracting of services will requiere that technicians in charge of the implementation processes incorporate, from the planning stage of the proposal, the perspective of capturing and sharing experiences and lessons learned during execution of on-the-ground activities.
e) Six-monthly workshops on systematization of experiences and lessons learned will be organized for technicians from the executing institutions and consultants from NGOs and companies related to the execution of program activities, in order to improve local and national capacity on this topic.
f) The M&E process will be launched at the beginning stage of the program, aiming to capture the lessons learned from the start, and generate early recommendations to allow adjustments or changes -if needed- for an effective systematization of experiences and lessons learned.
g) A general base format will be used to guide the preparation of small publications to systematize experiences and lessons learned with high potential for publishing about activities carried out by the program.

G2. Programme strategy to ensure outreach of knowledge produced, particularly to stakeholders with limited access to information technology tools

The program includes a broad series of activities, especially related to livelihoods adaptation (Component 1), that will be directly linked to Component 3 (knowledge management). The program will promote the strengthening of theoretical-practical capacities for the beneficiaries, while working on the understanding of climate change, the effects it generates, and the solutions to face it (nature-based adaptation), as part of Component 3. Among the strategies to guarantee the scope of the knowledge produced, particularly to actors with limited access to information technology tools are:

a) Development of field schools where actors can put into practice planned adaptation activities with support and technical advice.
b) Training of extension workers (community residents) who will be prepared for the development of experience exchange actions.
c) Exchange of experience from producer to producer, which allows producers -in a simple and practical way- to share the knowledge and actions developed with other beneficiaries, and as they strengthen their capacities, they contribute to the strengthening of capacities of other community members.
d) Regular public events to present, discuss and validate Program activities and products, and receive feedback from local stakeholders.
e) Information / dissemination materials to be used during different stages of the program (data sheets, dossiers, others) as part of a larger communications strategy for the program, taking advantage of work sessions carried out in different components.
f) Promoting collaborative agreements with academic institutions, with a presence in the program area, specifically public universities, to allow knowledge, integration and escalation of activities of interest.
g) Strategic coordination with MIDA, ARAP, ATP, IDIAP (Agricultural Research Institute), Municipalities, NGOs and others to include information on the program and activities as part of their extension programs in the area.
h) Development of applications and use of cell phone networks, radio, and other facilities to allow access to climatic data generated by the program components, particularly Component 2.
i) Support for the development of the agroclimatic bulletin with information on climatic trends and technical recommendations for each productive sector according to the season and climatic trends.

G3. Programme knowledge management strategy for long term Project outcomes sustainability

For the sustainability of the outputs generated by the project, the development of knowledge management strategies is a key aspect. In this sense, the program proposes the implementation of the following strategic actions:

a) Awareness-raising and appropriation processes of the actions and outputs by the executing institutions and NGOs, which includes strengthening the technical capacities of the staff, the development of follow-up plans and technical accompaniment during processes and products developed, among other actions.
b) Development of local processes with local authorities and community-based organizations for the appropriation of practices, products and acces to potential sources to continue scaling up the actions and products developed.
c) Establishment of agreements for the development and sustainability of actions in the medium term, which allows the consolidation of processes and improve outcomes sustainability.
d) Strengthening local capacities of CBOs and municipalities for the preparation and management of projects, which will contribute to the sustainability and scaling up of the program's results.
e) Strengthening of the adaptation portal hosted by the Ministry of the Environment, that allows access to tools, training experiences and lessons learned, to contribute to the program sustainability.
f) Strengthening the finance program for climate action, which includes the strengthening of FONAG and the development of a microfinance scheme for the coastal-marine sector with considerations of adaptation and climate risk, which allows access to resources for sustainability and scaling up of project actions.
g) Development of tools and experiences such as cost-effectiveness analysis, viability of adaptation actions, and the platform for modeling climate vulnerability and environmental risk; all of them innovative actions that can generate important impacts on public and private investments, and that will have funding opportunities for improvement and scaling them up at the national level.

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

The consultation process for the program proposal was carried out under two modalities, mainly through virtual meetings and face-to-face meetings, considering key national and local governments in the country in order to identify the risk conditions in which the communities find themselves, their livelihoods and ecosystems, in addition to knowing the potential of the projects or measures that can be carried out within the program's area of action. In the first stage of the consultation process, face-to-face and virtual meetings were held with different institutions representing different sectors such as Environment, Agriculture, Fisheries, Tourism, Non-Governmental Organizations and the academic sector. On the other hand, in the second consultation stage, face-to-face meetings were organized with the local governments of the program's action area, which included the districts of Aguadulce, Antón, Capira and San Carlos, among others. These consultations allowed the project to identify the main effects caused by climate change that impact the study area, as well as the gaps and needs that could be addressed with this new program proposal to strengthen coastal communities that are mainly threatened by the rise in sea level. These consultations will be extended to other key stakeholders (other local governments, private sector, civil society, communities, among others) until finalizing the formulation of the proposed program in March 2022.

- **Aquatic Resources Authority (ARAP):** ARAP provided information related to their on-going projects, focused on the production of shrimp, fishing, black Shell (bivalve), and the implementation of aquaponics pilot projects; activities that can be replicated at the program´s area. They provided contact details for monitoring the exchange of information and shared the project model called "Adaptation to climate change through the implementation of fisheries and aquaculture co-management based on fattening, restocking and sustainable use of the black shell (*Anadara tuberculosa*)". Additionally, they expressed the importance of having climate change indicators related to aquaculture because they have useful related data.
- **Tourism Authority:** This entity fully supports this new country proposal. Currently, they do not have ongoing initiatives within the program's study area; however, they consider it essential to have information related to climate change related to tourism. Additionally, they highlight the importance of establishing guidelines so that the community tourism activities can consider the risks generated by climate change and avoid losses as a result; work with key players in the sector such as hotels and restaurants, while encouraging community tourism in order for the visitor to leave Panama understanding why these coastal communities conserve the environment, allowing the creation of new tourism products.
- **Ministry of Agriculture:** This ministry expressed support in the development of this country proposal. For instance, they identified areas where SCALL pilot projects for water harvesting systems are needed, as well as activities such as beekeeping,

sustainable livestock, agroforestry systems, crops of vegetables and reforestation actions. On the other hand, the selection criteria for the pilot projects were discussed, considering communities vulnerable to the effects of climate change.

- **Ministry of Environment:** Within the Ministry of Environment, Regional Directorates of Panama Oeste, Coclé and Herrera worked together in identification of main threats that their coastal communities fase, from the district of Arraiján to the mouth of the Parita River. It was determined the program would offer great support for improving local development, adapting to climate change, and allow -at the same time- income generation to alleviate poverty at vulnerable communities. In addition, they highlighted the main activities carried out in this area for subsistence: fishing, aquaculture (production of black shells and crabs), mangrove extraction for charcoal production and community tourism. In the province of Panama Oeste, the most vulnerable population are at Punta Chame and Puerto Caimito, due to sea level rise and the exploitation of mangrove swamps (for charcoal). On the other hand, Playita de Bique is affected by the extraction of underwater sand. In the community of Corona, the main affectation is saline intrusion, which causes salinization of underground sources. Meanwhile, in the province of Coclé, the community of Los Azules in the district of Antón presents significant modifications due to the rise in sea level and coastal erosion. The Boca Nueva sector presents a loss of the mangroveecosystem, as well as a loss of coastline. In the Buenaventura area, the impact on infrastructures in hotel or tourist complexes due to sea water intrusion, generates great sedimentation. On the other hand, at the province of Herrera, Playa el Reten and Playa Agallito are the most affected by climate change, due to the increase in sea level, which in turn is causing the loss of the mangrove swamp. Among other effects, it was mentioned that the increase in sedimentation, and the intrusion of the sea is affecting fishing areas. The National Directorate of Coasts and Seas (DICOMAR), indicated they collected and recovered geospatial data on studies of "Evaluation of Marine Ecoregions in Mesoamerica" dating from 2008 which provides information on bathymetries, types of beaches, type of sandy and muddy bottom of the Pacific and Caribbean. Currently, they are working on regulations for coastal areas, seeking to improve mangrove legislation. Finally, the Climate Change Directorate, indicated the capacity of the Climate Change Adaptation Fund (FONACC) to manage monetary resources, for as part of this country proposal it is intended to carry out a microfinance activity for allocating funds for the development of subprojects. Currently, the Fund doesn´t have such capacity; however, the necessary adjustments are being made to strengthen this mechanism, with the aim that it becomes operational in short term.

Organizations and Academia:

- **Regional Center for the Western Hemisphere and The Audubon Society of Panama:** In the first approach with the (CREHO Ramsar) team, they explained the different projects they carry out for ecosystems conservation, with emphasis in priority areas of Bay of Chame and Bay of Parita, in which they have training projects for communities (on fisheries and ecosystem restoration). In addition, they shared other initiatives focused on planning sustainable urban areas and geospatial analysis modeling. On the other hand, the Audubon Society of Panama stated that there is great opportunity for synergy with programmed activities with their Project “Improving, Valuing and Protecting the Coastal Natural Capital of Panama”, specially at Bahía de Parita.
- **Smithsonian Tropical Research Institute:** Academia participation is an important asset for the proposed program. On behalf of STRI, Dr. Steve Peaton, director of the Physical Monitoring Program at the Smithsonian Institution, highlighted the importance of monitoring the sea, focusing on the quality of sea level gauge systems where their constant programming must be considered, as well as criteria recommended by the NOA. He also recommended holding meetings with the Panama Tsunami committee for the establishment of sea level gauges. STRI is conducting studies, particularly in trees, examining how key processes such as photosynthetic carbon dioxide fixation and associated transpirational water loss are regulated, and how these processes are associated mechanically to the acquisition of water and nutrients from soils, light, temperature, air humidity and atmospheric concentration of carbon dioxide. The aim is to better understand and predict the growth and survival of tropical vegetation in past, present and future conditions, and to explore how functional diversity is linked to the high diversity of plant species in tropical forests. These studies may be of relative importance for the proposal given that a work methodology has already been developed and could provide technical support in relation to the livelihoods component of the proposal. It was highlighted the work carried out by Panama Audubon Association, where mangrove study plot systems have been installed and for which they recommended creating work synergies. Finally, the work STRI has been conducting on mangrove monitoring, specifically studying the loss and gain of the mangrove forest cover (flying over the Panama Bay area and capturing the state of the forest through high resolution potos). In the future, it is forseen to scale this monitoring to other areas of the country with the support of other institutions. STRI recommended to consider carrying out this type of study before starting reforestation actions, given that coastal marine areas are very changeable due to impacts such as sedimentation at the mouth of rivers, coastal erosion and extreme weather events that have impacted the coasts of Panama.
- **Municipalities:** During the consultation phase, municipalities of Aguadulce, Antón, Capira and San Carlos stated severe affectations in their townships as a result of climate change. At Antón, for instance, they mentioned problems related to the sea level rise; at Capira, they explained how the mangrove forest is cut down for the economic support of several poor local families, mainly in Cermeño township. Another issue is the uncontrolled extraction of underwater sand, and the presence of slime on the beaches. They

stressed the need to develop production activities in coastal communities to achieve sustainable economic livelihoods. According to the survey made with focus groups, the majority expressed a medium level of knowledge about climate change, adaptation measures and related projects in the study area. The Municipality of Aguadulce commented that in areas such as El Salado beach, Pocrí, Barrios Unidos, adaptation measures are required such as reforestation and land use plans; and stated the need for trained personnel within the municipality to follow-up on the actions proposed. This municipality openly supports the proposed program. A survey was shared with the attendees, and 12 out of 15 people have knowledge about climate change and its effects. On the other hand, the municipality identified that the most affected sectors are fishing, agriculture, livestock and tourism. Mentioned risks for these sectors are due to floods, tidal waves, drought, sea level rise, coastal erosion, beach decline, and storms. The municipality of San Carlos stated that "the sea has taken everything", referring to the rise in sea level in the coastal townships of the district. Additionally, the importance ofstrengthening and looking for alternatives for fishermen as their activity has seriously diminished due to climate change. A survey was also shared with meeting attendees, where the majority showed knowledge on climate change issues; the main risks for the communities being floods, coastal erosion / beach decline, storm surges, landslides, and drought -primarily affecting the productive sectors of agriculture, tourism, and fishing. Additionally, in this district, the projects and management plans related to climate change are null.

A list of stakeholders that participated in the consultation process for the formulation of the program is presented in Annex 2.

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

The requested financing is considered valid and reasonable due to the following facts:

- The scope of the Program includes interventions at the local level -in coastal communities-, nine townships in three provinces: and at the national level.
- The basis of the program is the creation of resilience through a comprehensive porfolio of subprojects in coastal areas that support important livelihoods, which need to be maintained for the sustainability of populations (more than 220,000 people), the permanence of high value ecosystems to protect lives, goods and services vital to the local, regional and national economy; and development with a multisectoral approach. The intervention is proposed in such a way that the expected results are interconnected and allow to create synergy in the expected impact.
- The Program includes a balanced implementation of adaptation measures at the local level (farm plans, apiary systems, oyster farming, tilapia farming, integral gardens, community fishing and community tourism); for administration of water for consumption and irrigation; activities to strengthen value chains for local products; tools for risk reduction at regional and national level (improvement of meteorological stations, installation of sea level gauges for monitoring tsunamis and strengthening of the SAT system of floods, waves and tsunamis of the Central Pacific); complemented with technical analysis and production of operational and knowledge products (analysis of climate vulnerability and adaptation measures for each of the hydrographic basins in the area; environmental land use plans and municipal strategic plans with environmental information, and adaptation and resilience actions; a model of sea level rise for the Central Pacific of Panama); systematization documents, M&E adaptation protocol, adaptation knowledge platform, among others).
- The adaptation measures described above have been budgeted taking into consideration orders of magnitude (cost figures) based on previous interventions of the implementing partners (Fundación Natura, Ministry of Environment; ETESA, Ministry of Agriculture), even previously financed with resources from the Adaptation Fund. The unit costs have been revised to present adequate orders of magnitude for each component.
- The program proposes nature-based solutions, which have been designed in consultation with institutional actors (sectoral authorities), local governments and community representatives, for which it responds directly to priorities and needs, where there is interest and commitment to the programs´ success and the sustainability of obtained results.
- Local participation in the design of the program ensures the ownership of the proposed solutions, and the interconnection of the different activities to enhance the results.
- A series of activities have been incorporated for building capacities in different actors, on climate adaptation and resilience, in such a way that said capacities allow the continuity of the measures adopted for the execution of this program.
- The expected benefits in a scenario with the program versus a scenario without a program exceed the value of staggered investments over decades, or isolated investments without the logic of adaptation and building resilience throughout the Central Pacific of Panama (see table 2.37).
- This is further supported by the cost benefit analysis figures presented in Sections C2 and C3 of Part II of this document (see page 59-61).

Comparison of components / output between a baseline situation (without the program) and a scenario with the proposed program

Table 2.37. Comparison of components / outputs between a baseline situation (without the program) and a scenario with the proposed program

Component / output	Without the program	With the program
Component 1		
1.1 Strengthened livelihoods management through productive diversification, incorporation of technology and nature-based solutions in traditional production systems.	-Design and implementation of farm improvements in isolation by crop, in the absence of climatic considerations and based on response to the demand of some individual local producers. -Lack of diversification in traditional livelihoods, which increases vulnerability due to climate change and threatens water and food security. -Unsustainable use of marine-coastal resources that support the livelihoods of vulnerable populations. -Greater dependence on single livelihoods.	Integrated approach, with productive and adaptation solutions designed with the local and national stakeholders involved, offering diversification of livelihoods, the installation of nature-based solutions and the incorporation of climate-smart technology. It is consistent in promoting the concept of sustainable and resilient use of agricultural farms; in making visible the services associated with the use of water from surface sources and rainwater; transfer knowledge in good productive and diversified practices; the integration of the participation of women and men equitably; the increase of income in vulnerable families and incorporation of the family in the activities of their farms; food security; protecting ecosystems that provide important environmental services (including community tourism opportunities, aquaponics, and artisanal fishing). The combination of solutions makes visible activities that are completely viable and profitable in the social, economic and environmental sense.
1.2 Strengthened value chains for the production, marketing and commercialization of climate-smart and gender-inclusive products and services.	Productive processes that do not generate added value and generally exclude the equitable participation of women, thereby posing a threat to food security and weakening resilience to the effects of climate change.	Enables the construction of business success stories of climate-smart products or services, linking them with the execution of output 1.1. It ensures the sustainability of the activities beyond the execution of the program, leaving them prepared with a multi-year roadmap for the medium and long term; and the knowledge of how to prepare this strategic planning process in business terms adapted to the level of their capacities, including gender equality at all times.
1.3 Improved water resource management in coastal communities through strengthening the management of rural aqueducts and water harvesting with the use of efficient and low-cost technologies.	-Low resilience of communities regarding water security management. -Possible negative effects on the health of vulnerable populations due to lack of access to water. -Inefficient use of water sources at vulnerable coastal marine areas.	This product will make visible the environmental and social services associated with the use of water from surface sources and rainwater (water security); the integration of the participation of women and men equitably; the construction of capacities that will give sustainability to the administration of rural aqueducts from the sense of resilience and adaptation to climate change; and introducing the use of low-cost technologies, which have not been practiced in the area.
1.4 Reduced pressure on high-value ecosystems and improved ecosystem services through actions for the protection, reforestation, enrichment and / or restoration of these ecosystems.	-Lack of information on the current status of high-value ecosystems (dry forest, mangroves and gallery forests) in the program area. -Ecosystem damage and lack of connectivity, which negatively impacts local and regional biodiversity. -Latent threat of the loss of environmental services that ecosystems can provide, such as protection against storms, water regulation, protection against runoff and sedimentation, and reduced impacts from rising sea levels. -Possible isolated processes without scientific basis to guide actions in areas where greater synergy and impact on the results are obtained.	Important information will be generated on the gain or loss of forest cover in the Central Pacific, which will allow to have scientific evidence about the evolution in forested areas and take appropriate short-term actions, to ensure the best status and availability of the ecosystem services that provide. There is evident fragmentation in high-value ecosystems, and the need to connect them to preserve and enhance the social, environmental and economic service they provide is inferred. By implementing this series of products, capacities will be built in the community on the process of restoring high-value ecosystems, by piloting (learning-by-doing) the production of seedlings and the establishment of plantations.
1.5 Fostered climate financing for the implementation of climate adaptation and resilience actions of communities and their livelihoods.	-Absence of adaptation actions from the local perspective and the inclusion of nature-based solutions. -Lack of encouragement for the participation of CBOs and local governments in innovation to search for adaptation responses to climate change.	-Capacity will be built in community-based organizations and local governments, giving them the opportunity to learn and propose simple, low-cost and above all innovative solutions to build resilience and adapt to climate change. As they are directly affected by the threats and

Component / output	Without the program	With the program
	-The financial sector traditionally supports the agricultural sector - and requires a better understanding of climate-related risks and impacts in specific regions to support adaptation and building resilience through its products. -Lack of access to financing opportunities for adaptation to climate change.	consequences of the effects of climate change, this need offers an ideal setting for the generation of innovative solutions on their part, adapted to the local reality. -There is no microfinance experience for the coastal marine sector with considerations of adaptation and climate risk; This provides the opportunity for piloting to be replicated in other similar climatic areas of the country. -It will allow gathering experiences for the effective operation of the National Fund for Adaptation to Climate Change, to drive the reduction of climate vulnerabilities and increase resilience countrywide
Component 2		
2.1 Developed baseline studies on climate change with application in planning and environmental land management.	Medium and long-term development processes are not carried out based on planning and management tools that consider vulnerability and climate risks.	-Information on climate vulnerability and appropriate adaptation measures will be collected with the logic of hydrographic basins in 5 areas of the program, which will allow the respective local governments and sectoral governing entities, to design in a participatory way, interventions that advance adaptation to change climate. -For the first time, a model of sea level rise in the Central Pacific will be generated based on the IPCC scenarios, to help in territorial planning processes and district development interventions for climate adaptation and resilience, financed with municipal funds.
2.2 Strengthened the network of meteorological stations and sea level gauges, and the related Early Warning Systems (EWS).	The adaptation process (planning, land use planning, agricultural production and other productive activities) is null or slow, and the opportunity to prevent risks on a larger scale and generate scientific information (agroclimatic and hydrological) is lost to successfully guide strategies and investments in the face of vulnerability to climate change.	-Support the strengthening of the existing National Network of Meteorological Stations (hydro and agrometeorological), improve climate information products to support the planning and reporting of adaptation measures, also on risks particularly at the local and regional level, focused on the Central Pacific of Panama. -It will help to strengthen timely climate information that will guide preparedness and response actions to threats specific to the coastal-marine zone of the Central Pacific of Panama (for example, tsunamis, waves and floods), with the addition of 3 sea level gauges.
2.3 Developed a climate vulnerability and environmental risk modeling platform.	-There is a lack of solutions based on updated technical and scientific information to reduce risks in public and private sector investments, and to guide local development in the Central Pacific of Panama. -There are no tools for enabling inclusion of vulnerability / climatic / environmental risks in an easy, accessible and reliable way for planning, organizing, and carrying out investments and projects in the area and the country.	Promoting open access to information on climate vulnerability and environmental risks will be possible with the design and implementation of the first platform for modeling climate vulnerability and environmental risks. This will be available to decision makers, investors, local authorities, academia and citizens in general. It will represent an exceptional advance for the inclusion of climatic considerations in planning, ordering, and environmental management activities; and consider climate risks in public and private sector project investments. This tool can be scaled up at the national level, in order to contribute to adaptation in the country.
2.4 Prioritized adaptation measures implemented according to cost effectiveness analysis.	-Greater threat due to lack of preparation in mitigating impacts and risks derived from climate variability. -Lack of climate resilience of communities, livelihoods and ecosystems in the program area.	With knowledge generated from other products of the Program and others, a prioritization of nature-based adaptation measures can be generated, with the particularity that it will be integral in the incorporation of economic, political, social and environmental feasibility analysis. This will allow more efficiency and effectiveness to select future actions. These products will be monitored and the experience will be systematized for academic and replication purposes.
2.5 The monitoring and evaluation system for adaptation to climate change has been strengthened.	It is not possible to effectively and timely evaluate progress in the implementation of strategies and plans for adaptation to climate change and to generate recommendations for the more effective management of the country's adaptation actions and investments.	This product will allow the generation of information for the improvement of national adaptation strategies and plans, and investments in adaptation to climate change. It will also allow the validation of the adaptation monitoring and evaluation system with its indicators and protocols. Improving adaptation strategies and plans will increase the effectiveness of investments in the program area.
Component 3		

Component / output	Without the program	With the program
3.1 Strengthened the capacities of key actors on climate change and adaptation based on ecosystems, and successful experiences implemented.	-Low capacity in key actors to understand climate change and ecosystem-based adaptation. They do not know national policies and plans to face global climate change and its impact at the local level; and they work in contiguous territories without coordination with each other. -Municipalities and CBOs lack the capacities to elaborate, implement, monitor and evaluate adaptation proposals with a community focus that allows them to develop adaptation actions and strengthen climate resilience in their communities and livelihoods. -Limited public access to technical information on climate change in Panama, based on projects. - Low inclusion of vulnerable groups in decision-making participation and strengthening in adaptation.	The program will develop capacities in key actors for understanding climate change and ecosystem-based adaptation. Actors responsible for national policies and plans will be better prepared, as will the CBOs and municipalities of the Central Pacific of Panama. A knowledge management program will be developed that includes the communication of the progress and results of the program, the systematization of experiences and lessons learned, and the promotion of exchanges at different levels. It will allow the strengthening of the adaptation portal established during the development of the country's first adaptation program as a key tool for communication, dissemination, training and installation of the climate vulnerability and risk modeling platform. The preparation and development of the gender action plan increases the participation of vulnerable groups (women, youth, the elderly) in project actions and benefits, including strengthening capacities in adaptation and gender, participation in informed decision-making, access to benefits of productive activities.
3.2 Strengthened national and local capacities and developed the tools that allow participation with a gender perspective in project activities.		
3.3 Strengthened the capacities of community-based organizations (CBO) and municipalities on climate change, ecosystem-based adaptation and comprehensive project management.		
3.4 Increased knowledge management on adaptation to climate change at the national level, by strengthening the adaptation portal and a program to systematize experiences, lessons learned and their appropriation.		

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

To guarantee the integral sustainability of the actions developed during the implementation of the program, three key approaches will be considered in parallel: a) explicit support and appropriation of processes and products from interested parties, b) strengthening the capacities of key actors for the continuity and sustainability of the actions, and c) know and mobilize the necessary resources to maintain the developed processes and results over time.

The following considerations were taken into account to ensure the sustainability of the proposed program:

Economic and financial sustainability

a) Strategic strengthening of technical and administrative capacities with emphasis on field school methods (learning by doing) in order to guarantee the management and implementation of techniques (nature-based solutions) for their long-term sustainability.

b) Provision of continuous and intense technical assistance in order to generate local capacity and commitment to post-program follow-up.

c) Co-financing (in kind) as a means to guarantee ownership of the projects and long-term commitment.

d) Promote the exchange of experiences among beneficiaries to promote a multiplier effect

e) Improve conditions for access to microfinance and the capacity to manage new opportunities for support and consolidation of processes (projects).

At the institutional level:

a) Criteria established for the selection of technicians who show long-term commitment and interest in strengthening their capacities for the program implementation, which should include institutional technicians, non-governmental organizations, academia, local authorities, among others. The objective is to strengthen a critical mass of experts in different adaptation approaches, generating a supply and demand for technical adaptation skills.

b) Establishment of collaboration agreements with government entities to include activities within their competence in institutional programming in accordance with the program calendar and inclusion of post-program actions that contribute to sustainability. It is sought with this that the adaptation solutions are gradually institutionalized and replicated in other sites (scaling up).

On a social level:

a) Encourage adaptation measures to generate tangible economic benefits (better income, food security, access to water), to the beneficiary families.

b) Boosting the diversification of livelihoods and development of the value chain with the incorporation of gender in production processes and benefits.

c) Strengthen the technical capacities of beneficiaries through field schools (learning by doing) and exchange sessions that allow the generation of local capacity to monitor and maintain implemented nature-based solutions, as well as incorporated technologies.

d) Promote exchanges from producer to producer in order to encourage appropriation and strengthen their technical capacities.

e) Promote access to specialized technical advice in a constant and sustainable way while providing solutions to producers problems and needs.

f) Strengthen local capacity for better access to financing (projects and / or microfinance) that helps to improve and scale productive activities.

g) Development of planning tools (management plans, business plans) that provide technical guidance for production process and improve micro-businesses.

h) Promote the consolidation of fair and responsible markets with climate-smart production, that contributes to the socioeconomic benefit of producers and the sustainability of their ventures.

At an environmental level:

a) Promote a change of beneficiaries´ mindset and behavior to incorporate nature-based solutions and better manage their farms´ natural capital, so that it continues to provide environmental goods and services in the long term.

b) Compliance with national environmental regulations and support for compliance with international agreements or conventions.

c) Establishment of agreements with benefited owners to incorporate nature-based solutions on their farms (agroforestry, forestry, etc.) and conserve and manage important natural resources on their farms (soil, water, forests, biodiversity).

d) Promote the use of organic or natural fertilizers and insecticides to strengthen organic production and reduce the impact on contamination by agrochemicals.

e) Support for actions to recover high-value ecosystems, recognizing their importance for the generation of critical environmental goods and services they provide to the local population.

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

As part of the proposal design, an analysis was developed to assess the environmental and social impacts and risks for fully identified activities. The results are shown in table 2.38. In addition, see table 3.4.

Table 2.38. Overall risk analysis of the proposed program and mitigation measures for the fully identified activities[35]

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		The proposed program was designed in accordance with applicable national and international laws. This includes: Executive Decree 123 of August 14, 2009 (by which Chapter II of Title IV of Law 41- General Environmental Law is regulated), none of the activities proposed in the adaptation program requires an Environmental Impact Study given its nature (they are not included in the exhaustive list of activities that require it) or scope (the proposed activity is of a smaller scale than that indicated in the list). Still, when implementing these activities, rigorous observation of environmental criteria will be followed to prevent negative impacts (and will be required in terms of reference). For activities to restore high-value ecosystems such as mangroves, as well as farm plans, orchards and others, the terms of reference will establish measures to ensure that said activities prevent negative impacts on the environment with an environmental management plan when applicable. **Potential risk:** Alteration of the physical environment due to the implementation of adaptation actions. **Risk management:** Inclusion of clauses in the terms of reference to ensure said activities prevent negative impacts on the environment and have an environmental management plan when applicable.
Access and Equity		The equitable participation of men and women will be favored; that both will receive comparable social and economic benefits and that they will not be subjected to disproportionate adverse effects during the execution of the proposed program. The proposed projects will offer fair and equitable access to benefits in an inclusive manner, without impeding access to basic services of clean water supply and sanitation, energy, education and safe and decent working conditions, as well as the right to land. The program, through the proposed projects, will not exacerbate existing inequities, especially related to vulnerable groups. **Potential risk:** For some activities, such as those for the restoration of high-value ecosystems, it may be necessary to temporarily restrict access to the intervened areas (typical of the activity to ensure the success of reforestations). **Risk management:** A citizen participation plan will be carried out, to keep a constant communication channel on the activities planned and in execution of the program. In addition, announcements and radio programs will launched to inform in advance when meetings or other coordinations take place in the program areas.
Marginalized and Vulnerable Groups		The program is aimed at vulnerable groups in the Central Pacific of Panama. They are the main actors. There are no marginalized groups present, which are generally native or indigenous peoples and who usually reside in mountainous areas (reservation territories). The program is based on a participatory approach, which includes gender considerations and the active participation of women. All the proposed adaptation actions have been designed considering the interests of all stakeholders. **Potential risk:** There could be a risk that program actors (especially vulnerable groups) may disengage from the program. **Risk management:** The program has included a series of mechanisms to improve the awareness and professional and technical skills of local people about the causes, impacts and effects of climate change. The behavior change will be induced throughout the implementation of the different projects, towards the preparation for climate change; this will generate better living conditions and higher income (thus creating the interest of maintaining such good practices). The monitoring and evaluation system will include appropriate means to track the likelihood / availability of beneficiaries to continue beyond the end of the program.

[35] The risk analysis applies to all fully identified activities. For the risk analysis activities required for result *1.5:" Establishment of a finance Programme for local climate action that allows financing adaptation actions through Programmes proposed by CBOs and municipalities*"., see annex 5 for a detailed process to comply with the ESP and GP regarding unspecified subprojects (USPs).

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Human Rights	Panama has ratified the American Convention on Human Rights (Pact of San José, Costa Rica), signed in San José on November 22, 1969. It was approved by Law No. 15 of October 28, 1977 Official Gazette No. 18,468 of November 30, 1977. The program will adhere to the provisions established in this law. No initiatives were identified whose execution is out of alignment with established international human rights. The objectives of the project, on the contrary, promote basic human rights with activities that help to ensure medium and long-term adaptation to climate change.	None.
Gender Equality and Women's Empowerment		Panama is signatory to the Convention on the elimination of all forms of discrimination against women, which was adopted in New York by the United Nations General Assembly on December 18, 1979. It was approved in Panama by Law No. 4 of May 22, 1981. **Potential risk:** Little or no participation of women in program activities. **Risk management:** During the execution of the program, the provisions of the law will be complied with, and all activities will guarantee the promotion of gender equality and allow women to participate fully and equally without suffering any adverse effect from doing so. In addition, a baseline survey will be carried out on the level of awareness of target population (with considerations of equality and gender) about the impacts and the climatic cause of the problem to be addressed by the program. Based on the survey data results, informational materials will be generated and distributed to begin filling the identified knowledge gaps. From the beginning, meetings and workshops will be held and printed materials will be distributed to inform stakeholders of the objectives of the program. In addition, the specifications for contracting the execution of fully identified subprojects will request that the contracting organizations have experience working in selected areas, preferably; who have developed leadership roles in projects they have carried out; and that they hire local staff with leadership talents, among others, without gender discrimination. Additionally, the development of an action plan for the integration of gender into project activities is included, aligned with the new gender and climate change plan of Panama.
Core Labour Rights		The personnel hired by Fundación Natura have the right to a competitive salary and adequate working hours (no more than 45 hours per week). The same applies to the workforce involved in the program through organizations / contractors. However, it is possible that these provisions are disregarded by a contractor or third-party organizations that carry out fully identified activities. **Potential risk:** That contractors (be they OBC or others) of program´s fully identified activities fail to comply with the legal provisions applicable to the fundamental labor law. **Risk management:** Clauses of working conditions will be included in all the legally binding instruments between Fundación Natura and the executing agencies / contractors that establish the observance and fulfillment of these fundamental principles during the program. The monitoring and evaluation process will follow specific indicators related to this requirement, and non-compliance may cause the termination of contractual relationship.
Indigenous Peoples	There are no indigenous communities or settlers in the program implementation area. In any case, the design of the program took into consideration avoiding initiatives whose orientation or execution belittled the rights and responsibilities of marginalized populations.	None.
Involuntary Resettlement	Resettlement is not foreseen in the activities of this program. No initiatives that require involuntary resettlement have been identified.	None.
Protection of Natural Habitats	The project does not encourage habitat conversion or degradation. On the contrary, the project improves the protection of natural habitats by facilitating the implementation of prioritized strategies in the planning processes of territory in the Central Pacific of Panama - Arco Seco, and for areas with high-value ecosystems associated with adaptation to climate change.	None.
Conservation of Biological Diversity	No risk was identified that threatens the integrity of biological diversity in the proposed intervention area. The proposed activities focus on improving the protection and restoration of natural habitats -ecosystems, facilitating the implementation of prioritized strategies in the district planning processes for adaptation, and for areas with high-value ecosystems.	None.

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
	Even so, the activities that include construction components (such as installation of sea level gauges, improvements to aqueducts, water harvesting and irrigation systems) will only be implemented after obtaining the approval of the established state entities and under their supervision - in accordance with national standards - including those on the conservation of biological diversity. It should be noted that this will be the practice of the program, but by law all adaptation activities are exempt from environmental impact assessments.	
Climate Change		None of the proposed initiatives have been identified as a possible source - or cause - of unwarranted greenhouse gases. On the contrary, some of the proposed interventions will lead to the reduction of greenhouse gases. However, the areas located in the lower parts of Arco Seco are susceptible to fires - mainly caused by human actions (the traditional practice is to clear the patches of vegetation before planting new crops each year, burning uncontrollably). **Potential risk:** That the areas located in the lower parts of Arco Seco experience fires or uncontrolled burns. **Risk management:** To mitigate this risk, the work plans for productive and reforestation activities will introduce technical measures (such as reforestation at the beginning of the rainy season, construction of fire-break strips on the perimeter of plots and farms). In addition, educational measures will be implemented through the program's outreach mechanisms to keep in touch with stakeholders, during public consultations, radio messages, etc.
Pollution Prevention and Resource Efficiency	None of the proposed initiatives has been identified as a high energy consumer. In addition, no initiatives have been identified as large consumers of natural resources and that, therefore, would require measures for their efficient use. On the contrary, some initiatives are oriented towards a better use of available resources, especially water. Nor has any initiative been identified that generates solid waste that requires treatment.	None.
Public Health		**Potential risk:** a) Some of the proposed agricultural activities could generate health risks if they violate the relevant national regulations (for example, during the use of fertilizers). b) Capacity building activities, meetings, workshops, and the like may present a risk of contagion by COVID-19. **Risk management:** a) To avoid this, the executing organizations and the beneficiaries will be required to ensure, by formal means (contractual clause or agreement), compliance with the laws and take any other measure in their power to avoid risks to public health. The criteria for monitoring compliance are included in the M&E system. In addition, collateral benefits are expected in the health sector related to the improvement of water management capacities at the local level, contributing to efforts to combat diseases related to the spread of Aedes aegypti (dengue and Zika). b) For all face-to-face activities where the risk of COVID-19 infection is considered, the prevention and care protocols dictated by the competent authority (Ministry of Health) and the WHO will be required and complied with.
Physical and Cultural Heritage	None of the proposed activities poses the risk of alteration or damage to sites that represent physical and / or cultural heritage.	None.
Lands and Soil Conservation		None of the proposed initiatives has been identified as causing soil degradation or loss of productive lands. Some of the proposed activities are aimed at soil conservation or the improvement of productive lands and the protection and restoration of high-value ecosystems. **Potential risk:** There could be risks of soil degradation or loss of productive lands because of extreme climatic events (not due to activities of the proposed program). **Risk management:** All the technical guidelines of the Ministry of Agricultural Development will be observed during the implementation of agricultural practices to avoid any possible risk in this matter. In addition, information will be included throughout the execution of the project on the security, preparation, and response of the different actors in the territory in the event of extreme weather events that generate risks of soil degradation and human security.

According to the guidelines of the Environmental and Social Policy, the Gender Policy and the identified risks, the proposed program is considered to fall into category B (programs / projects with potential adverse impacts that are less adverse than in Category A) with small adverse environmental or social impacts that could be easily mitigated. The potential impacts were identified together with key stakeholders during the consultation process for the development of the full proposal, in order to include the project implementation arrangement and actions to prevent or mitigate them through a risk management plan.

PART III: IMPLEMENTATION ARRANGEMENTS

Describe the arrangements for project / programme implementation

Institutional arrangements were reviewed and include the feedback from the consultation process. Institutional arrangements are organized in three levels: strategic program monitoring, implementation level, and execution level.

A1. Institutional arrangements at implementation level

a) **Fundación Natura as a National Implementing Entity** (NIE) is responsible for the global management of the project / program and is responsible for all financial matters, monitoring and reports issued to the Adaptation Fund.

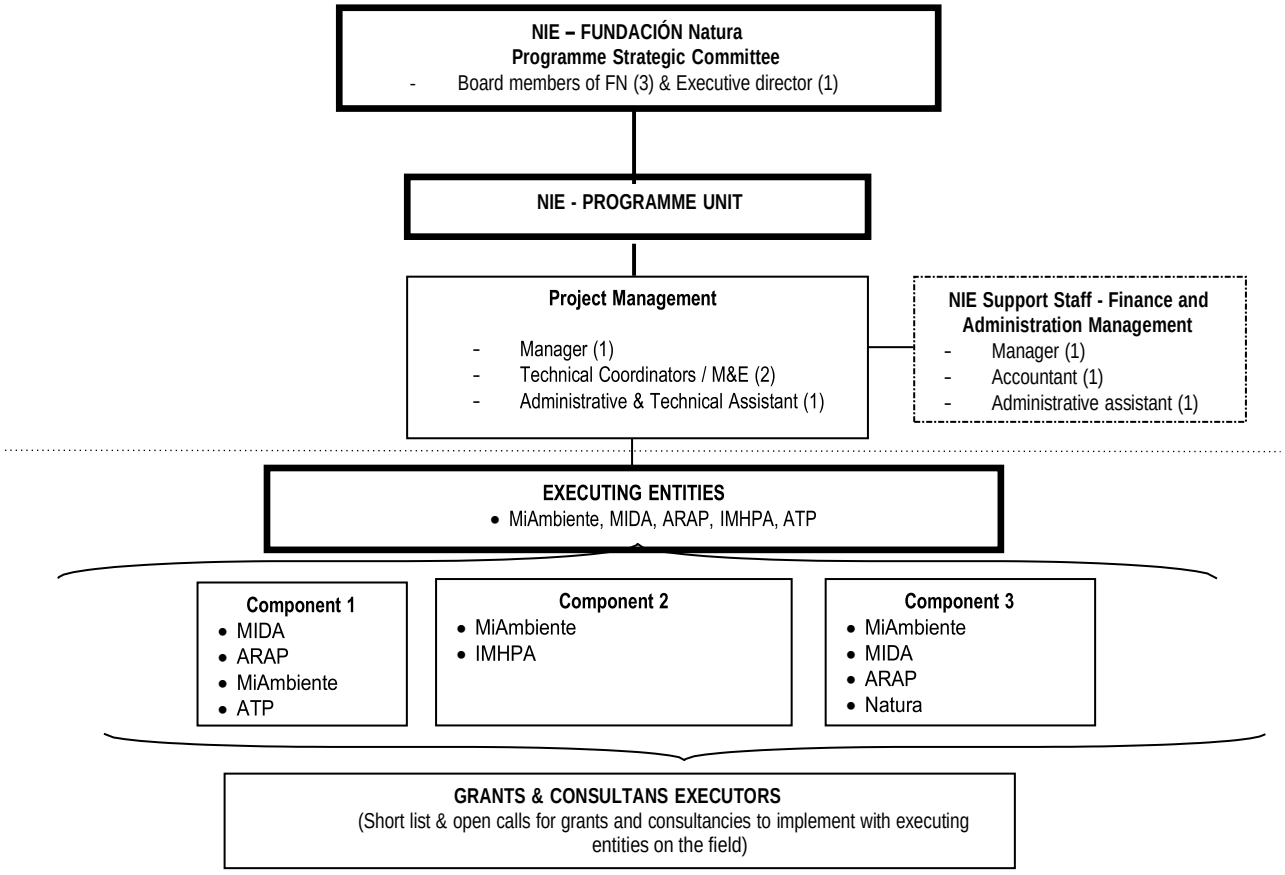
b) **Strategic Committee of the Program**: it is made up of members of the Board of Trustees and the Executive director of Fundación Natura (FN). This committee will strategically monitor the Program in order to follow up compliance with the contractual agreements acquired by FN as NIE and will be responsible for approving the Program's annual work plan and budget.

c) **Program Unit (PU)**: Located in Fundación Natura, it will be made up of personnel directly involved in the daily execution, monitoring and evaluation of the project. This team is comprised of 2 groups, the technicians responsible for the follow-up, monitoring and evaluation of the program and the support personnel responsible for providing administrative and financial support to the Project Unit. The PU's responsibilities consist of preparing and monitoring the project's annual budgets, including periodic budget reviews, monitoring of project work plans, contracting annual external audits of the project's financial statements for presentation to the AF, and preparing the documentation required for this purpose; preparation of progress reports on accountability (financial), preparation of annual and final reports for the AF, carry out public calls for the allocation of resources for projects or consultancies that will be implemented by EE, NGOs, local governments and consultancies; support to Executing Entities (EE) for the evaluation of proposals for the allocation of resources, review and approve the disbursement requests of projects and consultancies and acquisition of goods and services of the entities to be presented to Natura by the EE, approval of the terms of reference for the acquisition of the project's goods and services, guidance for monitoring the project's results indicators and products, providing support to the EE in technical and strengthening aspects to have quality in accordance with the policies of Natura and the Fund of Adaptation, coordinate the final evaluation and the systematization of project experiences. With the support of the EE coordinators, the UP team will monitor the progress of the project components.

d) **Executing Entities (EE)**: For the execution, there will be 4 executing entities responsible for implementation of the project with the administrative support of Fundación Natura, based on the processes and procedures of its quality management system. The executing entities, the Ministry of the Environment (MiAmbiente), the Ministry of Agricultural Development (MIDA), the Aquatic Resources Authority of Panama (ARAP) and Institute of Meteorology and Hydrology of Panama (IMHPA) will sign a Collaboration Agreement establishing the way in which the institutions will coordinate activities within the framework of the Programme for implementation of incumbent activities. Other executors who will be selected to develop specific products and activities are likely to be incorporated -such as the National Civil Protection System (SINAPROC), Tourism Authority of Panama, Maritime Authority of Panama, local governments, etc. The EEs in coordination with the NIE will play a key role in knowledge management and information exchange with all stakeholders and the general public.

The Executing Entities, through their contact person (CP) will coordinate and facilitate the internal monitoring meetings of their institution and will be responsible for the delivery of the quarterly reports to Fundación Natura, the preparation and execution of work plans for their subprojects, preparation and monitoring of the annual budgets of the subprojects and consultancies, preparation and execution of procurement plans and will carry out the procurement processes and preparation of disbursement and payment requests in accordance with the procurement procedures of Fundación Natura, among others.

Figure 11. Institutional arrangements for Programme strategic monitoring, implementation, and execution



MiAmbiente will be represented by the Department of Adaptation and Resilience, underde the Directorate of Climate Change, in collaboration with the Institute of Meteorology and Hydrology of Panama (IMHPA) and MiAmbiente regional offices at the provinces of Coclé, Panamá Oeste and Herrera. There will be a Project Coordinator, a technical-administrative assistant and a group of professionals from the Adaptation Department who will provide technical support. On the other hand, MiAmbiente will provide technical guidance on mainstreaming the climate change adaptation approach for the project's outputs and outcomes.
MIDA will work through the Agro-Environmental and Climate Change Unit, the Livestock Directorate, the Agriculture Directorate and their regional offices. It will have two Project Coordinators and a technical-administrative assistant.
ARAP will work on its products through the General Directorate for Research and Development, the General Directorate for Productivity Promotion and Technical Assistance and its regional offices. It will have two Project Coordinators and a technical-administrative assistant.

A2. Instruments for institutional arrangements

Some instruments identified for institutional arrangements include:
a) An Operations Manual will be prepared following the standardized procedures currently in place at Fundación Natura (as part of its Quality Management System) and applied to the programme cycle, as well as for the administrative and financial support processes.
b) A communications protocol that includes the recognition, as appropriate, of each executing entity/partner at the institutional level, as well as at the local and community levels.
c) Memorandum of Understanding / Collaboration Agreement signed between Fundación Natura and government counterparts responsible for coordinating and directing its corresponding component during the execution of the Program, together with the executing entities. The agreement will be an expression of commitment between the counterpart entities to advance in actions to adapt to climate change in Panama, based on the components and results of the Adaptation Programme. Organizations recognize that programme activities and

outcomes are consistent with their interagency planning strategies and goals. The organizations have expressed their willingness to provide technical guidelines and support to implement the proposed activities and commit to dedicate the necessary institutional resources.
Each result of the programme will be coordinated with a government counterpart, as shown in table 3.1.
Periodic informational events will be held to present program progress, lessons learned, and necessary adjustments considering national and local circumstances, if necessary. It is expected to develop the operational plan for the execution of the program during the first semester and present it during the induction workshop (see program schedule). At the same time, the training of teamwork will be carried out, together with the training of the team responsible for the Program. The call for proposals is expected, and the acquisitions will be set to take place in the second half of the first year.

Table 3.1. Outputs and government counterparts responsable for implementation of the Adaptation Fund proposed Programme

Components / outcomes	Outputs	Government counterparts
1. Increase the resilience of ecosystems and vulnerable productive sectors through diversification and nature-based solutions.	1.1 Strengthened livelihoods management through productive diversification, incorporation of technology and nature-based solutions in traditional production systems.	**MiAmbiente MIDA ARAP ATP**
	1.2 Strengthened value chains for the production, marketing and commercialization of climate-smart and gender-inclusive products and services	
	1.3 Improved water resource management in coastal communities through strengthening the management of rural aqueducts and water harvesting with the use of efficient and low-cost technologies.	
	1.4 Reduced pressure on high-value ecosystems and improved ecosystem services through actions for the protection, reforestation, enrichment and / or restoration of these ecosystems.	
	1.5 Fostered climate financing for the implementation of climate adaptation and resilience actions of communities and their livelihoods.	
2. Improve local and national capacity to face exposure to climate-related hazards and threats, through planning tools and risk reduction systems.	2.1 Developed baseline studies on climate change with application in planning and environmental land management.	**MiAmbiente IMHPA**
	2.2 Strengthened the network of meteorological stations and sea level gauges, and the related Early Warning Systems (EWS).	
	2.3 Developed a climate vulnerability and environmental risk modeling platform.	
	2.4 Prioritized adaptation measures implemented according to cost effectiveness analysis.	
	2.5 The monitoring and evaluation system for adaptation to climate change has been strengthened.	
3. Strengthen the capacity of key actors and improve knowledge on climate adaptation and resilience at the local and national levels.	3.1 Strengthened the capacities of key actors on climate change and adaptation based on ecosystems, and successful experiences implemented.	**MiAmbiente MIDA ARAP Natura**
	3.2 Strengthened national and local capacities and developed the tools that allow participation with a gender perspective in project activities.	
	3.3 Strengthened the capacities of community-based organizations (CBO) and municipalities on climate change, ecosystem-based adaptation and comprehensive project management.	
	3.4 Increased knowledge management on adaptation to climate change at the national level, by strengthening the adaptation portal and a program to systematize experiences, lessons learned and their appropriation.	

Describe the measures for financial and project / programme risk management

Table 3.2. Measures for the mitigation of financial, environmental, information, social, legal, economic, and organizational risks (for fully identified activities)

Risk description	Risk Level	Management / Mitigation measures	Responsible person	Status
That the financial management and procurement processes might be too complex, and delays in administrative processes impact program execution.		This risk is mitigated by the arrangements/functions detailed in Figure 11 and Table 3.1, which will oversee the NIE, Fundación Natura. FN has a robust administrative and financial control framework, with financial rules and regulations well established and proven for 30 years; it has mechanisms to ensure documentation of clearly defined roles and responsibilities for management, auditing, a governing body, and staff that ensures/demonstrates efficient and transparent control for payments/disbursements. FN will designate a program coordinator and a team of project officers with defined responsibilities to ensure highest standards and compliance with AF policies. FN has ample experience in maganement of diverse local and internacional-sourced funds, like the debt-for-nature swaps for the FIDECO fund, Darien Fund, Chagres Fund, as well as the first Adaptation Fund financed program in Panama.	Fundación Natura´s Executive Director, Program Coordinator, and Project Officers	Monthly report until Programme completion
Environmental				
That climate variability affects the production cycle of the programme (for example, change of season or increase in precipitation, prolongation of the dry season) and, therefore, the achievement of the expected quality, quantity and time. For example, the tree species to be planted suffer an alteration in the project calendar (seedling production, sowing date and survival rate after planting); that the orchard crops suffer from lack of water to allow the expected yields.		To avoid negative impacts on the projects' production cycle due to climate variability, the final design of all interventions will introduce the perspective of climate change. Project bidding documents and work plans must include the observation of cultivation dates (according to MIDA guidelines), the use of species resilient to such variabilities, the strategic location in the distribution of agricultural crops (considered in management plans), the use of pilot irrigation systems, among others.	Program Coordinator of the Fundación Natura Project Officer of Fundación Natura Liaison person for government organizations	Monthly report until Programme completion
That the program generates adverse environmental impacts		The program does not include activities that could generate significant environmental impacts. However, the specifications and all bidding documents and works contracts will require that the relevant permits / authorizations / licenses be obtained from the incumbent authorities before starting any activity on the ground. The technical specifications will also ensure that all possible measures are taken to prevent any adverse environmental impacts. During implementation, it will also ensure that incumbent state institutions monitor compliance with national standards and specifications.	Program Coordinator of the Fundación Natura Project Officer of Fundación Natura Liaison person for government organizations	Monthly report until Programme completion
Changes in the context (for example, large infrastructure projects, changes in government policies, etc.) that may affect the relevance of the Program to achieve the established environmental objectives.		Continuous and permanent coordination with government institutions will ensure that the NIE and implementing organizations are aware of any change in context in advance, thus allowing adjustments to be made in time to ensure successful implementation and achievement of the expected results. Periodic coordination meetings will be supervised to include in the analysis the context of the agenda that could pose a risk to the program.	Program Coordinator of the Fundación Natura Project Officer of Fundación Natura Implementing partners and organizations Beneficiaries	Monthly report until Programme completion
Information				
That there is little information that prevents the Foundation from mitigating risks to which the programme is exposed		A strategy to capture experiences and lessons learned will be implemented as soon as the programme starts (as stipulated in the proposal). In addition, the programme strategy should be monitored to promote the exchange of knowledge between the different components to ensure that: a) The overall Programme work plan includes explicit and periodic milestones for sharing progress / constraints between programme partners and project staff. b) operational / functional communication channels are established with existing local government instances, to present program progress and coordinate actions, as well as to learn about any change in context.	Fundación Natura´s Executive director and Program Coordinator Project Officer of Fundación Natura Implementing partners and organizations Beneficiaries	Monthly report until Programme completion
The most vulnerable population does not find out in time (or does not have the time or the conditions) to travel and attend the meetings scheduled by the Fundación Natura or the organizations implementing the programme		Fundación Natura will ensure a budget line (as indicated in the budget of the proposed programme) in the implementation of contracts of organizations, especially to provide travel stipends or similar means to the vulnerable population. In addition, announcements and radio programs will be made to inform in advance when meetings or other coordination take place in the programme areas.	Fundación Natura´s Executive director and Program Coordinator Project Officer of Fundación Natura Implementing partners and organizations	Monthly report until Programme completion

Risk description	Risk Level	Management / Mitigation measures	Responsible person	Status
			Beneficiaries	
Social				
That the local workforce lacks the necessary profiles to implement the program		To prevent knowledge and skills gaps from preventing the implementation of all program components, an induction for staff has been included at the beginning of program implementation. This includes local manpower at the technical and managerial level. The recruitment specifications will include the criteria that must be met in the knowledge and skills required for the implementation of the program. In addition, a series of courses will be offered to help create better local capacities to ensure continuous and successful results of the activities.	Fundación Natura´s Executive director and Program Coordinator Implementing partners and organizations	Monthly report until Programme completion
That main actors or beneficiaries are likely not to continue in the program process in the short, medium and long term		The withdrawal or disengagement of key stakeholders and beneficiaries will be prevented once the program has ended; To this end, the program has included a series of mechanisms to improve the awareness and professional and technical skills of local people about the causes, impacts and effects of climate change. The behavior change will be induced throughout the implementation of the different projects, towards the preparation for climate change; the same thing that will generate better living conditions and higher income (thus creating the interest of maintaining such good practices). The monitoring and evaluation system will include appropriate means to track the likelihood / availability of beneficiaries to continue beyond the end of the program.	Fundación Natura´s Program Coordinator Project Officers Implementing partners and organizations	Biannual reports until the end of the Programme
That the communities and beneficiaries of the program are indifferent to the problems that affect them in order to find solutions		Local communities and potential beneficiaries are open to the problems that currently affect them due to climate variability and change; therefore, there is little probability of a lack of empathy. To mitigate this situation during implementation, a baseline survey will be carried out on the level of awareness in the target population about the impacts and climate cause of the problem to be addressed by the program. Based on the survey data results, informational materials will be generated and distributed to begin filling the identified knowledge gaps. From the outset, meetings and workshops will be held and printed materials will be distributed to inform stakeholders of the objectives of the program.	Fundación Natura´s Program Coordinator Project Officers Implementing partners and organizations Beneficiaries	Quarterly reports until the end of the Programme
Legal				
That the lack of an environmental license to implement the program in any or all phases affects its performance		The need for environmental licenses or permits is not anticipated for proposed adaptation activities. However, if this risk arises (which would have a medium impact on the implementation of the program), the incumbent authorities - most of them responsible for ensuring compliance with the environmental license - have participated since the design of the program; and they will remain partners during implementation. Compliance with all licenses / permits (if required) will be a prerequisite for any disbursement in order to implement project activities (and will be mandatory in all terms of reference and contracts with implementing organizations).	Fundación Natura´s Program Coordinator Project Officers Implementing partners and organizations Beneficiaries	Quarterly reports until the end of the Programme
Economic				
That the presence of land speculation arises derived from the improvement of farms; attracting buyers who could transform land use or reverse program progress and achievements		There could be a risk that once farms improve, buyers may be lured into bidding for land. To mitigate this, specific criteria for choosing beneficiaries will include, among other considerations, that they have strong ties to, and long-term residence at the site (eg, on-site socioeconomic and family connections). Likewise, as part of the projects to be developed, a special agreement (honorary) will be signed by Fundación Natura and the beneficiary, in which they undertake to continue with their effort to adequately manage the farm in the long term (including no sale of your farm at least in the short-medium term). Better preparedness to adapt to the impacts of climate change will help increase the income and socioeconomic status of beneficiaries (which, in turn, decreases the likelihood that they will want to sell their property).	Fundación Natura´s Program Coordinator Project Officers Implementing partners and organizations Beneficiaries	Quarterly reports until the end of the Programme
Organizational				
That the implementing organizations lack the strengths, skills and institutional capacities in the administrative, financial and technical areas to implement the projects		To prevent or mitigate the risk of shortage of capacities to implement the projects, the implementing organizations will be selected on the basis (among other criteria) of their experience and capacities implementing similar / related projects. On the NIE side, Fundación Natura has long experience and built capacity in managing similar / related projects. In addition, once the program team is established, an induction will be developed to ensure a clear understanding of the expectations and objectives to be achieved with this adaptation program. Finally, Component 3 aims to build / enhance capacities and enhance professional and technical competencies in relation to the causes, effects and impacts of climate change.	Fundación Natura´s Program Coordinator Project Officers Implementing partners and organizations Beneficiaries	Quarterly reports until the end of the Programme

Table 3.3. Rating key – risk level description

3	**MAJOR - Intolerable Risk Level** **Immediate Action required to reduce risk to a broadly acceptable level and monitoring**
2	**MODERATE - Tolerable Risk Level** **Action required to reduce risk to a lower level within a reasonable time period or close monitoring**
1	**MINOR - Inconsequential Risk Level** **Periodic monitoring required.**

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

The environmental and social (E&S) risks were further analyzed according to the Environmental and Social Policy of the AF, during the consultation process. The results are the following.

Table 3.4. Environmental and social risk management plan to comply with the E&S Policy and the Gender Policy of Adaptation Fund (for fully identified activities)[36]

E&S / G Policy of AF Risk description	Level of risk	Risk mitigation measures *Planned implemetation date	Responsible person
Compliance with the Law **Potential risk:** The programme could generate adverse environmental impacts due to alteration of the physical environment, failing to comply with laws for prevention and mitigation of environmental impact.		The proposed programme was designed in accordance with applicable national and international laws. This includes: Executive Decree 123 of August 14, 2009 (by which Chapter II of Title IV of Law 41- General Environmental Law is regulated), none of the activities proposed in the adaptation program requires an Environmental Impact Study given its nature (they are not included in the exhaustive list of activities that require it) or scope (the proposed activity is of a smaller scale than that indicated in the list). Still, when implementing these activities, rigorous observation of environmental criteria will be followed to prevent negative impacts (and will be required in terms of reference). For activities to restore high-value ecosystems such as mangroves, as well as farm plans, orchards and others, the terms of reference will establish measures to ensure that said activities prevent negative impacts on the environment with an environmental management plan when applicable. Risk management: Inclusion of clauses in the terms of reference to ensure said activities prevent negative impacts on the environment and have an environmental management plan when applicable. *Continous.	Fundación Natura´s Program Coordinator Project Officers
Access and Equity **Potential risk:** For some activities, such as those for the restoration of high-value ecosystems, it may be necessary to temporarily restrict access to the intervened areas (typical of the activity to ensure the success of reforestations).		The equitable participation of men and women will be favored; that both will receive comparable social and economic benefits and that they will not be subjected to disproportionate adverse effects during the execution of the proposed program. The proposed projects will offer fair and equitable access to benefits in an inclusive manner, without impeding access to basic services of clean water supply and sanitation, energy, education and safe and decent working conditions, as well as the right to land. The program, through the proposed projects, will not exacerbate existing inequities, especially related to vulnerable groups. Risk management: A citizen participation plan will be carried out, to keep a constant communication channel on the activities planned and in execution of the program. In addition, announcements and radio programs will launched to inform in advance when meetings or other coordinations take place in the program areas. * Continuous.	Fundación Natura´s Program Coordinator Project Officers Implementing partners and CBOs, ONGs Beneficiaries
Marginalized and Vulnerable Groups **Potential risk:** There could be a risk that programme actors (especially vulnerable groups) may disengage from the programme.		The program is aimed at vulnerable groups in the Central Pacific of Panama. They are the main actors. There are no marginalized groups present, which are generally native or indigenous peoples and who usually reside in mountainous areas (reservation territories). The program is based on a participatory approach, which includes gender considerations and the active participation of women. All the proposed adaptation actions have been designed considering the interests of all stakeholders. Risk management:	Fundación Natura´s Program Coordinator Project Officers Implementing partners.

[36] For the risk analysis activities required for result *1.5:" Establishment of a finance Programme for local climate action that allows financing adaptation actions through Programmes proposed by CBOs and municipalities*"., see annex 5 for a detailed process to comply with the ESP and GP regarding unspecified subprojects (USPs).

		The program has included a series of mechanisms to improve the awareness and professional and technical skills of local people about the causes, impacts and effects of climate change. The behavior change will be induced throughout the implementation of the different projects, towards the preparation for climate change; this will generate better living conditions and higher income (thus creating the interest of maintaining such good practices). The monitoring and evaluation system will include appropriate means to track the likelihood / availability of beneficiaries to continue beyond the end of the program. * Continuous.	
Human Rights **Potential risk:** That respect for human rights is violated.		Panama has ratified the American Convention on Human Rights (Pact of San José, Costa Rica), signed in San José on November 22, 1969. It was approved by Law No. 15 of October 28, 1977 Official Gazette No. 18,468 of November 30, 1977. The program will adhere to the provisions established in this law. No initiatives were identified whose execution is out of alignment with established international human rights. The objectives of the project, on the contrary, promote basic human rights with activities that help to ensure medium and long-term adaptation to climate change. Risk management: Inclusion of clauses in the terms of reference to ensure compliance with these international and national regulations, stipulating the mechanism for complaints to possible contradictions, when applicable. * Continuous.	Fundación Natura´s Program Coordinator Project Officers Implementing partners.
Gender Equality and Women's Empowerment **Potential risk:** Little or no participation of women in program activities.		Panama is signatory to the Convention on the elimination of all forms of discrimination against women, which was adopted in New York by the United Nations General Assembly on December 18, 1979. It was approved in Panama by Law No. 4 of May 22, 1981. Risk management: During the execution of the program, the provisions of the law will be complied with, and all activities will guarantee the promotion of gender equality and allow women to participate fully and equally without suffering any adverse effect from doing so. In addition, a baseline survey will be carried out on the level of awareness of target population (with considerations of equality and gender) about the impacts and the climatic cause of the problem to be addressed by the program. Based on the survey data results, informational materials will be generated and distributed to begin filling the identified knowledge gaps. From the beginning, meetings and workshops will be held and printed materials will be distributed to inform stakeholders of the objectives of the program. In addition, the specifications for contracting the execution of subprojects will request that the contracting organizations have experience working in selected areas, preferably; who have developed leadership roles in projects they have carried out; and that they hire local staff with leadership talents, among others, without gender discrimination. * Continuous.	Fundación Natura´s Program Coordinator Project Officers Implementing partners and organizations.
Core Labour Rights **Potential risk:** That contractors (be they OBC or others) of program activities fail to comply with the legal provisions applicable to the fundamental labor law.		The personnel hired by Fundación Natura have the right to a competitive salary and adequate working hours (no more than 45 hours per week). The same applies to the workforce involved in the program through organizations / contractors. However, it is possible that these provisions are disregarded by a contractor or third-party organizations that carry out projects. Risk management: Clauses of working conditions will be included in all the legally binding instruments between Fundación Natura and the executing agencies / contractors that establish the observance and fulfillment of these fundamental principles during the program. The monitoring and evaluation process will follow specific indicators related to this requirement, and non-compliance may cause the termination of contractual relationship. * Continuous.	Fundación Natura´s Program Coordinator Project Officers Implementing partners and organizations.
Indigenous Peoples **Potential risk:** N/A		There are no indigenous communities or settlers in the program implementation area. In any case, the design of the program took into consideration avoiding initiatives whose orientation or execution belittled the rights and responsibilities of marginalized populations.	N/A
Involuntary Resettlement **Potential risk:** N/A		Resettlement is not foreseen in the activities of this program. No initiatives that require involuntary resettlement have been identified.	N/A
Protection of Natural Habitats **Potential risk:** N/A		The project does not encourage habitat conversion or degradation. On the contrary, the project improves the protection of natural habitats by facilitating the implementation of prioritized strategies in the planning processes of territory in the Central Pacific of Panama - Arco Seco, and for areas with high-value ecosystems associated with adaptation to climate change.	N/A
Conservation of Biological Diversity **Potential risk:**		No risk was identified that threatens the integrity of biological diversity in the proposed intervention area. The proposed activities focus on improving the protection and restoration of natural habitats -ecosystems, facilitating the implementation of prioritized strategies in the district planning processes for adaptation, and for areas with high-value ecosystems. Even so, the activities that include construction components (such as installation of sea level gauges, improvements to aqueducts, water harvesting and irrigation systems) will only be	N/A

N/A		implemented after obtaining the approval of the established state entities and under their supervision - in accordance with national standards - including those on the conservation of biological diversity. It should be noted that this will be the practice of the program, but by law all adaptation activities are exempt from environmental impact assessments.	
Climate Change **Potential risk:** That the areas located in the lower parts of Arco Seco experience fires or uncontrolled burns.		None of the proposed initiatives have been identified as a possible source - or cause - of unwarranted greenhouse gases. On the contrary, some of the proposed interventions will lead to the reduction of greenhouse gases. However, the areas located in the lower parts of Arco Seco are susceptible to fires - mainly caused by human actions (the traditional practice is to clear the patches of vegetation before planting new crops each year, burning uncontrollably). Risk management: To mitigate this risk, the work plans for productive and reforestation activities will introduce technical measures (such as reforestation at the beginning of the rainy season, construction of fire-break strips on the perimeter of plots and farms). In addition, educational measures will be implemented through the program's outreach mechanisms to keep in touch with stakeholders, during public consultations, radio messages, etc. * Continuous.	Fundación Natura´s Program Coordinator Project Officers Implementing partners and organizations.
Pollution Prevention and Resource Efficiency **Potential risk:** N/A		None of the proposed initiatives has been identified as a high energy consumer. In addition, no initiatives have been identified as large consumers of natural resources and that, therefore, would require measures for their efficient use. On the contrary, some initiatives are oriented towards a better use of available resources, especially water. Nor has any initiative been identified that generates solid waste that requires treatment.	N/A
Public health **Potential risk:** a) Some of the proposed agricultural activities could generate health risks if they violate the relevant national regulations (for example, during the use of fertilizers). b) Capacity building activities, meetings, workshops, and the like may present a risk of contagion by COVID-19.		Risk management: a) To avoid this, the executing organizations and the beneficiaries will be required to ensure, by formal means (contractual clause or agreement), compliance with the laws and take any other measure in their power to avoid risks to public health. The criteria for monitoring compliance are included in the M&E system. In addition, collateral benefits are expected in the health sector related to the improvement of water management capacities at the local level, contributing to efforts to combat diseases related to the spread of Aedes aegypti (dengue and Zika). b) For all face-to-face activities where the risk of COVID-19 infection is considered, the prevention and care protocols dictated by the competent authority (Ministry of Health) and the WHO will be required and complied with. * Continuous.	Fundación Natura´s Program Coordinator Project Officers Implementing partners and organizations MiAmbiente.
Physical and Cultural Heritage **Potential risk:** N/A		None of the proposed activities poses the risk of alteration or damage to sites that represent physical and / or cultural heritage.	N/A
Lands and Soil Conservation **Potential risk:** There could be risks of soil degradation or loss of productive lands because of extreme climatic events (not due to activities of the proposed program).		None of the proposed initiatives has been identified as causing soil degradation or loss of productive lands. Some of the proposed activities are aimed at soil conservation or the improvement of productive lands and the protection and restoration of high-value ecosystems. Risk management: All the technical guidelines of the Ministry of Agricultural Development will be observed during the implementation of agricultural practices to avoid any possible risk in this matter. In addition, information will be included throughout the execution of the project on the security, preparation, and response of the different actors in the territory in the event of extreme weather events that generate risks of soil degradation and human security. * Continuous.	Fundación Natura´s Program Coordinator Project Officers Implementing partners and organizations MiAmbiente.

D. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan, in compliance with the ESP and the Gender Policy of the Adaptation Fund

D1. Description of the Monitoring & Evaluation mechanisms

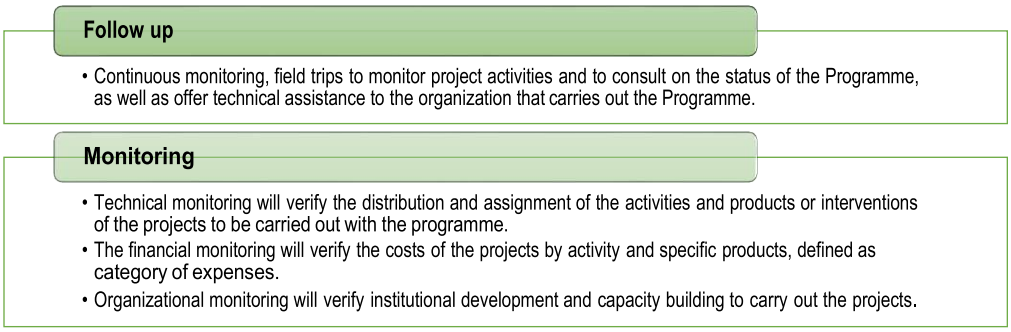
The monitoring and evaluation will be carried out in accordance with the provisions of the Fundación Natura's Quality Management System (NIE), following the Policies, guidelines and procedures of the Adaptation Fund. A Climate Change Manager will be responsible for monitoring the progress of the program and the staff of the program implementation unit. The midterm and final evaluation, the annual audits will be carried out by external consultants.

Monitoring and evaluation will take place at two (2) levels:

1. Program Level (Climate Change Management).
2. Level of Organizations / implementing partners.

Inter-institutional implementation mechanisms will also support the monitoring and evaluation system.

Figure 12 Monitoring and evaluation mechanism



Monitoring

Monitoring and evaluation of the program will be carried out in accordance with the provisions of the Fundación Natura's Quality Management System (NIE), following the policies and guidelines of the Adaptation Fund. The Monitoring Plan will be based on performance indicators, goals, and means of verification and will be prepared by the program implementation unit during the program planning stage. It will also establish the information system that will be used to evaluate the progress, performance, and impact of the program.

Program kick-off workshop and report

The Program kick-off workshop will be held within the first quarter from the first cash transfer to the program in 2 prioritized areas with all stakeholders. In this workshop, the annual operating plan for the first year and the implementation and execution arrangements of the project will be defined. This activity also includes the development of facilitation training sessions with key project personnel and partners. A report will be prepared and shared with the stakeholders to formalize the coordination and agreements as a result of the workshop.

Quarterly reports:

The executing agencies and entities will present technical and financial reports to Fundación Natura. The technical report will record the results of the technical execution achieved in the reported quarter. It will include the actions taken and the results, delays, justifications and correction and rescheduling, where appropriate. The technical report must include graphics, photos, reports, brochures, bulletins, videos, meeting reports and other documents generated in the period and complement the information. The financial reports record the expenses incurred in the period, in accordance with the distribution of the approved budget and in accordance with the approved Annual Operating Plan.

Annual / Final Report:

These reports present the performance according to the Annual Operating Plan, the limitations and challenges, the budget execution report, as well as the status and evaluation of the projects of each component of the programme. Fundación Natura, as well as the NIE, will present annual reports to the Adaptation Fund Programme, in accordance with the requirements established by the Fund. An Annual Programme erformance Review (PPR) is conducted to monitor progress made annually. The PRP includes, but is not limited to, reporting on the following: cumulative financial information since project inception, procurement data, risk assessment, compliance with environmental and social policies, compliance with gender policy, rating on progress by executing entity according to the work plan for the period, cumulative progress of the indicators, lessons learned and results monitoring according to the strategic results framework of the Adaptation Fund.

The information will be collected mainly through the quarterly reports of the executing entities, reports of field visits from Fundacion Natura technicians as well as through the review of meeting memories aids. The annual RPPs will be submitted no later than two months after the end of the reporting year and the final report within six months after the end of the Programme.

External audits:
Annual audits will be carried out by an external auditing company of the financial statements related to the status of execution of the funds in accordance with the procedures established by the Fundación Natura's Quality Management System.
The programme audit report will be submitted within six (6) months after the programme closes.
Final evaluation:
It will be developed two months before the end of the programme with an external (independent) consultancy. The evaluation will help to create knowledge, to determine if the design, timing, and funding of the programme were appropriate for the achievement of the results, especially if they have contributed to the progress of the changes established as objectives. An important aspect of this final evaluation is that it will be observed if it is necessary to strengthen the products or results to achieve sustainability or maturity as the planned changes are achieved. It will present the lessons learned on the design, implementation, and management of the program. The result of the final evaluation will be delivered to the executing entities to ensure the continuity of the processes started with the programme.
Field Visits / Monitoring Reports:
The NIE will make periodic visits to field projects to monitor progress in its work plan, as well as for interviews / surveys of beneficiaries.

D2. Detailed Budget for the M&E Plan

Table 3.5. Monitoring and Evaluation Plan Budget

M&E activities	Responsible	Schedule / Frequency	Budget US$
Inception workshop and report	• Natura • MiAmbiente • MIDA • ARAP • IMHPA	First quarter from the first cash transfer to the programme in 2 prioritized areas. The report will be delivered no later than one (1) month after the workshop has been carried out.	14,000 (The travel expenses of Natura's personnel will be charged to the costs of the NIE and that of the Executing Entities in the execution costs)
Quarterly reports	• Project Coordinators of executing entities • Natura	Quarterly They will be submitted no later than 15 days after the end of the term.	Included in NIE costs Nature personnel expenses Will be charged to the costs of the NIE
Annual program execution reports (PPR)	• Executing Entities • Natura	PPRs will be submitted no later than two (2) months after the end of the reporting year.	5,000 Nature personnel expenses wll be charged to the costs of the NIE Translation costs included.
Final report	• Executing Entities • Natura	At the end of the program. It will be presented within six months after the end of the program.	4,400
Meetings of the Strategic Committee of the Program and other actors	• Natura • Project Coordinators of executing entities	Biannual	Included in NIE costs
External final evaluation	• External consultants • Project Coordinators of executing entities • Natura	Two (2) months before the completion of the programme implementation	30,000
External Audits	• Natura	Annually (according to Natura's quality management system). A final audited financial statement will be submitted within six (6) months after the end of the program	32,000 Included in NIE costs
Monitoring visits in implementation areas	• Natura • Executing Entities	Quarterly	15,000 The travel expenses of Natura staff will be charged to the costs of the NIE. Travel costs and fuel for the tours are included. Tours are determined annually in the work plan.
Training workshop for key actors in the program on environmental and social safeguards and gender policy.	• Natura	First quarter of implementation. It is reinforced in the second year.	10,000
Presentation of program results	• Natura • Executing Entities	Two months after completion of implementation	10,000
		TOTAL	**120,400**

Note: Budgeted costs (USD) do not include salary costs or travel expenses for NIE staff. The M&E budget that is included in the execution costs is presented in table 3.10

E. Include a results framework for the project proposal, including milestones, targets and indicators, including one or more core outcome indicators of the Adaptation Fund Results Framework, and in compliance with the Gender Policy of the Adaptation Fund

Programme level results framework with objectives

Table 3.6. Program-level results framework with targets and indicators

Narrative summary	Indicators	Baseline	Target	Verification source	Risks and assumptions
Objective 1: Generate greater resilience at vulnerable ecosystems and essential livelihoods, through concrete actions for the restoration and climate-smart management of marine-coastal ecosystems; productive diversification; and innovation for adaptation					
Impact: Increase the resilience of the most vulnerable coastal communities and their livelihoods and improve the management of high-value ecosystems as blue carbon sinks in the Central Pacific of Panama					
Component 1. Increase the resilience of ecosystems and vulnerable productive sectors through diversification and nature-based solutions Indicator: 1. Percentage of beneficiary families with better income due to productive diversification and climate-smart production in target areas. This indicator will have disaggregated data on families headed by women. 2. Number of families with better access to water. 3. Number of ha. reforested, enriched or restored by type of ecosystem Baseline: 1. TBD in targeted population households (income by source in targeted beneficiaries will be determined by a specific socioeconomic survey to be conducted as part of the baseline survey to be conducted as part of the terms of reference for implementing each product under outcome 1). 2. Cero families. 3. Cero hectares. Target: 1. At least 50% of beneficiary families show better income due to program intervention in the first 2 years. 2. 125 families to an average of 25 families per town. 3. 150 ha. recovered (enriched, reforested and / or restored). Verification source: 1. Monitoring and evaluation reports of changes in family income with respect to baseline. 2. Reports, memory aids, supplies delivery certificates, agreements with owners. 3. Execution reports, memory aid, photography, monitoring and evaluation results. Risks and assumptions: 1. Livelihood management improvement projects will seek to generate greater participation in the number of families benefited with a focus on gender participation in the development of actions and benefits; the development of initiatives that promote the strengthening of producers' associations will be favored. 2. Rural aqueducts will be selected jointly with MINSA to benefit those with towns most affected by impacts of climate variability.					6.1.1. No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies. 6.2.1. Type of income sources for households generated under climate change scenario. 5.1. No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale) 8.1. No. of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated 8.2. No. of key findings on effective, efficient adaptation practices, products and technologies generated
1.1 Strengthened livelihoods management through productive diversification, incorporation of technology and nature-based solutions in traditional production systems					
Product 1.1.1 At least 50 farm management plans developed and implemented to strengthen sustainable livestock and climate-smart agriculture, incorporating nature-based solutions (NbS) and technologies Product 1.1.2 Installed at least 4 apiaries and about 12 hives, including training of beneficiaries (beekeepers) and provision of equipment. Product 1.1.3 Installed at least four pilot oyster farming experiences, including training of beneficiaries and provision of equipment. Product 1.1.4 Established 12 projects of integral home gardens with water harvesting systems and drip irrigation Product 1.1.5 Installed at least 12 pilot tilapia farming projects with implemented aquaponics techniques, including training and provision of equipment. Product 1.1.6 Three community tourism experiences strengthened including the development of criteria or guidelines to reduce climate risk in the tourism operation and the development of a local community tourism strategy incorporating considerations for risk reduction and increased climate resilience. Product 1.1.7 Ten pilot community fishing projects developed with the incorporation of nature-based technologies and solutions	Number of beneficiary families with productive systems more resilient to the climate change. Percentage of families with diversified production systems that contribute to their food security and livelihood resilience. Number of ha. with climate-smart production systems. Percentage of beneficiary families with better income due to productive diversification and climate-smart production.	0 0% 0 ha Baseline of beneficiary families with better income should be determined after selection of beneficiaries of each type of project	300 benefited Families 1,000 ha under farm planning and incorporation of NbS. At least 50% of beneficiary families show better income due to diversification of livelihoods in the first 2 years.	Farm management plans, signed agreements, equipment delivery minutes, reports, memory aid, list of training processes. Farm management plans, production and ecosystem conservation agreements with landowners. Monitoring and evaluation reports of changes in family income with respect to baseline.	Livelihood management improvement projects will seek to generate greater participation in the number of families benefited with a focus on gender participation in the development of actions and benefits; the development of initiatives that promote the strengthening of producers' associations will be favored. The number of ha with climate-smart production systems comprise all the livelihoods that encompass planning processes and implementation of actions based on nature.
1.2 Strengthened value chains for the production, marketing and commercialization of climate-smart and gender-inclusive products and services					
Product 1.2.1 Five business plans developed and implemented for products or services with the greatest potential in the program Product 1.2.2 Reports on strategic investments for the development of business plans and more specialized studies.	No of women and young people incorporated into production processes and their benefits. Increase in family income as the value chains are developed.	Total Women and Youth: 0 Baseline of family income for business plans beneficiaries must be established	50% of new job opportunities allow participation of women and young people Between 25-35% increase in family income at 2 years from the Programme implementation	Consulting reports. Evaluation and monitoring reports.	The strategic investments determined in the business plans allow the development of the value chain, with gender inclusion, in the production process and benefits.
1.3 Improved water resource management in coastal communities through strengthening the management of rural aqueducts and water harvesting with the use of efficient and low-cost technologies.					
Product 1.3.1 Management of five rural aqueducts in the program area strengthened. Product 1.3.2 18 multipurpose water harvesting systems installed using efficient and low-cost technologies	Number of families with better access to water. Percentage of multipurpose water harvesting system established. Percentage of families with better productive benefits thanks to water harvesting systems.	0 families. 0 multipurpose water harvesting system. % families with better benefits in their productive systems due to better access to water.	125 families to an average of 25 families per town. 18 multipurpose water harvesting systems installed.	Reports, memory aids, supplies delivery certificates, agreements with owners.	Rural aqueducts will be selected jointly with MINSA to benefit those with towns most affected by impacts of climate variability. As a strategy, agreements and climate-smart agriculture or livestock projects can be established with land tenants whose farms have water intakes or are located at a critical part of the river basin (the water source).
1.4 Reduced pressure on high-value ecosystems and improved ecosystem services through actions for the protection, reforestation, enrichment and / or restoration of these ecosystems					
Product 1.4.1 An analysis of the loss / gain of forest cover in the program area through the use of geographic information systems. Product 1.4.2 An action plan for the recovery of high-value ecosystems that considers vulnerability scenarios and connectivity requirements for the benefit of biodiversity.	Number of ha. reforested, enriched or restored by type of ecosystem.	0 hectare.	150 ha. recovered (enriched, reforested and / or restored). 300 Families benefited.	Execution reports, memory aid, photography, monitoring and evaluation results.	Number of families benefited is related to the output 1.1 indicator

Narrative summary	Indicators	Baseline	Target	Verification source	Risks and assumptions
Product 1.4.3 Installed and operating at least two community nurseries in the program area Product 1.4.4 150 ha of high value ecosystems reforested, enriched and / or restored	Number of families benefited in the process of ecosystem recovery.	0 families benefited.			
1.5 Fostered climate financing for the implementation of climate adaptation and resilience actions of communities and their livelihoods.					
Product 1.5.1 Establishment of a grants program for adaptation actions aimed at CBOs and Municipalities Product 1.5.2 A microfinance scheme for the coastal-marine sector with considerations of adaptation and climate risk. Product 1.5.3 Enabling conditions established for the efficient operation of the National Climate Change Adaptation Fund	Number of projects developed. Number of families benefited by the grant program and access to microcredits.	0 projects developed. 0 beneficiary families.	10 projects implemented. 300 families benefited.	Execution reports, memory aid, monitoring and evaluation results.	The projects to be developed through CBOs and Municipalities should benefit vulnerable communities and their livelihoods through the fulfillment of objectives and generation of products. Number of families benefited is related to the Output 1.1 indicator
Component 2. Improved local and national capacity to deal with exposure to climate-related hazards and threats, through planning tools and risk reduction systems Indicator: 1. No. of instruments developed to respond to climate-induced challenges. 2. Number of people (men and women) benefited from the development of new instruments and tools that contribute to the adaptation of their communities and livelihoods. Baseline: One instrument; 2. TBD in targeted communities will be determined by a specific survey to be conducted as part of the baseline analysis to be conducted at the beginning of the program implementation. Target: 1. 15 instruments developed. 2. 100,00 people Verification source: 1. Final reports or final products delivered and validated, plans validated by actors, memory aids, certificates of delivery of products to competent authorities. Risks and assumptions: Target communities and local and national authorities keep their willingness to participate in the program.					1.1. No. of projects/programs that conduct and update risk and vulnerability assessments (by sector and scale). 7.1. No. of policies introduced or adjusted to address climate change risks (by sector) 7.2. No. of targeted development strategies with incorporated climate change priorities enforced. 1.2.1. Percentage of target population covered by adequate risk-reduction Systems. 8.1. No. of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated.
2.1 Developed baseline studies on climate change with application in planning and environmental land management					
Product 2.1.1 Five climate vulnerability analyzes and adaptation measures for each of the hydrographic basins in the program area Product 2.1.2 A model of sea level rise for the Central Pacific of Panama that identifies the areas of greatest vulnerability according to IPPC scenarios. Product 2.1.3 Three Environmental Land Management plans for prioritized districts Product 2.1.4 Six municipal strategic plans that incorporate environmental information and actions for adaptation and strengthening of climate resilience in their territories.	Number of instruments that contribute to adaptation and improvement of climate resilience developed. Number of people (men and women) benefited from the development of new instruments that contribute to the adaptation of their communities and livelihoods.	1 Instrument developed. It should be established at the beginning of the project.	15 instruments developed. 100,000 people.	Final reports or final products delivered and validated. Plans validated by actors. Memory aids. Certificates of delivery of products to competent authorities.	There is an instrument developed for the Vulnerability Analysis of the Santa María River Hydrographic Basin.
2.2 Strengthened the network of meteorological stations and sea level gauges, and the related Early Warning Systems (EWS)					
Product 2.2.1 Improved meteorological stations of the hydrographic basins in the program area to generate complementary agroclimatic and hydrological information. Product 2.2.2 Acquired, installed and connected three sea level gauges to the national and global tsunami monitoring network. Product 2.2.3 The Early Warning System for floods, waves and tsunamis strengthened for the Central Pacific sector of Panama.	Percentage of stations in the program's area of influence strengthened. Number of people benefited from the strengthening of Early Warning Systems.	Total: 47 stations (35 meteorological and 12 hydrological). The baseline will be established according to the selected EWS.	47 improved or enhanced stations.	Execution reports, equipment delivery minutes.	The 47 stations are operational and only need to incorporate equipment or enhance capacity to collect complementary meteorological and hydrological data.
2.3 Developed a climate vulnerability and environmental risk modeling platform					
Product 2.3.1 A climate vulnerability and environmental risk modeling platform installed and operating. Product 2.3.2 Protocol for information management and the use of the modeling platform for climate vulnerability and environmental risks.	Number of actors (sector and gender) that use the climate vulnerability and environmental risks modeling tool.	0 registered actor 0 registered sector	1000 actors from X sectors at the end of the program. The sectors and subsectors must be defined in the tool design process: Public Sector (sub-sectors); Private Sector (Academy, NGO, Banking, etc).	Stakeholder Registration Report	The tool must have a user registry with information that allows defining the sector, gender, nationality, place and date of birth so that it allows a broad analysis of the main users of the tool.
2.4 Prioritized adaptation measures implemented according to cost effectiveness analysis					
Product 2.4.1 A cost-effectiveness analysis of the main adaptation measures and their feasibility analysis that allows their prioritization. Product 2.4.2 Implementation of prioritized adaptation measures, their monitoring, evaluation and systematization of the experience.	Number of complementary adaptation projects developed. Number of beneficiary families of adaptation projects developed.	0 Projects. 0 Families benefited.	3 projects. 300 families.	Cost effectiveness and feasibility analysis reports. Prioritized and developed projects. Project progress reports, memory aids.	At least 3 projects are selected according to the results of the cost-effectiveness and feasibility analysis considering the impact on the number of families benefited.
2.5 The monitoring and evaluation system for adaptation to climate change has been strengthened					
2.5.1 Analysis on the implementation of the Monitoring and Evaluation System for Adaptation to Climate Change with evaluation of results and goals set, and with recommendations for improving the indicators, and monitoring and evaluation protocols.	Number and type of actions developed to improve the tool.	0 actions developed.	3 actions of 3 types (Managerial, Technical and Administrative).	Management reports, protocols, plans.	There is a tool and certain enabling conditions for its application that need to be improved.
Component 3. Strengthened the capacity of key actors and improved knowledge on climate adaptation and resilience at the local and national levels. Indicator: 1. Number of trained people disaggregated by gender. 2. Number of improved or developed tools that facilitate knowledge management. 3. Number of systematized and shared experiences through different media. Baseline: 1. Cero people trained. 2. Target: 1. Total trained 400 (200 men and 200 women) and 1000 stakeholders (500 men, 500 women) from different sectors strengthen their capacities. 2. Developed 2 tools. 3. Systematized 5 experiences.					3.2.2 No. of tools and guidelines developed (thematic, sectoral, institutional) and shared with relevant stakeholders. 3.1.1 No. of news outlets in the local press and media that have covered the topic.

Narrative summary	Indicators	Baseline	Target	Verification source	Risks and assumptions
Verification source: Training reports, workshops, event reports, publications, attendance lists. Risks and assumptions: The adaptation platform facilitates the online training process. The training workshops are developed in large sites with security measures against COVID-19.					
3.1 Strengthened the capacities of key actors on climate change and adaptation based on ecosystems, and successful experiences implemented.					
Product 3.1.1 Stakeholder training plan on climate change and ecosystem-based adaptation. Product 3.1.2 Design of training modules with content validated by the Ministry of the Environment. Product 3.1.3 Evaluation reports of each training process developed.	Number of trained people disaggregated by gender.	Total Trained: 0 Men: 0 Women: 0	Some 1,000 stakeholders from different sectors strengthen their capacities.	Field training reports. Online training reports. Memory aid, attendance list and evaluations.	The adaptation platform facilitates the online training process.
3.2 Strengthened national and local capacities and developed the tools that allow participation with a gender perspective in project activities					
Product 3.2.1 Action Plan for the integration of the gender perspective into the project. Producto 3.2.2 Implementation reports and memories of training workshops	Number of trained people disaggregated by gender.	Total Trained: 0 Men: 0 Women: 0	Total Trained: 300 Men: 150 Women: 150	Field training reports. Online training reports. Memory aid, attendance list and evaluations. Established agreements.	Other gender indicators established in Panama's gender and climate change plan can be incorporated.
3.3 Strengthened the capacities of community-based organizations (CBO) and municipalities on climate change, ecosystem-based adaptation and comprehensive project management					
Product 3.3.1 Special modules designed and implemented for the implementation of adaptation strategies and plans at the local scale and project management for 200 beneficiaries. Product 3.3.2 Evaluation of capacity building processes. Product 3.3.3 At least 15 proposals for adaptation projects of CBOs and municipalities prepared. Product 3.3.4 Intermunicipal agreements established for the development of joint adaptation actions.	Number of trained people disaggregated by gender. Number of adaptation project proposals prepared by CBO and Municipalities. Number of inter-municipal agreements established.	Total Trained: 0 Men: 0 Women: 0 Number of proposals prepared: 0 Number of inter-municipal agreements established: 0	Total Trained: 200 Males: 100 Women: 100 Number of proposals prepared: 15 Number of inter-municipal agreements established: 5	Field training reports. Online training reports. Memory aid, attendance list and evaluations. Established agreements.	The adaptation platform facilitates the online training process. The training workshops are developed in large sites with security measures against COVID-19.
3.4 Increased knowledge management on adaptation to climate change at the national level, by strengthening the adaptation portal and a program to systematize experiences, lessons learned and their appropriation					
Product 3.4.1 Comprehensive knowledge management program designed and in operation with established goals and indicators that facilitate its evaluation. 3.4.2 Adaptation Platform of the Ministry of Environment strengthened and operating. 3.4.3 Systematization of experiences, exchanges and lessons learned from projects carried out in the program.	Number of trained people disaggregated by gender. Number of improved or developed tools that facilitate knowledge management. Number of actors (men and women) benefited from experiences exchange actions. Number of systematized and shared experiences through different media.	Total Trained: 0 Men: 0 Women: 0 Developed tools: 0 Exchange Experiences Total Participants: 0 Men: 0 Women: 0 Systematized Experiences: 0	Some 1,000 stakeholders from different sectors strengthen their capacities. Developed tools: 2 Exchange experiences Total participants: 200 Male: 100 Women: 100 Systematized experiences: 5	Training reports, workshops, event reports, publications, designed tools, attendance lists.	The indicator of 1,000 is related to the indicator of output 3.1

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

Alignment of the results framework of the program with the results framework of the Adaptation Fund

Table 3.7. Alignment of the results framework of the program with the results framework of the Adaptation Fund

Program outcomes	Program outcome indicators	Programme outputs	Proposed activities	Adaptation Fund Output	Adaptation Fund Output Indicator	Grant ammount (USD)
Component 1. Increase the resilience of ecosystems and vulnerable productive sectors through diversification and nature-based solutions						
1.1 Strengthened livelihoods management through productive diversification, incorporation of technology and nature-based solutions in traditional production systems	Number of beneficiary families with productive systems more resilient to the climate change (disaggregated by gender). Percentage of families with diversified production systems that contribute to their food security and livelihood resilience. Number of ha. with climate-smart production systems. Percentage of beneficiary families with better income due to productive diversification and climate-smart production.	At least 50 farm management plans developed and implemented to strengthen sustainable livestock and climate-smart agriculture, incorporating nature-based solutions (NbS) and technologies.	- Prepare criteria for the selection of beneficiaries - Prepare Terms of Reference - Contracting services - Beneficiaries Training - Elaboration of farm diagnostic - Development of a farm management plan with a producer family - Sign agreements with beneficiaries - Implementation of nature-based solutions.	***Output 6:*** Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability.	6.1.1. No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies.	**650,000**
		Installed at least 4 apiaries and about 12 hives, including training of beneficiaries (beekeepers) and provision of equipment.	- Prepare criteria for the selection of beneficiaries - Prepare Terms of Reference - Contracting services - Beneficiaries training - Purchase of equipment - Installation and management of hives - Harvest and processing of honey.		6.2.1. Type of income sources for households generated under climate change scenario	**160,000**
		Installed at least four pilot oyster farming experiences, including training of beneficiaries and provision of equipment.	- Prepare criteria for the selection of beneficiaries - Prepare Terms of Reference - Contracting services - Beneficiaries training - Purchase of equipment and establishment of facilities - Management and harvest of crops.			**220,000**
		Established 12 projects of integral home gardens with water harvesting systems and drip irrigation.	- Prepare criteria for the selection of beneficiaries - Prepare Terms of Reference - Contracting services - Beneficiaries training - Installation and management of integral garden - Installation, management and maintenance of drip irrigation system.			**225,000**
		Installed at least 12 pilot tilapia farming projects with implemented aquaponics techniques, including training and provision of equipment.	- Prepare criteria for the selection of beneficiaries - Prepare Terms of Reference - Contracting services - Beneficiaries training - Installation, management and maintenance of aquaponics system. - Harvest and processing of tilapia cultivation.			**200,000**
		Three community tourism experiences strengthened including the development of criteria or guidelines to reduce climate risk in the tourism operation and the development of a local community tourism strategy incorporating considerations for risk reduction and increased climate resilience.	- Prepare criteria for the selection of beneficiaries - Prepare Terms of Reference - Contracting services - Beneficiaries training - Preparation and validation of guidelines to reduce climate change-related risk of community tourism operations. - Diagnosis to strengthen selected community tourism experiences. - Implementation of actions. - Monitoring, evaluation, and systematization of experiences.			**225,000**
		Ten pilot community fishing projects developed with the incorporation of nature-based technologies and solutions.	- Prepare criteria for the selection of beneficiaries - Prepare Terms of Reference - Contracting services - Beneficiaries training - Diagnosis on selected projects - Implementation of actions with nature-based solutions and application of technologies - Systematization of experiences.			**700,000**
1.2 Strengthened value chains for the production, marketing and commercialization of climate-smart	No of women and young people incorporated into production processes and their benefits.	Five business plans developed and implemented for products or services with the greatest potential in the program.	- Establishment of criteria for the selection of products and services with the greatest development and market potential - Preparation and validation of business plans - Socialization of business plans with beneficiaries.	***Output 6:*** Targeted individual and community livelihood strategies	6.1.1. No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies.	**150,000**

Program outcomes	Program outcome indicators	Programme outputs	Proposed activities	Adaptation Fund Output	Adaptation Fund Output Indicator	Grant ammount (USD)
and gender-inclusive products and services	Increase in family income as the value chains are developed.	Reports on strategic investments for the development of business plans and more specialized studies.	- Determination of strategic investments for the development of the value chain with the incorporation of gender in its development and benefits - Systematization of experiences.	strengthened in relation to climate change impacts, including variability.	6.2.1. Type of income sources for households generated under climate change scenario	**350,000**
1.3 Improved water resource management in coastal communities through strengthening the management of rural aqueducts and water harvesting with the use of efficient and low-cost technologies.	Number of families with better access to water (disaggregated by gender). Percentage of multipurpose water harvesting system established. Percentage of families with better productive benefits thanks to water harvesting systems.	Management of five rural aqueducts in the program area strengthened.	- Establishment of criteria and selection of aqueducts in coordination with MINSA - Preparation of a plan to strengthen JAAR and rural aqueducts - Implementation of actions in the field to improve rural aqueducts and their surroundings - Sign agreements with owners to improve the conditions of water intakes and micro-basin.	***Output 6:*** Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability.	6.1.1. No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies.	**200,000**
		18 multipurpose water harvesting systems installed using efficient and low-cost technologies.	- Prepare criteria for the selection of beneficiaries considering gender and productive sectors - Prepare Terms of Reference - Contracting services - Purchase of supplies and equipment - Training beneficiaries for the establishment, management and maintenance of the irrigation system - Establishment of irrigation systems with the use of efficient and low-cost technologies - Improvement of the production system with the incorporation of solutions based on nature or better production practices - Improvement of capacity in control and management of pests, organic fertilizers and others.		6.2.1. Type of income sources for households generated under climate change scenario	**400,000**
1.4 Reduced pressure on high-value ecosystems and improved ecosystem services through actions for the protection, reforestation, enrichment and / or restoration of these ecosystems	Number of ha. reforested, enriched or restored by type of ecosystem. Number of families benefited in the process of ecosystem recovery (disaggregated by gender)..	An analysis of the loss / gain of forest cover in the program area through the use of geographic information systems.	- Preparation of Terms of Reference - Development of loss / gain analysis of forest cover from interpretation of satellite images with GIS application - In field verification of results - Validation of information.	***Output 5:*** Vulnerable ecosystem services and natural resource assets strengthened in response to climate change impacts, including variability	5.1. No. of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type and scale)	**85,000**
		An action plan for the recovery of high-value ecosystems that considers vulnerability scenarios and connectivity requirements for the benefit of biodiversity.	- Preparation of Terms of Reference - Preparation of a proposed recovery plan for valuable ecosystems with identification of sites and owners - Field verification and synergies with other program efforts - Validation of the plan with stakeholders.			**75,000**
		Installed and operating at least two community nurseries in the program area.	- Establishment of criteria for selection of site and beneficiaries of the nursery - Preparation of Terms of Reference - Acquisition of space, equipment and supplies to establish the nursery and comply with established standards - Comprehensive training in the management, maintenance of nurseries (selection and maintenance of seeds, pest management, organic fertilizer, marketing, etc.).			**75,000**
		150 ha of high value ecosystems reforested, enriched and / or restored.	- Preparation of Terms of Reference with incorporation of local labor - Community training - Signing of agreements with owners - Development reforestation, enrichment and / or restoration of valuable ecosystems - Monitoring and maintenance of plantations.			**385.000**
1.5 Fostered climate financing for the implementation of climate adaptation and resilience actions of communities and their livelihoods.	Number of projects developed. Number of families benefited by the grant program and access to microcredits (disaggregated by gender).	Establishment of a grants program for adaptation actions aimed at CBOs and Municipalities	- Design and validation of the grants program scheme - Development of proposal guidelines and operation manuals of the scheme - Project selection - Evaluation and monitoring of the projects - Financial and technical audits.	***Output 8:*** Viable innovations are rolled out, scaled up, encouraged and/or accelerated.	8.1. No. of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated 8.2. No. of key findings on effective, efficient adaptation practices, products and technologies generated	**500,000**
		A microfinance scheme for the coastal-marine sector with considerations of adaptation and climate risk.	- Preparation of Terms of Reference - Awareness and training process with actors from the microfinance sector - Scheme design and validation of the microfinance scheme that allows access to credit for the coastal-marine sector with the incorporation of climate considerations and risks.			**80,000**
		Enabling conditions established for the efficient operation of the National Climate Change Adaptation Fund.	- Determination and prioritization of enabling needs - Preparation of Terms of Reference - Design and evaluation of selected key instruments. - Development of pilot projects for adaptation to climate change.			**120,000**
Component 2. Improved local and national capacity to deal with exposure to climate-related hazards and threats, through planning tools and risk reduction systems						
2.1 Developed baseline studies on climate change with application in planning and environmental land management	Number of instruments that contribute to adaptation and improvement of climate resilience developed. Number of people (men and women) benefited from the development of new instruments that contribute to the adaptation of their communities and livelihoods.	Five climate vulnerability analyzes and adaptation measures for each of the hydrographic basins in the program area	- Preparation of Terms of Reference - Selection of services for the development of studies - Physical, environmental, socioeconomic and climatic diagnosis of the basin - Development of a proposal for a Vulnerability Plan and recommendations for adaptation and climate resilience - Tool validation with key stakeholders - Preparation of final document validated with actors.	***Output 1.1:*** Risk and vulnerability assessments conducted and updated	1.1. No. of projects/programmes that conduct and update risk and vulnerability assessments (by sector and scale)	**550,000**
		A model of sea level rise for the Central Pacific of Panama that identifies the areas of greatest vulnerability according to IPPC scenarios.	- Development of a methodology for the definition of parameters / criteria taking Climate Central as a reference and based on the actions carried out at the national level - Define the monitoring points for modeling sea level rise in the Central Pacific of Panama - Development of field training days for supervision and data validation			**200,000**

Program outcomes	Program outcome indicators	Programme outputs	Proposed activities	Adaptation Fund Output	Adaptation Fund Output Indicator	Grant ammount (USD)
			- Systematization and data processing - Preparation of maps with collected information.			
		Three Environmental Land Management plans for prioritized districts.	- Preparation of Terms of Reference - Development of socioeconomic, physical and environmental diagnosis (CC) - Development of stakeholder consultation workshops - Analysis of development scenarios and projections and risk analysis - Proposal for Environmental Land Management plan - Validation Workshop with key stakeholders - Final proposal of Environmental Land Management plans validated for each prioritized district.	***Output 7:*** Improved integration of climate-resilience strategies into country development plans	7.1. No. of policies introduced or adjusted to address climate change risks (by sector) 7.2. No. of targeted development strategies with incorporated climate change priorities enforced	**300,000**
		Six municipal strategic plans that incorporate environmental information and actions for adaptation and strengthening of climate resilience in their territories.	- Coordination with the Ministry of Economy and Finance and selected municipalities - Adjustment in the document design (plan) to incorporate environmental and climate information - Preparation of a proposal for strategic plans for municipal development - Development of consultation and validation workshops - Final documents with validated Strategic Municipal Development Plans.			**100,000**
2.2 Strengthened the network of meteorological stations and sea level gauges, and the related Early Warning Systems (EWS)	Percentage of stations in the program's area of influence strengthened. Number of people benefited from the strengthening of Early Warning Systems (disaggregated by gender).	Improved meteorological stations of the hydrographic basins in the program area to generate complementary agroclimatic and hydrological information.	- Definition and validation of met stations and improvement needs (climatic and hydrological information) - Determination of potential suppliers in accordance with operating manuals - Quotation and evaluation of proposals - Acquisition and installation of equipment, maintenance and development of tests - Systematization and analysis of new agroclimatic and hydrological information and its application.	***Output 1.2:*** Targeted population groups covered by adequate risk reduction systems	1.2.1. Percentage of target population covered by adequate risk-reduction systems	**200,000**
		Acquired, installed and connected three sea level gauges to the national and global tsunami monitoring network.	- Establishment of international specifications for the acquisition, installation and maintenance of sea level gauges. - Validation of sites for the installation of tide gauges. - Purchase and installation of sea level gauges. - Calibration and test development - Strengthening of capacities for the systematization and analysis of data.			**150,000**
		The Early Warning System for floods, waves and tsunamis strengthened for the Central Pacific sector of Panama.	- Diagnosis of main actions to strengthen EWS in the Central Pacific of Panama - Preparation of Terms of Reference - Development of actions and capacity building of stakeholders - Improvement of EWS signaling			**175,000**
2.3 Developed a climate vulnerability and environmental risk modeling platform	Number of actors (sector and gender) that use the climate vulnerability and environmental risks modeling tool.	A climate vulnerability and environmental risk modeling platform installed and operating.	- Preparation of Terms of Reference that define scope and scheme for platform development - Contracting of services for the development (programming) of the platform based on climate information generated (vulnerability, risks, projections of sea level rise) - Development of algorithms and tests of the platform - Validation with actors.	***Output 1.1:*** Risk and vulnerability assessments conducted and updated	1.1. No. of projects/programmes that conduct and update risk and vulnerability assessments (by sector and scale)	**215,000**
		Protocol for information management and the use of the modeling platform for climate vulnerability and environmental risks.	- Development of a protocol proposal for information management and access to the platform - Validation with key stakeholders - Putting the platform online - Socialization of the tool with key actors.	***Output 8:*** Viable innovations are rolled out, scaled up, encouraged and/or accelerated.	8.1. No. of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated	**10,000**
2.4 Prioritized adaptation measures implemented according to cost effectiveness analysis.	Number of complementary adaptation projects developed. Number of beneficiary families of adaptation projects developed (disaggregated by gender).	A cost-effectiveness analysis of the main adaptation measures and their feasibility analysis that allows their prioritization.	- Preparation of Terms of Reference - Compilation of proposals and recommendations for adaptation, and cost-effectiveness analysis of their implementation - Analysis of the feasibility of implementing adaptation measures - Validation of proposals with actors - Results presentation.	***Output 1.1:*** Risk and vulnerability assessments conducted and updated	1.1. No. of projects/programmes that conduct and update risk and vulnerability assessments (by sector and scale)	**25,000**
		Implementation of prioritized adaptation measures, their monitoring, evaluation and systematization of the experience.	- Implementation of prioritized adaptation measures according to the results of cost-effectiveness and feasibility analysis - Monitoring and impact evaluation - Systematization of lessons learned.			**325,000**
2.5 The monitoring and evaluation system for adaptation to climate change has been strengthened.	Number and type of actions developed to improve the tool.	Analysis on the implementation of the Monitoring and Evaluation System for Adaptation to Climate Change with evaluation of results and goals set, and with recommendations for improving the indicators, and monitoring and evaluation protocols.	- Comprehensive diagnosis of management and goals fulfillment through the monitoring and evaluation system for adaptation to climate change - Proposal and validation of actions for its integral management (Managerial, Administrative, Technical, Products and Results) - Implementation of actions for improved management (including indicators and monitoring and evaluation protocols).	***Output 8:*** Viable innovations are rolled out, scaled up, encouraged and/or accelerated.	8.1. No. of innovative adaptation practices, tools and technologies accelerated, scaled-up and/or replicated	**150,000**
Component 3. Strengthened the capacity of key actors and improved knowledge on climate adaptation and resilience at the local and national levels.						
3.1 Strengthened the capacities of key actors on climate change and adaptation based on ecosystems, and successful experiences implemented.	Number of trained people disaggregated by gender.	Stakeholder training plan on climate change and ecosystem-based adaptation.	- Preparation of Terms of Reference - Design of the training plan proposal - Consultation and validation with key stakeholders - Training plan validated with monitoring and evaluation indicators.	***Output 3.2:*** Strengthened capacity of national and subnational stakeholders	3.2.1 No. of technical committees/associations formed to ensure transfer of knowledge.	**75,000**

Program outcomes	Program outcome indicators	Programme outputs	Proposed activities	Adaptation Fund Output	Adaptation Fund Output Indicator	Grant ammount (USD)
		Design of training modules with content validated by the Ministry of the Environment.	- Preparation of Terms of Reference - Design of modules and contents according to the training plan - Development of evaluation instruments - Validation of modules (contents) and validation instruments with MiAmbiente and other key actors.	and entities to capture and disseminate knowledge and learning	3.2.1 No. of tools and guidelines developed (thematic, sectoral, institutional) and shared with relevant stakeholders	**100,000**
		Evaluation reports of each training process developed.	- Monitoring and evaluation of training processes. - Preparation of training reports and evaluation results.			**275,000**
3.2 Strengthened national and local capacities and developed the tools that allow participation with a gender perspective in project activities	Number of trained people disaggregated by gender.	Action plan for the integration of the gender perspective into the project.	- Development of surveys and field interviews with stakeholders - Development of consultation and validation workshops - Action plan for the integration of the gender perspective into the project	***Output 3.2:*** Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning	3.2.1 No. of tools and guidelines developed (thematic, sectoral, institutional) and shared with relevant stakeholders	**10,000**
		Implementation reports and memories of gender capacity building workshops	- Reports on the implementation of the gender action plan - Reports of gender capacity building workshops (institutions and beneficiaries).	***Output 3.2:*** Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning	3.2.1 No. of tools and guidelines developed (thematic, sectoral, institutional) and shared with relevant stakeholders	**40,000**
3.3 Strengthened the capacities of community-based organizations (CBO) and municipalities on climate change, ecosystem-based adaptation and comprehensive project management	Number of trained people disaggregated by gender. Number of adaptation project proposals prepared by CBO and Municipalities. Number of inter-municipal agreements established.	Special modules designed and implemented for the implementation of adaptation strategies and plans at the local scale and project management for 200 beneficiaries.	- Preparation of Terms of Reference - Design of modules and contents according to the training plan (local implementation strategies and adaptation plans and project management). - Development of evaluation instruments. - Validation of modules (contents) and validation instruments with MiAmbiente and other key actors.	***Output 3.2:*** Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning	3.2.1 No. of technical committees/associations formed to ensure transfer of knowledge. 3.2.1 No. of tools and guidelines developed (thematic, sectoral, institutional) and shared with relevant stakeholders	**100,000**
		Evaluation of capacity building processes.	- Monitoring and evaluation of training processes. - Preparation of training reports and evaluation results.			**10,000**
		At least 15 proposals for adaptation projects of CBOs and municipalities prepared.	- Development of proposal preparation workshops - Monitoring and support for the development of project ideas.			**25,000**
		Intermunicipal agreements established for the development of joint adaptation actions.	- Identification of topics and areas of interest between municipalities - Facilitation of the process for establishing inter-municipal agreements - Facilitation of processes for the development of joint projects (proposed preparation).			**15,000**
3.4 Increased knowledge management on adaptation to climate change at the national level, by strengthening the adaptation portal and a program to systematize experiences, lessons learned and their appropriation	Number of trained people disaggregated by gender. Number of improved or developed tools that facilitate knowledge management. Number of actors (men and women) benefited from experiences exchange actions. Number of systematized and shared experiences through different media.	Comprehensive knowledge management program designed and in operation with established goals and indicators that facilitate its evaluation.	- Preparation of Terms of Reference - Design of a proposal for a Comprehensive Knowledge Management Program with evaluation goals and indicators - Proposal validation - Implementation, monitoring and evaluation of the Comprehensive Knowledge Management Program.	***Output 3.2:*** Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning	3.2.1 No. of technical committees/associations formed to ensure transfer of knowledge. 3.2.1 No. of tools and guidelines developed (thematic, sectoral, institutional) and shared with relevant stakeholders	**175,000**
		Adaptation Platform established in the Ministry of Environment strengthened and operational.	- Strengthening of the MiAmbiente Adaptation Platform for the Program's needs (training, communication, security, etc.) - Hosting of Adaptation Platform and enabling easy access for users.			**41,977**
		Systematization of experiences, exchanges and lessons learned from projects carried out in the program.	- Preparation of Terms of Reference - Selection of best experiences and hiring of services to systematize them - Development of experiences exchange actions - Facilitation of communication of progress, results, experience and lessons learned generated by the Adaptation Program.			**350,000**

G.Include a detailed budget with budget notes, a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs

Detailed budget with budget notes

Table 3.8. Detailed budget with budget notes

Output No.	Description	Budget notes / Activities	Year 1 (12 months)	Year 2 (12 months)	Year 3 (12 months)	Year 4 (6 months)	Total
1. Increase the resilience of ecosystems and vulnerable productive sectors through diversification and nature-based solutions							**US$4,800,000**
Output 1.1	Strengthened livelihoods management through productive diversification, incorporation of technology and nature-based solutions in traditional production systems	At least 50 farm management plans developed and implemented to strengthen sustainable livestock and climate-smart agriculture, incorporating nature-based solutions (NbS) and technologies.	200,000	225,000	225,000	0	650,000
		Installed at least 4 apiaries and about 12 hives, including training of beneficiaries (beekeepers) and provision of equipment.	25,000	75,000	60,000	0	160,000
		Installed at least four pilot oyster farming experiences, including training of beneficiaries and provision of equipment.	25,000	120,000	75,000	0	220,000
		Established 12 projects of integral home gardens with water harvesting systems and drip irrigation.	25,000	125,000	75,000	0	225,000
		Installed at least 12 pilot tilapia farming projects with implemented aquaponics techniques, including training and provision of equipment.	50,000	80,000	70,000	0	200,000
		Three community tourism experiences strengthened including the development of criteria or guidelines to reduce climate risk in the tourism operation and the development of a local community tourism strategy incorporating considerations for risk reduction and increased climate resilience.	25,000	100,000	100,000	0	225,000
		Ten pilot community fishing projects developed with the incorporation of nature-based technologies and solutions	100,000	300,000	300,000	0	700,000
		Total	**450,000**	**1,025,000**	**905,000**	0	**2,380,000**
Output 1.2	Strengthened value chains for the production, marketing and commercialization of climate-smart and gender-inclusive products and services	Five business plans developed and implemented for products or services with the greatest potential in the program.	0.00	100,000	50,000	0	150,000
		Reports on strategic investments for the development of business plans and more specialized studies.	0.00	200,000	150,000	0	350,000
		Total	**0.00**	**300,000**	**200,000**	0	**500,000**
Output 1.3	Improved water resource management in coastal communities through strengthening the management of rural aqueducts and water harvesting with the use of efficient and low-cost technologies.	Management of five rural aqueducts in the program area strengthened.	25,000	100,000	75,000	0	**200,000**
		18 multipurpose water harvesting systems installed using efficient and low-cost technologies.	25,000	200,000	175,000	0	**400,000**
		Total	**50,000**	**300,000**	**250,000**	0	**600,000**
Output 1.4	Reduced pressure on high-value ecosystems and improved ecosystem services through actions for the protection, reforestation, enrichment and / or restoration of these ecosystems	An analysis of the loss / gain of forest cover in the program area through the use of geographic information systems.	85,000	0.00	0.00	0	85,000
		An action plan for the recovery of high-value ecosystems that considers vulnerability scenarios and connectivity requirements for the benefit of biodiversity.	50,000	25,000	0.00	0	75,000
		Installed and operating at least two community nurseries in the program área.	40,000	20,000	15,000	0	75,000
		150 ha of high value ecosystems reforested, enriched and / or restored.	100,000	200,000	85,000	0	385.000
		Total	**275,000**	**245,000**	**100,000**	0	**620,000**
Output 1.5	Fostered climate financing for the implementation of climate adaptation and resilience actions of communities and their livelihoods.	Establishment of a grants program for adaptation actions aimed at CBOs and Municipalities	50,000	250,000	200,000	0	500,000
		A microfinance scheme for the coastal-marine sector with considerations of adaptation and climate risk.	20,000	35,000	25,000	0	80,000
		Enabling conditions established for the efficient operation of the National Climate Change Adaptation Fund.	20,000	60,000	40,000	0	120,000
		Total	**90,000**	**345,000**	**265,000**	0	**700,000**
		TOTAL	**865,000**	**2,215,000**	**1,720,000**	0	**4,800,000**
2. Improved local and national capacity to deal with exposure to climate-related hazards and threats, through planning tools and risk reduction systems							**US$2,400,000**
Output 2.1	Developed baseline studies on climate change with application in planning and environmental land management	Five climate vulnerability analyzes and adaptation measures for each of the hydrographic basins in the program area	250,000	200,000	100,000	0	550,000
		A model of sea level rise for the Central Pacific of Panama that identifies the areas of greatest vulnerability according to IPPC scenarios.	100,000	100,000	0.00	0	200,000
		Three Environmental Land Management plans for prioritized districts.	150,000	150,000	0.00	0	300,000
		Six municipal strategic plans that incorporate environmental information and actions for adaptation and strengthening of climate resilience in their territories.	50,000	50,000	0.00	0	100,000
		Total	**550,000**	**500,000**	**100,000**	**0**	**1,150,000**
Output 2.2	Strengthened the network of meteorological stations and sea level gauges, and the related Early Warning Systems (EWS)	Improved meteorological stations of the hydrographic basins in the program area to generate complementary agroclimatic and hydrological information.	75,000	125,000	0.00		200,000
		Acquired, installed and connected three sea level gauges to the national and global tsunami monitoring network.	100,000	25,000	25,000	0	150,000
		The Early Warning System for floods, waves and tsunamis strengthened for the Central Pacific sector of Panama.	0.00	100,000	75,000	0	175,000
		Total	**175,000**	**250,000**	**100,000**	**0**	**525,000**
Output 2.3	Developed a climate vulnerability and environmental risk modeling platform	A climate vulnerability and environmental risk modeling platform installed and operating.	65,000	125,000	25,000		215,000
		Protocol for information management and the use of the modeling platform for climate vulnerability and environmental risks.	0.00	10,000	0.00	0	10,000
		Total	**65,000**	**135,000**	**25,000**	**0**	**225,000**
Output 2.4	Prioritized adaptation measures implemented according to cost effectiveness analysis	A cost-effectiveness analysis of the main adaptation measures and their feasibility analysis that allows their prioritization.	0.00	25,0000	0.00	0	25,000
		Implementation of prioritized adaptation measures, their monitoring, evaluation and systematization of the experience.	0.00	200,000	125,000	0	325,000
		Total	**0.00**	**225,000**	**125,000**	**0**	**350,000**

Output No.	Description	Budget notes / Activities	Year 1 (12 months)	Year 2 (12 months)	Year 3 (12 months)	Year 4 (6 months)	Total
Output 2.5	The monitoring and evaluation system for adaptation to climate change has been strengthened.	Analysis on the implementation of the Monitoring and Evaluation System for Adaptation to Climate Change with evaluation of results and goals set, and with recommendations for improving the indicators, and monitoring and evaluation protocols.	50,000	50,000	50,000	0	150,000
		Total	**50,000**	**50,000**	**50,000**	**0**	**150,000**
		TOTAL	**840,000**	**1,160,000**	**400,000**	**0**	**2,400,000**
	3. Strengthened the capacity of key actors and improved knowledge on climate adaptation and resilience at the local and national levels						**US$1,216,977**
Output 3.1	Strengthened the capacities of key actors on climate change and adaptation based on ecosystems, and successful experiences implemented	Stakeholder training plan on climate change and ecosystem-based adaptation.	75,000	0.00	0.00	0	75,000
		Design of training modules with content validated by the Ministry of the Environment.	75,000	25,00	0.00	0	100,000
		Evaluation reports of each training process developed	50,000	125,000	100,000	0	275,000
		Total	**200,000**	**150,000**	**100,000**	**0**	**450,000**
Output 3.2	Strengthened national and local capacities and developed the tools that allow participation with a gender perspective in project activities	Action plan for the integration of the gender perspective into the project.	10,000	0	0	0	10,000
		Implementation reports and memories of gender capacity building workshops	0	20,000	20,000	0	40,000
		Total	**10,000**	**20,000**	**20,000**		**50,000**
Output 3.3	Strengthened the capacities of community-based organizations (CBO) and municipalities on climate change, ecosystem-based adaptation and comprehensive project management	Special modules designed and implemented for the implementation of adaptation strategies and plans at the local scale and project management for 200 beneficiaries.	50,000	25,000	25,000	0	100,000
		Evaluation of capacity building processes.	0.00	5,000	5,000	0	10,000
		At least 15 proposals for adaptation projects of CBOs and municipalities prepared.	0.00	15,000	10,000	0	25,000
		Intermunicipal agreements established for the development of joint adaptation actions.	0.00	10,000	5,000	0	15,000
		Total	**50,000**	**55,000**	**45,000**	**0**	**150,000**
Output 3.4	Increased knowledge management on adaptation to climate change at the national level, by strengthening the adaptation portal and a program to systematize experiences, lessons learned and their appropriation	Comprehensive knowledge management program designed and in operation with established goals and indicators that facilitate its evaluation.	50,000	50,000	50,000	25,000	175,000
		Adaptation Platform established in the Ministry of Environment strengthened and operational.	14,000	14,000	13,977	0	41,977
		Systematization of experiences, exchanges and lessons learned from projects carried out in the program.	100,000	110,000	60,000	80,000	350,000
		Total	**164,000**	**174,000**	**123,977**	**105,000**	**566,977**
		TOTAL	**424,000**	**399,000**	**288,977**	**105,000**	**1,216,977**
		Total Direct Costs	**2,129,000**	**3,774,000**	**2,408,977**	**105,000**	**8,416,977**
		Total cost of Executors (9.5%)	**202,255**	**358,530**	**228,853**	**9,975**	**799,613**
		Total Cost of the Program (Adaptation Fund)	**2,331,255**	**4,132,530**	**2,637,830**	**114,975**	**9,216,590**
		Total NIE (8.5%)	**198,157**	**351,265**	**224,216**	**9,773**	**783,410**
		GRAN TOTAL	**10,000,000**				**10,000,000**

Budget on the implementing entity management fee use

The program will be coordinated by a manager, two project coordinators, an accountant, and a technical assistant under the supervision of the executive direction of the NIE. The proposed Budget for the NIE will be used to cover operational costs of the program and general and administrative costs.

Table 3.9. Budget on the implementing entity management fee use

Expenses (ítems)	Description	Cost estimation	%
General	• Provide technical support for the start of the project. • Support implementation and negotiation arrangements with other actors / sectors. • Program kickoff workshop and report. • Respond to requests for information, other requirements, etc.	32,853	4%
Implementation and Supervision	• Communication with the Adaptation Fund Secretariat to obtain authorizations and others. • Provide operational, general, and administrative support to the Programme. • Technical support in the preparation of the terms of reference and evaluation for hiring the team of the executing entities. • Technical support in the preparation of the terms of reference for projects and consultancies. • Announcements for projects, goods and services acquisiton, and support for project evaluations and consultancies. • Verify all the technical reports delivered by the executing entities so that they comply with the guidelines of the Fund and its work plans. • Procedures and monitoring of goods and services procurement. • Support and monitoring grants contracts. • Support to verify the complementarity with other projects or programmes. • Carrying out technical, administrative-financial monitoring tours and field visits to projects. • Follow-up to supervision missions. • Monitoring so that they comply with the environmental, social, gender and risk policies of the AF and FN. • Present and disseminate programme progress. • Strengthening of the NIE and EE team (includes related trips) • Information and communication management. • Conduct technical analysis, validate results, and collect lessons. • Reviews of EEs annual operating plans and procurement plans for goods and services. • Financial monitoring of the project and preparation of accountability reports for the EEs. • Receipt, assignment and report to the AF Secretariat of financial resources. • Supervision and monitoring of AF funds. • Annual audit reports. • Legal assistance	625,464	80%
Project closure	• Final Technical Report. • External Audit Report. • Final Evaluation Report. • Disclosure of Program Results. • Systematization and Lessons Learned.	125,093	16%
	TOTAL	**783,410**	**100.0%**

Execution Costs

Table 3.10. Budget for execution costs

Expenditures	US$	Year 1 (12 months)	Year 2 (12 months)	Year 3 (12 months)	Year 4 (6 months)
Staff	659,592	188,455	188,455	188,455	94,227
Equipment	16,400	16,400	0	0	0
Consultants	46,619	14,400	14,400	14,400	3,419
Travel expenses related to the Program	32,001	10,667	10,667	10,667	0
Monitoring & Evaluation	45,000	15,000	15,000	15,000	0
Total	**799,613**	**244,922**	**228,522**	**228,522**	**97,647**

Natura will carry out activities of *product 3.4. Increased knowledge management on adaptation to climate change at the national level, by strengthening the adaptation portal and a program to systematize experiences, lessons learned and their appropriation*. An amount of US$ 60,000 is established as Direct project services (represents 0.65% of the Total Project Cost, without IE fee).

H. Include a disbursement schedule with time-bound milestones

Table 3.11. General Budget

Detail	Upon grant agreement	Year 2	Year 3	Year 4	Total
	xxx, tbc	xxxx (e)	xxxx (e)	xxxx (e)	
Direct cost (USD)	2,129,000	3,774,000	2,408,977	105,000	8,416,977
EE fee (USD)	244,922	228,522	228,522	97,647	799,613
NIE fee (USD)	194,533	199,533	194,579	194,765	783,410
Total	2,568,455	4,202,055	2,832,078	397,412	10,000,000
REPORTS	Inception worshop report Annual program execution report (PPR)	Annual program execution report (PPR)	Annual program execution report (PPR)	Final Report Final Evaluation External Audits Report	

Programme implementation schedule

Table 3.12. Programme implementation schedule

		Year 1				Year 2				Year 3				Year 4	
Output / operacional	**Activities**	**Q 1**	**Q 2**	**Q 3**	**Q 4**	**Q 5**	**Q 6**	**Q 7**	**Q 8**	**Q 9**	**Q 10**	**Q 11**	**Q 12**	**Q 13**	**Q 14**
Op	**Establecer al equipo del programa; inducción al programa**														
Op	**Reuniones periódicas para el seguimiento a la implementación del programa con el personal y actores clave**														
Op	**Monitoreo y evaluación de la implementación del Programa**														
Output 1.1	**Strengthened livelihoods management through productive diversification, incorporation of technology and nature-based solutions in traditional production systems**														
Activity 1.1.1	At least 50 farm management plans developed and implemented to strengthen sustainable livestock and climate-smart agriculture, incorporating nature-based solutions (NbS) and technologies.														
	- Prepare criteria for the selection of beneficiaries														
	- Prepare Terms of Reference and contract process														
	- Beneficiaries Training														
	- Elaboration of farm diagnostic														
	- Development of a farm management plan with a producer family														
	- Sign agreements with beneficiaries														
	- Implementation of nature-based solutions.														
Activity 1.1.2	**Installed at least 4 apiaries and about 12 hives, including training of beneficiaries (beekeepers) and provision of equipment**														
	- Prepare criteria for the selection of beneficiaries														
	- Prepare Terms of Reference and contract services														
	- Purchase of equipment														
	- Beneficiaries training														
	- Installation and management of hives														
	- Harvest and processing of honey.														
Activity 1.1.3	**Installed at least four pilot oyster farming experiences, including training of beneficiaries and provision of equipment**														
	- Prepare criteria for the selection of beneficiaries														
	- Prepare Terms of Reference														
	- Beneficiaries training														
	- Installation, management and maintenance of aquaponics system.														

Output / operacional	Activities	Year 1				Year 2				Year 3				Year 4	
		Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q 9	Q 10	Q 11	Q 12	Q 13	Q 14
	- Harvest and processing of tilapia cultivation														
Activity 1.1.4	**Established 12 projects of integral home gardens with water harvesting systems and drip irrigation**														
	- Prepare criteria for the selection of beneficiaries														
	- Prepare Terms of Reference and contract services														
	- Beneficiaries training														
	- Installation and management of integral garden														
	- Installation, management and maintenance of drip irrigation system														
Activity 1.1.5	**Installed at least 12 pilot tilapia farming projects with implemented aquaponics techniques, including training and provision of equipment**														
	- Prepare criteria for the selection of beneficiaries														
	- Prepare Terms of Reference and contract services														
	- Beneficiaries training														
	- Installation, management and maintenance of aquaponics system														
	- Harvest and processing of tilapia cultivation														
Activity 1.1.6	**Three community tourism experiences strengthened including the development of criteria or guidelines to reduce climate risk in the tourism operation and the development of a local community tourism strategy incorporating considerations for risk reduction and increased climate resilience**														
	- Prepare criteria for the selection of beneficiaries														
	- Prepare Terms of Reference and contract services														
	- Beneficiaries training														
	- Preparation and validation of guidelines to reduce climate change-related risk of community tourism operations.														
	- Diagnosis to strengthen selected community tourism experiences														
	- Implementation of actions														
	- Monitoring, evaluation, and systematization of experiences														
Activity 1.1.7	**Ten pilot community fishing projects developed with the incorporation of nature-based technologies and solutions**														
	- Prepare criteria for the selection of beneficiaries														
	- Prepare Terms of Reference and contract services														
	- Beneficiaries training														
	- Diagnosis on selected projects														
	- Implementation of actions with nature-based solutions and application of technologies														
	- Systematization of experiences														
Output 1.2	**Strengthened value chains for the production, marketing and commercialization of climate-smart and gender-inclusive products and services**														
Activity 1.2.1	**Five business plans developed and implemented for products or services with the greatest potential in the program**														
	- Establishment of criteria for the selection of products and services with the greatest development and market potential														
	- Preparation and validation of business plans														
	- Socialization of business plans with beneficiaries														
Activity 1.2.1	**Reports on strategic investments for the development of business plans and more specialized studies**														
	- Determination of strategic investments for the development of the value chain with the incorporation of gender in its development and benefits														
	- Systematization of experiences														
Output 1.3	**Improved water resource management in coastal communities through strengthening the management of rural aqueducts and water harvesting with the use of efficient and low-cost technologies**														
Activity 1.3.1	**Management of five rural aqueducts in the program area strengthened.**														
	- Establishment of criteria and selection of aqueducts in coordination with MINSA														
	- Preparation of a plan to strengthen JAAR and rural aqueducts														
	- Implementation of actions in the field to improve rural aqueducts and their surroundings														
	- Sign agreements with owners to improve the conditions of water intakes and micro-basin.														
Activity 1.3.2	**18 multipurpose water harvesting systems installed using efficient and low-cost technologies**														
	- Prepare criteria for the selection of beneficiaries considering gender and productive sectors														
	- Prepare Terms of Reference and contract services														

Output / operacional	Activities	Year 1				Year 2				Year 3				Year 4	
		Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q 9	Q 10	Q 11	Q 12	Q 13	Q 14
	- Purchase of supplies and equipment														
	- Training beneficiaries for the establishment, management and maintenance of the irrigation system														
	- Establishment of irrigation systems with the use of efficient and low-cost technologies														
	- Improvement of the production system with the incorporation of solutions based on nature or better production practices														
	- Improvement of capacity in control and management of pests, organic fertilizers and others														
Output 1.4	**Reduced pressure on high-value ecosystems and improved ecosystem services through actions for the protection, reforestation, enrichment and / or restoration of these ecosystems**														
Activity 1.4.1	**An analysis of the loss / gain of forest cover in the program area through the use of geographic information systems**														
	- Prepare Terms of Reference and contract services														
	- Preparation of a proposed recovery plan for valuable ecosystems with identification of sites and owners														
	- Field verification and synergies with other program efforts														
	- Validation of the plan with stakeholders														
Activity 1.4.2	**An action plan for the recovery of high-value ecosystems that considers vulnerability scenarios and connectivity requirements for the benefit of biodiversity**														
	- Prepare Terms of Reference														
	- Preparation of a proposed recovery plan for valuable ecosystems with identification of sites and owners														
	- Field verification and synergies with other program efforts														
	- Validation of the plan with stakeholders														
Activity 1.4.3	**Installed and operating at least two community nurseries in the program area**														
	- Establishment of criteria for selection of site and beneficiaries of the nursery														
	- Preparation of Terms of Reference														
	- Acquisition of space, equipment and supplies to establish the nursery and comply with established standards														
	- Comprehensive training in the management, maintenance of nurseries (selection and maintenance of seeds, pest management, organic fertilizer, marketing, etc.)														
Activity 1.4.4	**150 ha of high value ecosystems reforested, enriched and / or restored**														
	- Preparation of Terms of Reference with incorporation of local labor														
	- Community training														
	- Signing of agreements with owners														
	- Development reforestation, enrichment and / or restoration of valuable ecosystems														
	- Monitoring and maintenance of plantations														
Output 1.5	**Fostered climate financing for the implementation of climate adaptation and resilience actions of communities and their livelihoods**														
Activity 1.5.1	**Establishment of a grants program for adaptation actions aimed at CBOs and Municipalities**														
	- Design and validation of the grants program scheme														
	- Development of proposal guidelines and operation manuals of the scheme														
	- Project selection														
	- Evaluation and monitoring of the projects														
	- Financial and technical audits														
Activity 1.5.2	**A microfinance scheme for the coastal-marine sector with considerations of adaptation and climate risk**														
	- Preparation of Terms of Reference														
	- Awareness and training process with actors from the microfinance sector														
	- Scheme design and validation of the microfinance scheme that allows access to credit for the coastal-marine sector with the incorporation of climate considerations and risks														
Activity 1.5.3	**Enabling conditions established for the efficient operation of the National Climate Change Adaptation Fund**														
	- Determination and prioritization of enabling needs														
	- Preparation of Terms of Reference														
	- Design and evaluation of selected key instruments														
Output 2.1	**Developed baseline studies on climate change with application in planning and environmental land management**														
Activity 2.1.1	**Five climate vulnerability analyzes and adaptation measures for each of the hydrographic basins in the program area**														

			Year 1				Year 2				Year 3				Year 4	
Output / operacional	**Activities**		**Q**	**Q**	**Q**	**Q**	**Q**	**Q**	**Q**	**Q**	**Q**	**Q**	**Q**	**Q**	**Q**	**Q**
			1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
	- Prepare Terms of Reference and contract process															
	- Physical, environmental, socioeconomic and climatic diagnosis of the basin															
	- Development of a proposal for a Vulnerability Plan and recommendations for adaptation and climate resilience															
	- Tool validation with key stakeholders															
	- Preparation of final document validated with actors															
Activity 2.1.2	**A model of sea level rise for the Central Pacific of Panama that identifies the areas of greatest vulnerability according to IPPC scenarios**															
	- Development of a methodology for the definition of parameters / criteria taking Climate Central as a reference and based on the actions carried out at the national level.															
	- Define the monitoring points for modeling sea level rise in the Central Pacific of Panama															
	- Development of field training days for supervision and data validation															
	- Systematization and data processing															
	- Preparation of maps with collected information															
Activity 2.1.3	**Three Environmental Land Management plans for prioritized districts**															
	- Prepare Terms of Reference and contract process															
	- Development of socioeconomic, physical and environmental diagnosis (CC)															
	- Development of stakeholder consultation workshops															
	- Analysis of development scenarios and projections and risk analysis															
	- Proposal for Environmental Land Management plan															
	- Validation Workshop with key stakeholders															
	- Final proposal of Environmental Land Management plans validated for each prioritized district															
Activity 2.1.4	**Six municipal strategic plans that incorporate environmental information and actions for adaptation and strengthening of climate resilience in their territories**															
	- Coordination with the Ministry of Economy and Finance and selected municipalities															
	- Adjustment in the document design (plan) to incorporate environmental and climate information															
	- Preparation of a proposal for strategic plans for municipal development															
	- Development of consultation and validation workshops															
	- Final documents with validated Strategic Municipal Development Plans															
Output 2.2	**Strengthened the network of meteorological stations and sea level gauges, and the related Early Warning Systems (EWS)**															
Activity 2.2.1	**Improved meteorological stations of the hydrographic basins in the program area to generate complementary agroclimatic and hydrological information.**															
	- Definition and validation of met stations and improvement needs (climatic and hydrological information)															
	- Determination of potential suppliers in accordance with operating manuals															
	- Quotation and evaluation of proposals															
	- Acquisition and installation of equipment, maintenance and development of tests															
	- Systematization and analysis of new agroclimatic and hydrological information and its application															
Activity 2.2.2	**Acquired, installed and connected three sea level gauges to the national and global tsunami monitoring network.**															
	- Establishment of international specifications for the acquisition, installation and maintenance of sea level gauges.															
	- Validation of sites for the installation of tide gauges.															
	- Purchase and installation of sea level gauges.															
	- Calibration and test development															
	- Strengthening of capacities for the systematization and analysis of data															
Activity 2.2.3	**The Early Warning System for floods, waves and tsunamis strengthened for the Central Pacific sector of Panama**															
	- Diagnosis of main actions to strengthen EWS in the Central Pacific of Panama															
	- Preparation of Terms of Reference															
	- Development of actions and capacity building of stakeholders															
	- Improvement of EWS signaling															
Output 2.3	**Developed a climate vulnerability and environmental risk modeling platform**															
Activity 2.3.1	**A climate vulnerability and environmental risk modeling platform installed and operating**															

Output / operacional	Activities	Year 1				Year 2				Year 3				Year 4	
		Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q 9	Q 10	Q 11	Q 12	Q 13	Q 14
	- Preparation of Terms of Reference that define scope and scheme for platform development														
	- Contracting of services for the development (programming) of the platform based on climate information generated (vulnerability, risks, projections of sea level rise)														
	- Development of algorithms and tests of the platform														
	- Validation with actors.														
Activity 2.3.2	**Protocol for information management and the use of the modeling platform for climate vulnerability and environmental risks**														
	- Development of a protocol proposal for information management and access to the platform														
	- Validation with key stakeholders														
	- Putting the platform online														
	- Socialization of the tool with key actors														
	- Development of a protocol proposal for information management and access to the platform.														
Output 2.4	**Prioritized adaptation measures implemented according to cost effectiveness analysis**														
Activity 2.4.1	**A cost-effectiveness analysis of the main adaptation measures and their feasibility analysis that allows their prioritization**														
	- Prepare Terms of Reference and contract process														
	- Compilation of proposals and recommendations for adaptation, and cost-effectiveness analysis of their implementation														
	- Analysis of the feasibility of implementing adaptation measures														
	- Validation of proposals with actors														
	- Results presentation.														
Activity 2.4.2	**Implementation of prioritized adaptation measures, their monitoring, evaluation and systematization of the experience**														
	- Implementation of prioritized adaptation measures according to the results of cost-effectiveness and feasibility analysis														
	- Monitoring and impact evaluation														
	- Systematization of lessons learned														
Output 2.5	**The monitoring and evaluation system for adaptation to climate change has been strengthened**														
Activity 2.5.1	**Analysis on the implementation of the Monitoring and Evaluation System for Adaptation to Climate Change with evaluation of results and goals set, and with recommendations for improving the indicators, and monitoring and evaluation protocols**														
	- Comprehensive diagnosis of management and goals fulfillment through the monitoring and evaluation system for adaptation to climate change														
	- Proposal and validation of actions for its integral management (Managerial, Administrative, Technical, Products and Results)														
	- Implementation of actions for improved management (including indicators and monitoring and evaluation protocols)														
Output 3.1	**Strengthened the capacities of key actors on climate change and adaptation based on ecosystems, and successful experiences implemented**														
Activity 3.1.1	**Stakeholder training plan on climate change and ecosystem-based adaptation.**														
	- Prepare Terms of Reference and contract process														
	- Design of the training plan proposal														
	- Consultation and validation with key stakeholders														
	- Training plan validated with monitoring and evaluation indicators														
Activity 3.1.2	**Design of training modules with content validated by the Ministry of the Environment.**														
	- Preparation of Terms of Reference														
	- Design of modules and contents according to the training plan														
	- Development of evaluation instruments														
	- Validation of modules (contents) and validation instruments with MiAmbiente and other key actors														
Activity 3.1.3	**Evaluation reports of each training process developed**														
	- Monitoring and evaluation of training processes.														
	- Preparation of training reports and evaluation results														
Output 3.2	**Strengthened national and local capacities and developed the tools that allow participation with a gender perspective in project activities**														
Activity 3.2.1	Action plan for the integration of the gender perspective into the project.														
	- Development of surveys and field interviews with stakeholders														
	- Development of consultation and validation workshops														

Output / operacional	Activities	Year 1				Year 2				Year 3				Year 4	
		Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q 9	Q 10	Q 11	Q 12	Q 13	Q 14
	- Action plan for the integration of the gender perspective into the project														
Activity 3.2.2	Implementation reports and memories of gender capacity building workshops														
	- Reports on the implementation of the gender action plan														
	- Reports of gender capacity building workshops (institutions and beneficiaries).														
Output 3.3	**Strengthened the capacities of community-based organizations (CBO) and municipalities on climate change, ecosystem-based adaptation and comprehensive project management.**														
Activity 3.3.1	**Special modules designed and implemented for the implementation of adaptation strategies and plans at the local scale and project management for 200 beneficiaries**														
	- Prepare Terms of Reference and contract process.														
	- Design of modules and contents according to the training plan (local implementation strategies and adaptation plans and project management).														
	- Development of evaluation instruments.														
	- Validation of modules (contents) and validation instruments with MiAmbiente and other key actors														
Activity 3.3.2	**Evaluation of capacity building processes**														
	- Monitoring and evaluation of training processes.														
	- Preparation of training reports and evaluation results														
Activity 3.3.3	**At least 15 proposals for adaptation projects of CBOs and municipalities prepared.**														
	- Development of proposal preparation workshops														
	- Monitoring and support for the development of project ideas														
Activity 3.3.4	**Intermunicipal agreements established for the development of joint adaptation actions**														
	- Identification of topics and areas of interest between municipalities														
	- Facilitation of the process for establishing inter-municipal agreements														
	- Facilitation of processes for the development of joint projects (proposed preparation)														
Output 3.4	**Increased knowledge management on adaptation to climate change at the national level, by strengthening the adaptation portal and a program to systematize experiences, lessons learned and their appropriation**														
Activity 3.4.1	**Comprehensive knowledge management program designed and in operation with established goals and indicators that facilitate its evaluation.**														
	- Preparation of Terms of Reference														
	- Design of a proposal for a Comprehensive Knowledge Management Program with evaluation goals and indicators														
	- Proposal validation														
	- Implementation, monitoring and evaluation of the Comprehensive Knowledge Management Program														
Activity 3.4.2	**Adaptation Platform of the Ministry of Environment strengthened and operating.**														
	- Strengthening of the MiAmbiente Adaptation Platform for the Program's needs (training, communication, security, etc.)														
	- Hosting of Adaptation Platform and enabling easy access for users														
Activity 3.4.3	**Systematization of experiences, exchanges and lessons learned from projects carried out in the program**														
	- Preparation of Terms of Reference														
	- Selection of best experiences and hiring of services to systematize them														
	- Development of experiences exchange actions														
	- Facilitation of communication of progress, results, experience and lessons learned generated by the Adaptation Program														
REPORTS	-														
Inception workshop report	-	X													
Annual program execution reports (PPR)	-				X				X				X		X
Final report	-														X
External Audits report	-														X

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

A. Record of endorsement on behalf of the government [37]

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

Milciades Concepción, Ministro, Ministerio de Ambiente de Panamá	Fecha*: December, 6, 2022*

B. Implementing Entity certification

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

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans: The National Climate Change Policy (Executive Decree No. 35 of 2007) and its policy of mitigation and adaptation to climate change (Executive Decree No. 100 of 2020 and Executive Decree 131 of 2021), Third National Communication on Climate Change of Panama. Government of the Republic of Panama, The National Climate Change Strategy 2050-Panamá, Vulnerabilidad, Reducción de Riesgos y Adaptación al Cambio Climático, Panamá. Perfil de país de adaptación y riesgo climático. Banco Mundial, National Institute of Statistics and Census -INEC (n / d). General geographic aspects of Panama. December 2021, The Strategic Government Plan 2019-2024 of Panama framed in objectives and goals agreed upon through a broad participatory and inclusive process called "National Consensus", Ministry of Social Development -MIDES (2020). II Voluntary National Report of the SDGs, Atlas of Local Human Development, Multidimensional Poverty Index (IPM-C), at the district and corregimiento level, using the Population and Housing Census of Panama, Second National Communication on Climate Change of Panama. Government of the Republic of Panama, National Climate Change Plan for the Agricultural Sector of Panama; and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
Name & Signature Implementing Entity Coordinator Rosa Montañez	
Date: *January 6, 2023*	Tel. and email: (507) 232-7615 rmontanez@naturapanama.org info@naturapanama.org
Project Contact Person: Rosa Montanez / Vilna Cuéllar	
Tel. and Email: (507) 232-7615 vcuellar@naturapanama.org	

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

ANNEXES

ANEXO 1 . CARTAS DE ENDOSO

REPÚBLICA DE PANAMÁ
— GOBIERNO NACIONAL —

MINISTERIO DE AMBIENTE

ADAPTATION FUND

Letter of Endorsement by Government

December 6, 2022
DM-2411-2022

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

Subject: **Support for the country proposal *Strengthening climate resilience in the livelihoods and coastal ecosystems of the central Pacific of Panama.***

In my capacity as designated authority for the Adaptation Fund in Panamá, I confirm that the above national programme proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the Panamá.

Accordingly, I am pleased to endorse the above programme proposal with support from the Adaptation Fund. If approved, the programme will be implemented by Fundación NATURA and executed by Ministry of the Environment in Coordination with the Ministry of Agricultural Development and the Authority of Aquatic Resources of Panama.

Sincerely,

MILCIADES CONCEPCIÓN
Minister of Environment

MC/AGA/LCD/lt/jv/lvm

cc.: Rosa Montañez– Executive Director of Fundación Natura

Albrook, Calle Broberg, Edificio 804
República de Panamá
Tel.: (507) 500-0855

www.miambiente.gob.pa

REPÚBLICA DE PANAMÁ
— GOBIERNO NACIONAL —

MINISTERIO DE AMBIENTE

ADAPTATION FUND

Panamá, 6 de diciembre de 2022
DM-2411-2022

Carta de Endoso del Gobierno

La Junta del Fondo de Adaptación
c / o secretaria del Fondo de Adaptación
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Asunto: **Apoyo a la propuesta de país *Fortalecimiento de la resiliencia climática en los medios de vida y ecosistemas costeros del Pacífico central de Panamá.***

En mi calidad de autoridad designada para el Fondo de Adaptación en Panamá, confirmo que la propuesta de programa nacional previamente mencionada está de acuerdo con las prioridades nacionales del gobierno en la implementación de actividades de adaptación para reducir los impactos adversos y los riesgos que plantea el cambio climático en Panamá.

En consecuencia, me complace respaldar la propuesta de programa antes mencionado con el apoyo del Fondo de Adaptación. De aprobarse, el programa será implementado por la Fundación NATURA y ejecutado por el Ministerio del Ambiente, el Ministerio de Desarrollo Agropecuario y la Autoridad de Recursos Acuáticos de Panamá.

Atentamente,

MILCIADES CONCEPCIÓN
Ministro de Ambiente

MC/AGA/LCD/it/jv/lwm
cc.: Rosa Montañez– Directora Ejecutiva de Fundación Natura

Albrook, Calle Broberg, Edificio 804
República de Panamá
Tel.: (507) 500-0855

www.miambiente.gob.pa

REPÚBLICA DE PANAMÁ
GOBIERNO NACIONAL

MINISTERIO DE
DESARROLLO AGROPECUARIO

AUTORIDAD DE LOS RECURSOS
ACUÁTICOS DE PANAMÁ

DESPACHO DE LA ADMINISTRACIÓN GENERAL

Panamá, 03 de enero, 2023
AG-03-2023

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
E-mail: Secretariat@Adaptation-Fund.org
Fax: 202522 3240/5

Asunto: Respaldo a la propuesta de país

En mi calidad de Administradora General de la Autoridad de los Recursos Acuáticos de Panamá en Panamá (ARAP), confirmo que las acciones propuestas en el programa ***Fortaleciendo la resiliencia climática en medios de vida y ecosistemas costeros del Pacífico central de Panamá*** están de acuerdo con las prioridades nacionales del gobierno en la implementación de actividades de adaptación para reducir los impactos adversos y los riesgos que plantea el cambio climático en Panamá.

En consecuencia, me complace respaldar la propuesta del programa ***Fortaleciendo la resiliencia climática en medios de vida y ecosistemas Costeros del Pacífico central de Panamá*** con el apoyo del Fondo de Adaptación. Las líneas de acción propuestas en el programa están alineadas con las prioridades institucionales. La coordinación y complementariedad entre las actividades del programa y la de nuestra institución será clave para fortalecer la resiliencia del sector en áreas vulnerables de nuestro país.

Atentamente,

FLOR TORRIJOS ORO
Administradora General
Autoridad de los Recursos Acuáticos de Panamá

Edificio Riviera, Ave. Justo Arosemena, Calle 45 Bella Vista
+507 5116000 (ext. 359) | +507 511-6098 | www.arap.gob.pa | twitter/instagram: @ARAP_Panama

REPÚBLICA DE PANAMÁ
GOBIERNO NACIONAL

imhpa
Instituto Meteorológico Hidrológico de Panamá

IMHPA-010-2022
19 de diciembre de 2022

Junta del Fondo de Adaptación
Secretaría de la Junta del Fondo de Adaptación

Asunto: Respaldo a la propuesta país "*Fortaleciendo la Resiliencia Climática en Medios de Vida y Ecosistemas Costeros del Pacífico Central de Panamá*"

En mi calidad de Directora General del Instituto de Meteorología e Hidrología de Panamá (IMHPA), confirmo que las acciones propuestas en el Programa *Fortaleciendo la Resiliencia Climática en Medios de Vida y Ecosistemas Costeros del Pacífico Central de Panamá*, están de acuerdo con las prioridades nacionales del gobierno en la implementación de actividades de adaptación para reducir los impactos adversos y los riesgos al cambio climático en Panamá.

En consecuencia, me complace respaldar la propuesta de país *Fortaleciendo la Resiliencia Climática en Medios de Vida y Ecosistemas Costeros del Pacífico Central de Panamá* con el apoyo del Fondo de Adaptación. La complementariedad entre las actividades del programa y del Instituto de Meteorología e Hidrología de Panamá será clave para fortalecer la resiliencia del sector en áreas vulnerables de nuestro país.

Si se aprueba la propuesta, productos del componente 2 serán ejecutados por el IMHPA.

Atentamente,

LUZ GRACIELA DE CALZADILLA
Directora General
Instituto de Meteorología e Hidrología de Panamá

REPÚBLICA DE PANAMÁ
GOBIERNO NACIONAL
MINISTERIO DE DESARROLLO AGROPECUARIO

DESPACHO DEL MINISTRO

Panamá, 06 de enero de 2023
DM-614-2023

Para: La Junta del Fondo de Adaptación
C/o Secretaría de la Junta del Fondo de Adaptación
Correo electrónico: Secretary@Adaptation-Fund.org
Fax:202522 3240/5

Asunto: Respaldo a la propuesta país

En mi calidad de Ministro de Desarrollo Agropecuario (MIDA), confirmo que las acciones propuestas en el Programa **Fortaleciendo la Resiliencia Climática en Medios de Vida y Ecosistemas Costeros del Pacífico Central de Panamá**, están de acuerdo con las prioridades nacionales del gobierno en la implementación de actividades de adaptación para reducir los impactos adversos y los riesgos que plantea el cambio climático en Panamá.

En consecuencia, me complace respaldar la propuesta del **Programa Fortaleciendo la Resiliencia Climática en Medios de Vida y Ecosistemas Costeros del Pacífico Central de Panamá**, con el apoyo del Fondo de Adaptación. Las líneas de acción propuestas en el programa están enmarcadas con las prioridades institucionales.

La coordinación y complementariedad entre las actividades del programa, así como la de nuestra institución, será clave para fortalecer la resiliencia del sector en áreas vulnerables de nuestro país.

REPÚBLICA DE PANAMÁ
GOBIERNO NACIONAL
MINISTERIO DE DESARROLLO AGROPECUARIO

Nuestra propuesta contempla los productos 1 y 3 por un monto de **dos millones seiscientos once mil quinientos setenta y cinco dólares con 00/100** ($2,611,575.00) de los cuales, **dos millones trecientos ochenta y cinco mil dólares con 00/100** ($2,385,000.00) a costos directos (inversión) y **doscientos veinte y seis mil quinientos setenta y cinco dólares con 00/100** ($226,575.00) costo de ejecución.

Atentamente,

AUGUSTO R. VALDERRAMA B.
Ministro

ANEXO 2

Instituciones Públicas

Autoridad de Recursos Acuáticos de Panamá (ARAP)

Se establecieron ***tres (3)*** reuniones virtuales con Darío López, Thelma Quintero y Leyka Martínez, representantes de la ARAP para la captura de información relevante para el programa.

Ministerio de Desarrollo Agropecuario (MIDA

Continuando con las consultas, se convocaron ***tres (3) reuniones*** con los regentes del MIDA, contando con la participación de Rodrigo Luque, Yanet Sierra, Rita Vallejos, Zonia Ortega, Jorge Escudero, Warren García, Ramón Cedeño y José Rodríguez

Autoridad de Turismo de Panamá

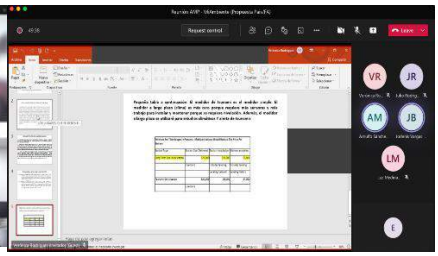
Siguiendo con la captura de información, se realizaron ***dos (2) reuniones*** con los regentes de la ATP, contando con la asistencia de Evans Canto y Diwidgi Valiente

Sistema Nacional de Protección Civil (SINAPROC)

Se realizó una (1) reunión virtual con el Ingeniero Luis Villamonte de la Dirección de Prevención y Mitigación de Desastres.

Autoridad Marítima de Panamá

Se realizó una (1) reunión virtual Arnulfo Sánchez, oceanográfico Físico de Ambiente del Despacho de Administración.



Hidromet Empresa de Transmisión Eléctrica (ETESA)

Se realizó una (1) reunión virtual con la participación de la Lcda. Rossy Carrera de la Dirección de Hidrometeorología.

Municipalidades

Municipios de Aguadulce, Antón, Capira y San Carlos

En la semana del 27 al 31 de diciembre de 2021, se solicitaron cortesías de salas a los municipios de Aguadulce, Antón, Capira y San Carlos con el propósito de realizar una inducción y socialización de la nueva propuesta de país, a la vez que se les hacía participe de esta iniciativa como socios estratégicos. Durante la misma el Ministerio de Ambiente compartió encuestas a los asistentes con la finalidad de obtener la mayor información sobre los principales vacíos y necesidades de la comunidad en cuanto a temas de planificación y fortalecimiento de capacidades relacionados a cambio climático, como también los principales efectos que esta causa sobre sus sistemas productivos.

Como resultados de las encuestas se puede resaltar que la mayoría de los encuestados poseen conocimientos en temas de cambio climático y comprenden cuales son los efectos que estos causan en sus comunidades y sus sistemas de subsidencia. Sin embargo, cabe mencionar que las herramientas de planificación para contrarrestar estos efectos son nulas, por lo cual permite al nuevo programa fortalecer estos vacíos para aumentar la capacidad adaptativa de estas poblaciones.

Municipio de Capira

Municipio de Aguadulce

Municipio de Antón

Municipio de San Carlos

Organizaciones y Academia

Organizaciones	Academia
La Sociedad Audubon de Panamá: Para evitar la duplicidad de información se realizó una reunión con Lourdes Sugasti, consultora del proyecto ""Mejorando, Valorando y Protegiendo el Capital Natural Costero de Panamá, quien nos explicó los conceptos básicos del mismo, resaltando que se estarían implementando en las áreas de Bahía de Parita y Bahía de Panamá"	**Instituto Smithsonian de Investigaciones Tropicales:** Continuando con la captura de información, se estableció comunicación con Steve Paton, quien nos compartió los avances de un proyecto que está ejecutando llamado "Monitoreo Aéreo Fotográfico de las Costas de Panamá" donde se tiene como objetivo obtener imágenes del estado de los manglares.

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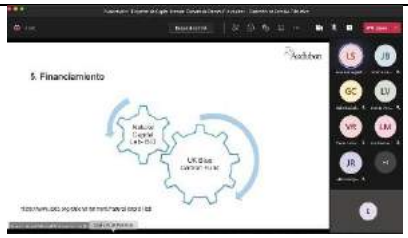
<td> 
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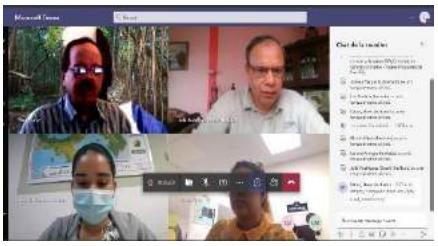
<tr>
<td>Centro Regional para el Hemisferio Occidental: Se realizó el primer acercamiento con CREHO Ramsar, por medio de Osvaldo Jordán, director ejecutivo de CREHO Ramsar Digna González y Andreina Pernía, coordinadoras de proyectos, en la misma se realizó una presentación por parte del consultor de Fundación Natura, Julio Rodríguez.
  </td>
<td>  </td>
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Lista de partes interesadas consultadas durante el proceso de consulta

N°	Actor Local	Organización/Institución	Tipo de Organización	Ámbito Geográfico	Género	
					F	M
1	Cesar Castillo	Ministerio de Ambiente- Dirección Regional de Panamá Oeste	Institución Pública	Panamá Oeste		x
2	Lilibeth Barba	Ministerio de Ambiente- Dirección Regional de Panamá Oeste	Institución Pública	Panamá Oeste	x	
3	Manuel López	Ministerio de Ambiente – Dirección Regional de Coclé	Institución Pública	Coclé		x
4	Evelyn Jaén	Ministerio de Ambiente – Dirección Regional de Coclé	Institución Pública	Coclé	x	
5	Rolando Ruiloba	Ministerio de Ambiente – Dirección Regional de Veraguas	Institución Pública	Veraguas		x
6	Darinel Pérez	Ministerio de Ambiente – Dirección Regional de Veraguas	Institución Pública	Veraguas		x
7	Yasbell Castillo	Ministerio de Ambiente – Dirección Regional de Veraguas	Institución Pública	Veraguas	x	
8	Graciela González	Ministerio de Ambiente – Dirección Regional de Herrera	Institución Pública	Herrera	x	
9	Ronald Rodríguez	Ministerio de Ambiente – Dirección Regional de Herrera	Institución Pública	Herrera		x
10	Ariel Sandoval	Ministerio de Ambiente – Dirección Regional de Herrera	Institución Pública	Herrera		x
11	Maribel Pinto	Ministerio de Ambiente – Dirección de Cambio Climático	Institución Pública	Nacional	x	
12	Priscila Riquelme	Ministerio de Ambiente – Dirección de Cambio Climático	Institución Pública	Nacional	x	
13	Carmen Prieto	Ministerio de Ambiente – Dirección de Cambio Climático	Institución Pública	Nacional	x	
14	Ligia Castro de Doens	Ministerio de Ambiente – Dirección de Cambio Climático	Institución Pública	Nacional	x	
15	Lourdes Sugasti	Sociedad Audubon de Panamá	ONG	Nacional	x	
16	Andreina Pernia	CREHO - Ramsar	ONG	Nacional	x	

N°	Actor Local	Organización/Institución	Tipo de Organización	Ámbito Geográfico	Género	
					F	M
17	Osvaldo Jordán	CREHO - Ramsar	ONG	Nacional		x
18	Digna González	CREHO - Ramsar	ONG	Nacional	x	
19	Darío López	Autoridad de Recursos Acuáticos de Panamá (ARAP) - Departamento de Investigación y Desarrollo	Institución Pública	Nacional		x
20	Thelma Quintero	Autoridad de Recursos Acuáticos de Panamá (ARAP) - Departamento de Investigación y Desarrollo	Institución Pública	Nacional	x	
21	Leyka Martínez	Autoridad de Recursos Acuáticos de Panamá (ARAP) - Departamento de Manejo de los Recursos Acuáticos	Institución Pública	Nacional	x	
22	Jorge Jaén	Ministerio de Ambiente - DICOMAR	Institución Pública	Nacional		x
23	Luis Villamontes	SINAPROC - Dirección de Prevención y Mitigación de Desastres	Institución Pública	Nacional		x
24	Rodrigo Luque	MIDA - Unidad Agroambiental y Cambio Climático	Institución Pública	Nacional		x
25	Yanet Sierra	MIDA - Secretaría Técnica	Institución Pública	Nacional	x	
26	Rita Vallejos	MIDA – Dirección de Agricultura	Institución Pública	Nacional	x	
27	Zonia Ortega	MIDA - Unidad Agroambiental y Cambio Climático	Institución Pública	Nacional	x	
28	Jorge Escudero	MIDA – Dirección de Agricultura	Institución Pública	Nacional		x
29	Warren García	MIDA - Unidad Agroambiental y Cambio Climático – MIDA	Institución Pública	Nacional		x
30	Ramón Cedeño	MIDA - Secretaría Técnica	Institución Pública	Nacional		x
31	José Rodríguez	MIDA - Dirección de Ganadería	Institución Pública	Nacional		x
32	Evans Canto	ATP - Coordinador de la Dirección de Planificación	Institución Pública	Nacional		x
33	Diwidgi Valiente	ATP - Oficina de Sostenibilidad	Institución Pública	Nacional		x
34	Arnulfo Sánchez	AMP	Institución Pública	Nacional		x
35	Rossy Carrera	ETESA – Dirección de Hidrometeorología	Institución Pública	Nacional	x	

N°	Actor Local	Organización/Institución	Tipo de Organización	Ámbito Geográfico	Género	
					F	M
36	Steve Paton	Instituto Smithsonian de Investigaciones Tropicales	Academia	Nacional		x
37	Juan Carlos Herrera	Municipio de Capira	Gobierno Local	Capira		x
38	Pedro Moreno	Municipio de Capira	Gobierno Local	Capira		x
39	Luis Díaz	Municipio de Capira	Gobierno Local	Capira		x
40	Nelson García	Municipio de Capira	Gobierno Local	Capira		x
41	Luis González	Municipio de Capira	Gobierno Local	Capira		x
42	Alcibíades Medina	Municipio de Capira	Gobierno Local	Capira		x
43	Edwin Soto	Municipio de Capira	Gobierno Local	Capira		x
44	Carmen Muñoz	Municipio de Capira	Gobierno Local	Capira	x	
45	Jorge Ramos	Municipio de Capira	Gobierno Local	Capira		x
46	Alejandro Herrera	Municipio de San Carlos	Gobierno Local	San Carlos		x
47	Camilo Calderón	Municipio de San Carlos	Gobierno Local	San Carlos		X
48	Arístides Vásquez	Municipio de San Carlos	Gobierno Local	San Carlos		X
49	Álvaro Sánchez	Municipio de San Carlos	Gobierno Local	San Carlos		X
50	Balbino Hidalgo	Municipio de San Carlos	Gobierno Local	San Carlos		X
51	María Sánchez	Municipio de San Carlos	Gobierno Local	San Carlos	X	
52	Abed Martínez	Municipio de San Carlos	Gobierno Local	San Carlos		X
53	Deyanira Samaniego	Municipio de San Carlos	Gobierno Local	San Carlos	X	
54	Luis Martínez	Municipio de San Carlos	Gobierno Local	San Carlos		x
55	Alberto Navarro	Municipio de San Carlos	Gobierno Local	San Carlos		X
56	Johana Osorio	Municipio de San Carlos	Gobierno Local	San Carlos	X	
57	Antonio Bernal	Municipio de San Carlos	Gobierno Local	San Carlos		x
58	Lloel Muñoz	Municipio de San Carlos	Gobierno Local	San Carlos		x
59	Viodelda Sánchez	Municipio de Antón	Gobierno Local	Antón	x	
60	Virgilio Rodríguez	Municipio de Antón	Gobierno Local	Antón		X
61	Ofelia Rodríguez	Municipio de Antón	Gobierno Local	Antón	X	
62	Secundino Hernández	Municipio de Antón	Gobierno Local	Antón		x
63	Luis Trejos	Municipio de Antón	Gobierno Local	Antón		x
64	Joaquín Rodríguez	Municipio de Antón	Gobierno Local	Antón		x
65	Eric Domínguez	Municipio de Antón	Gobierno Local	Antón		x
66	Oliver Tomas	Municipio de Antón	Gobierno Local	Antón		

N°	Actor Local	Organización/Institución	Tipo de Organización	Ámbito Geográfico	Género	
					F	M
67	Marlenis Rodríguez	Municipio de Antón	Gobierno Local	Antón	X	
68	Julio Arosemena	Municipio de Antón	Gobierno Local	Antón		x
69	Ana Marisín González	Municipio de Antón	Gobierno Local	Antón	X	
70	Abraham González	Municipio de Antón	Gobierno Local	Antón		x
71	Carlos Fernández	Municipio de Antón	Gobierno Local	Antón		x
72	Hernán Castrellón	Municipio de Antón	Gobierno Local	Antón		x
73	Rafael Sánchez	Municipio de Antón	Gobierno Local	Antón		x
74	Fennet Aguilar	Municipio de Antón	Gobierno Local	Antón		x
75	Siria López	Municipio de Aguadulce	Gobierno Local	Aguadulce		x
76	Eric Chiari	Municipio de Aguadulce	Gobierno Local	Aguadulce	X	
77	José Aranda	Municipio de Aguadulce	Gobierno Local	Aguadulce		X
78	Nelvin Castillo	Municipio de Aguadulce	Gobierno Local	Aguadulce		X
79	David Ortiz	Municipio de Aguadulce	Gobierno Local	Aguadulce		X
80	Benjamín Jalomin	Municipio de Aguadulce	Gobierno Local	Aguadulce		X
81	Raúl Euclides	Municipio de Aguadulce	Gobierno Local	Aguadulce		X
82	Amelia Cruz	Municipio de Aguadulce	Gobierno Local	Aguadulce	X	
83	Mayra Rivera	Municipio de Aguadulce	Gobierno Local	Aguadulce	X	
84	Carlos Díaz	Municipio de Aguadulce	Gobierno Local	Aguadulce		X
85	Osman Guerra	Municipio de Aguadulce	Gobierno Local	Aguadulce		X
86	José Gonzales	Municipio de Aguadulce	Gobierno Local	Aguadulce		X
87	Edwin Pérez	Municipio de Aguadulce	Gobierno Local	Aguadulce		x
88	Natividad Ledezma	Municipio de Aguadulce	Gobierno Local	Aguadulce	x	
89	Leonardo Aguilar	Municipio de Aguadulce	Gobierno Local	Aguadulce		x

ANNEX 3

Versión: 1	Fecha de revisión 11/03/15	Página 1 de 2	Políticas Contra la Corrupción

Formulario de Reporte por Inobservancia a las Salvaguardas Ambientales y Sociales de la Fundación Natura

Descripción textual del hecho reportado (lo más detallado posible):

_____

_____

_____

Identifique la salvaguarda específica que se ha inobservado:

_____

_____

¿La práctica reportada ha ocasionado algún tipo de consecuencia en razón a su comisión?

_____

_____

Datos de la persona que formula el reporte:

Primer Nombre_____ Segundo Nombre _____

Primer Apellido _____ Segundo Apellido _____

Número de identificación personal: _____

Organización _____

Puesto que ocupa: _____

Correo electrónico _____

Teléfono fijo _____ Teléfono celular _____

Dirección completa:

País _____ Provincia _____ Distrito _____

Corregimiento _____ Lugar poblado (o barriada) _____

Calle _____ Número de casa _____

Datos de las personas físicas y/o jurídicas involucradas (favor especificar nombres completos ya sean de personas como de organizaciones y aporte la mayor cantidad de información posible sobre estas y sobre el hecho en cuestión):

_____

_____

_____

Firma: Fecha y lugar:

Enviar formulario a: quejas@naturapanama.org ó entregarlo en sobre cerrado con el distintivo **SALVAGUARDAS**.

El reporte presentado tiene como única finalidad tomar las acciones efectivas que eviten recurrencias de situaciones similares que afecten el resultado de nuestras actividades. Agradecemos su aporte el cual nos permite actuar con transparencia y mejorar continuamente.

Nota:

1. Todos los campos son obligatorios y deben responderse en forma precisa y completa, con letra legible a fin de poderlo atender de manera oportuna.
2. Anexe tantas hojas sean necesarias para completar la información solicitada.

ANEX 4

Procedimiento de la Fundación Natura para el seguimiento de programas y proyectos.

Procedure

1. PURPOSE:

To establish the steps observed by Natura Foundation for follow up of sub-projects in order to ensure the successful execution of allocated sub-projects.

2. SCOPE:

Responsible for the procedure: Project Manager.
This procedure is applicable to the Trustees Board, the Executive Director, the Executive Director Assistant, the Project Manager, the Administration and Finances Manager, the Project Coordinator, the Administrative Assistant, Accounting and Receptionist; goes from the organization and undertaking of the installation visit by the Project Coordinator up to when the Administrative Assistant receives notice of receipt of Note and Report with sub-projects' performance comments, by the Executing Agency.

3. RELATED PROCEDURES AND OTHER DOCUMENTS:

Documentation Level	***Code***	***Related Documents***
ISO 9001 Standard	*7.5.1*	*Control of the production and service provision*
Management Manual:	*M-GO-2*	*Production and service provision*
This procedure		
Work instructions:	*I-GO-10.1* *I-GO-10.2* *I-GO-10.3* *I-GO-10.4*	*Installation Visit* *Revision of the Quarterly Technical and Financial Report and of the request for payment* *Penalty for noncompliance in report delivery* *Technical and administrative monitoring of the sub-project*
Records:	*F-GO-10.1.1* *D* *D* *D* *F-GO-10.0.1* *D* *F-GO-10.4.1* *F-GO-10.0.2*	*Visit of Installation Minutes* *Quarterly Technical Report* *Quarterly Financial Report* *Request for Disbursement* *Note of Comments to the Quarterly Reports or/and Request for Disbursement* *Payment Control Sheet and Financial Plan* *Sub-project's technical and administrative monitoring report* *Note and Report with comments to sub-project's performance*
External documentation:	*N/A*	*N/A*
Related MS documentation:	*P-GO-9*	*Contracting*

	P-GO-11 *P-GO-14*	*Sub-projects evaluation* *Accountability*

4. PROCEDURE:

Note 1: *This procedure is not applicable to the Annual Operational Plan and Budget presented by the National Environmental Authority.*

4.1. Once the Administrative Assistant sends the notarized contract and receives notification of receipt from the Executing Agency, informs the Project Coordinator who organizes and carries out the installation visit, according to ***I-GO-10.1 Installation Visit*** *then prepares the* ***Installation Visit Minutes, F-GO-10.1.1****, uploads the digital file to the corresponding activity in SIIAP and informs the Project Management.*

4.2. The Receptionist receives from the Executing Agency: ***D-Quarterly Technical Report****,* ***D-Quarterly Financial Report****,* ***D-Request for Disbursement*** *and sends them to the Administrative Assistant, who records the entry and uploads the progress report in SIIAP during the sub-project's monitoring phase with input data from the technical and financial reports and during the sub-project's supervision and control phase with the input data from the Request for Disbursement.*

4.3. The Project Coordinator revises the Technical and Financial Report and the Request for Disbursement, according to instructions: ***I-GO-10.2 Revision of the Quarterly Technical and Financial Reports and Request for Disbursement*** *and* ***I-GO-10.3 Penalty for Noncompliance in Report Delivery****, then proceeds as per case:*

Note 2: *Technical and financial quarterly reports from Executing Agency are due 15 calendar days prior to the termination of the reported quarter and shall be submitted to Natura Foundation 7 calendar days prior the end of the reported quarter.*

4.3.1. If the Project Coordinator has comments to any of the documents in item 4.2; goes to 4.4.

4.3.2. If the Project Coordinator has no comments to any of the documents in 4.2; goes to 4.6.

4.4. The Project Coordinator prepares prints and signs the ***Note of Comments to Quarterly Reports and/or Request for Disbursement, F-GO-10.0.1*** *and sends it to the Administrative Assistant.*

4.5. The Administrative Assistant delivers then Note of Comments to Quarterly Reports and/or Request for Disbursement, F-GO-10.0.1, gives follow up to the receipt and to the response of respondent to them; goes to 4.2.

4.6. The Project Coordinator prepares a quarterly report for donors and sends it to the Project Management for it to be considered in ***Accountability, P-GO-14****, files the technical and financial reports; goes to 4.7 for carrying out the payment to the organization and goes to 4.15 for monitoring.*

4.7. The Project Coordinator prepares the ***Request for Payment, F-GO-9.2.1****, according to* ***I-GO-9.2 Request for Payment****, submits Request for Payment to the Project Management, who signs it in approval by the superior in line, the Project Coordinator sends the Administrative Assistant the Request for Payment together with the Request for Disbursement of the Executing Agency.*

4.8. The Administrative Assistant sends the Request for Payment and Request for Disbursement and updates their disbursement status in SIIAP.

*4.9. Accounting compares the stipulated amount in the request for payment to the request for disbursement and the modified budget (the period indicated in the request for disbursement) of the sub-project. If all documentation is in compliance, accounting updates **D-Disbursement Control Sheet and Financial Plan**, prepares **D-Prepared Payment**, fills out the information in the Request for Payment and files them in the disbursement files, and then sends the file to the Administration and Finances Management and registers the file exit.*

***Note 3:** If Accounting finds and discrepancy between the documents verified, it informs the Administrative Assistant, who will correct the discrepancy together with the Project Coordinator and if necessary with the Project Manager and/or respondent.*

4.10. The Administration and Finance Management verifies the file and marks the D-Payment prepared in conformity with the documentation and forwards to accounting where it they register file entry, and send it to the Executive Direction and register file exit.

4.11. The Executive Direction Assistant sends the Executive Director the file, and the Director marks the prepared D-Payment in conformity and sends it to the Executive Direction Assistant, who coordinates the delivery of the full file to the President of the Board of Trustees who verifies the documentation and sign payment.

***Note 4:** When the payment amount requires two signatures the Executive Direction Assistant will coordinate the delivery of the contract file to another member of the Board of Trustees signatory of the bank account from which the payment is to be withdrawn and then he shall proceed with verifying and signature.*

4.12. The Executive Direction Assistant received the file with the signed payment and sends it to Accounting.

4.13. Accounting executes disbursement in favor of the Executing Agency and informs via email to the Project Management, the Administrative Assistant and the Project Coordinator.

4.14. The Administrative Assistant informs the Executing Agency that the disbursement has been executed and registers it in SIIAP the disbursement of 100% with the date on which it was informed to the Executing Agency.

*4.15. The Project Coordinator prepares and carries out the Sub-project monitoring, according to instructions **I-GO-10.5 Sub-project technical and administrative monitoring** and prepares the **Sub-project technical and administrative monitoring Report, F-GO-10.5.1** and sends it to the Project Management. Updates in SIIAP: status of the monitoring activity and uploads digital monitoring report to monitoring activity and updates the progress status on each' sub-project outcome.*

4.16. The Project Management revises the technical and administrative monitoring Report for the sub-project and if it has any comments or suggestions informs them the Project Coordinator who will include them in the sub-project technical and administrative Report.

***4.17.** The Project Coordinator prepares, prints and signs the **Note and Report with comments to sub-project's performance, F-GO-10.0.2** to be considered by the Executing Agency in the next technical*

and financial report and sends it to the Administrative Assistant. Uploads the note and report with comments to sub-project's performance in SIIAP in the corresponding monitoring activity.

Note 5: *In the revision of the next-to-last technical and financial report, the Project Coordinator includes in the note a reminder for finishing the works and about the delivery of final technical and financial reports.*

4.18. The Administrative Assistant delivers the Note and Report with comments to sub-project's performance and gives follow up to the receipt by the Executing Agency.

END OF PROCEDURE

ANNEX 5

Risk analysis and management process for USP in orden to comply with the ESP and GP

Output 1.5 - Activity 1.5.1 Establishment of a grants program for adaptation actions aimed at CBOs and Municipalities

The objective of this activity is to promote adaptation actions from the local perspective and the inclusion of nature-based solutions, with innovations and the use of efficient and low-cost technologies. At the same time, it is also expected that these sub-projects will help to strengthen livelihoods with income generating initiatives, supporting the transition of target communities to sustainable, innovative, low-cost adaptation solutions schemes that can later be replicated in other communities at the regional and national level.

The nature of this proposed activity (grants program) falls in the category of unidentified sub-projects (USP) because it entails a process for identification of final initiatives through several steps:

- Design and validation of the grants program scheme
- Development of proposal guidelines and operation manuals of the scheme
- Project selection
- Implementation, evaluation, and monitoring of the sub-projects
- Financial and technical audits.

It is proposed that the grants program will be targeted to the Arco Seco region, with participation of CBOs and municipalities from the following districts: Antón, Natá, Aguadulce, Chitré, San Carlos, Chame, Capira, La Chorrera and Arraiján. Among the criteria for selecting grant implementing projects will be:

- Interest and commitment of OBC and municipalities to promote innovative actions of adaptation; get training and compete for access to the financing opportunity.
- Commitment of completing the required technical and financial cycle.
- With limited access to traditional financing sources.
- Commitment to transfer knowledge to others.
- Equal participation of women.
- Equity in the distribution of benefits (similar support for all).

To ensure comprehensive and adequate compliance with the ESP and GP during project implementation, the following actions will be carried out:

1. Design and validation of the grants program scheme:
   - ✓ During inception workshops at each of the 6 districts, there will be a specific consultation and survey done to define no more than 5 priority adaptation challenges that can be addressed through (but not limited to) a menu of well-known and proven nature-based solutions, and that bring the opportunity for innovation and use of efficient and low-cost technologies. Based on this exercise, eligibility (admissibility or exclusion) restrictions will be designed and added to criteria for selecting grant pilot projects (in terms of areas, beneficiary population, list of eligible activities and/or their characteristics).
2. Development of proposal guidelines and operation manual of the grants scheme
   - ✓ FN will design an operation manual with proposal guidelines and eligibility criteria for grant proposals. This manual will be socialized with proposed target organizations (OBCs and municipalities) prior to the calls for presenting proposals and adjusted -if necessary- based on the dialogue with such stakeholders. This socialization step will include capacity building elements for target organizations. Also, during the calls for presenting proposals, FN project specialists will be available to guide proponents and respond to questions regarding the participation process, including guidance for effective identification of ESP risks, and that measures are identified. This will help to build local capacities for successful program design in compliance with ESP and GP.
   - ✓ This manual will include a section for common ESP and GP compliance elements (i.e. sensitive habitats, core labor rights issues, etc.) prepared based on the information gathered during the stage 1 (inception

workshops), in order to make it easier to proponents the (i) the ES risk identification for proposed pilot project, according the 15 ESP principles; (ii) the assessment of anticipated impacts for those risks identified; (iii) the identification of adequate measures to avoid, minimize, or manage such impacts; (iv) the design of a plan to apply and implement these measures.

- ✓ This manual will include provisions to allow FN to evaluate (as part of the selection process) the capacities of proponent EE to carry out all aspects of ESP and GP compliance related to the activities that EE proposes and will implement. When pertinent, such capacities are expected to be built during socialization (and training) of the operation manual mentioned above. OBCs and municipalities of target area for the grants program that, after such guidance offered by FN project specialists (prior to presenting their proposals), show lack of capacity for carrying out the ESP and GP compliance related to the proposed project, will be considered for trainings offered in the Output 3.2 *Strengthened the capacities of community-based organizations (CBO) and municipalities on climate change, ecosystem-based adaptation, and comprehensive project management*.
- ✓ The operation manual will require all proponents to include identification of those activities that involve compliance with the relevant and applicable national regulations (as this is a requirement under the Adaptation Fund's ESP). The proposal presented should identify those relevant regulations and the requirements that need to be met (i.e., those related to national processes of environmental and social safeguarding as well as national standards or codes that may apply).

3. Project selection
   - ✓ A review process will be done to ensure that project proposals meet requirements detailed above.
   - ✓ Successful OBCs and/or municipalities will include -in addition to all the requisites stated in the operation manual, proposal guidelines and the call for proposals- an effective ESP risks and subsequent measures defined to comply with ESP and GP. Budgetary provisions will need to be coherent to accomplish this as required by the AF.
4. Implementation, evaluation, and monitoring of the sub-projects
   - ✓ Selected organizations will report to Fundación Natura on a regular basis their progress and performance in applying the ESP and demonstrating compliance of all activities with the ESP and GP. This, in turn, applies to Fundación Natura when submitting reports to the AF (progress and performance in applying the ESP to the fully identified as well as the USPs and demonstrating compliance of all the project/program activities with the ESP and the GP).
   - ✓ Regarding the above stated, with inputs from grant implementers, Fundación Natura will update the ESMP for the complete adaptation program with information for each USP identified during the relevant reporting period:
     - o description of the fully formulated USP, with details on (i) the characteristics of the USP and (ii) the specific environmental and social setting in which the USP will be implemented; this, to demonstrate the effectiveness of the risks identification that was carried out.
     - o the outcome of the ESP risks identification process, using the same structure as that of Section II.K, identifying risks according to each of the 15 ESP principles, justifying the risk findings, and showing that this is the outcome of an evidence-based and comprehensive effort.
     - o for each of the identified risks, a description of the subsequent impact assessment that was undertaken and the findings thereof, showing that the assessment was commensurate with the risks identified.
     - o the findings of the impact assessments, and the safeguard measures that have been formulated to avoid, mitigate or manage undesirable impacts.
     - o the updated detailed safeguard arrangements in the implementation component of the ESMP, identifying and allocating roles and responsibilities to implementation partners for the application of the ESMP (this will include an assessment or a confirmation of the required capacity and skills with the relevant implementation partners).
     - o information on the consultations that were held on the risks identification and impact assessments outcome as well as on any proposed management measures, and how any feedback was responded to.

- gender-disaggregation of the information used in the risks identification and subsequent safeguards actions.
- information on disseminating information to stakeholders on the grievance mechanism (see Part II, B.4). The updated ESMP will be attached to the annual PPR report.

5. Financial and technical audits.
   - ✓ The calls for proposal and the operation manual for the funding mechanism will include requisites to be met by the EE, which are in line with the own reporting that Fundación Natura has to comply with as established by the Adaptation Fund.
   - ✓ Examples include the monthly reporting on budget execution and implementation of the scheduled activities, as well as measures taken for complying with the ESP and GP, based on the monitoring of results indicators and products. Lastly, these audits will ensure the systematization of project experiences that will contribute for the knowledge management component.

Last, but not least, the USP analysis will take into consideration the principles of equal access and distribution of the adaptation benefits among beneficiaries (Part II. B.3), as well as the compliance with the complaints handling mechanism (see Part II. B.4). See also Annex 3 and 4.

ANNEX 6

POLITICA DE GENERO .

ENFOQUES DE LA POLÍTICA DE GÉNERO Esta Política de Género toma en cuenta los siguientes enfoques: Enfoque de derechos humanos: Se refiere a un enfoque en el que cada ser humano es reconocido como persona y como titular de derechos. Un enfoque basado en los derechos humanos se esfuerza por asegurar la libertad, el bienestar y la dignidad de todas las personas en todas partes, en el marco de normas y principios esenciales, deberes y obligaciones. Los derechos son indivisibles, interdependientes e interrelacionados, y el enfoque se centra en aquellas personas que son más vulnerables, excluidas o discriminadas. Fundación NATURA reconoce la importancia de los derechos humanos para el desarrollo sostenible, la mitigación de la pobreza, para asegurar la participación y distribución de los beneficios de sus programas y proyectos de manera equitativa y apoya el respeto universal de los derechos humanos y el respeto a la libertad fundamental de todas las personas. Enfoque de género: La legislación panameña instituye en su Ley Nº4 de 1999 la Igualdad de Oportunidades para las Mujeres y considera a esta como una política de Estado; mencionando en concreto la necesidad de que las mujeres se integren plenamente a los procesos de desarrollo y a la puesta en marcha de programas, citando entre otros los vinculados con la salud integral, el medio ambiente o la vivienda con mínimas condiciones. adicionalmente, esta ley considera a las mujeres indígenas y mujeres campesinas como grupos de especial interés. Para lograr resultados en términos de disminución de las brechas de género existentes, es importante que los aspectos de género no sólo sean considerados en los documentos de formulación del programas y proyectos, sino que también los equipos técnicos y administrativos tengan claridad sobre cómo o dónde incorporarlos, y conozcan herramientas que en la práctica puedan facilitar la incorporación del enfoque de género en todas las estructuras y ámbitos de acción de la Fundación NATURA. 4. PRINCIPIOS

Principio 1. Participación e inclusión social y no discriminación: Por raza, origen étnico, género y la identidad de género, edad, idioma, discapacidad, orientación sexual, religión, opinión política o de otra índole nacional o social origen geográfico, nacimiento o cualquier otra condición, incluyendo como una minoría.

Principio 2. Cumplimiento de las leyes nacionales y los marcos internacionales en material de género: La política de género, planes, programas y proyectos deben estarán alineadas con las políticas de género del país, con el marco internacional sobre derechos de las mujeres con el marco legal nacional e internacional en materia ambiental.

Principio 3. Compromiso: Fundación NATURA se compromete a respetar los derechos humanos de mujeres y hombres, a contribuir a la igualdad de género y a alinear sus iniciativas con las políticas de género del país.
Por ende, la Fundación NATURA se compromete según corresponda a: ▪ Adoptar métodos y herramientas para promover la igualdad de género y reducir las discriminaciones y disparidades de género en sus operaciones de financiación. ▪ Medir los resultados y los impactos de sus actividades en la capacidad de recuperación de mujeres y hombres frente a

los impactos del cambio climático y su capacidad de agenciar de manera diferenciada la vulnerabilidad al clima cambio.

Principio 4. Amplitud en alcance y cobertura: La política se aplicará a lo largo de los procesos operacionales, proyectos, programas y estructura de Fundación NATURA. ▪ En la estructura institucional: En toda la institución en sus operaciones y procedimientos, se procurará transversalizar la perspectiva de género. ▪ A nivel de proyecto: Fundación NATURA procura aplicar su política de género en sus actividades de adaptación, con la finalidad de minimizar los riesgos sociales y reducir la brecha de género. Para ello, en los proyectos que corresponda, desarrollará evaluaciones de género a inicio para determinar las actividades, los objetivos e indicadores que tomen en cuenta el enfoque de género y para diseñar una implementación y un seguimiento que tomen en cuenta las cuestiones de género. ▪ A nivel de las entidades ejecutoras: Fundación NATURA brindará el apoyo a sus ejecutores para fortalecer sus competencias en materia de género, para que desarrollen sus proyectos alineados a la política de género de la Fundación Natura, con miras aumentar el número de propuesta de financiación, cuyos objetivos promuevan la igualdad de género y la inclusión social en sus proyectos. Los proyectos y programas que corresponda, se evaluarán en función de las consideraciones sensibles de género en las diversas etapas del proceso de preparación, evaluación, aprobación y monitoreo de los proyectos, por el comité de revisión de proyectos y programa.

Principios 5. Equidad de género: en el contexto ambiental promover el acceso a las oportunidades en igualdad de condiciones para mujeres y hombres en la conservación y valorización de los bienes y recursos naturales.

Principio 6. Responsabilidad: Fundación NATURA cuenta con un seguimiento que evalúa la transversalización de género dentro de la Fundación. Los datos de los proyectos estarán desglosados por sexo, y se evaluarán los indicadores de género. La Fundación NATURA cuenta con: Un marco institucional para la incorporación de una perspectiva de género, con el personal experto designado y/o un compromiso al más alto nivel de gestión con la igualdad de género.

Cuenta con una Política de Género que aborda la igualdad de género, y elaborará un Plan de Acción de Género, adecuado al contexto y enfoque prioritario de trabajo de la Fundación en la conservación de los recursos naturales, que contará con un sistema de monitorio que incorpora la perspectiva de género, incluido el uso de indicadores desglosados por sexo. Fundación NATURA procurará desarrollar progresivamente, las competencias para generar las capacidades para realizar evaluaciones socioeconómicas y de género, que permitan evaluar los posibles roles, beneficios, impactos y riesgos para mujeres y hombres en sus proyectos.

Principio 7. Competencias: Fundación NATURA procurará desarrollar cuando corresponda, las capacidades dentro de su personal técnico y sus ejecutores que les permitan identificar medidas para evitar, minimizar y/o mitigar los impactos adversos de género.

Principio 8. Asignación de recursos: La Fundación NATURA asignará cuando corresponda, recursos para proyectos y programas que contribuyan a la igualdad de género y respalden el empoderamiento de las mujeres.

Principio 9. Gradualidad: La equidad de género, la conservación del ambiente y los recursos naturales deben implementarse en forma activa y progresiva, para ir modificando normas o patrones existentes que necesitan transformarse en beneficio del desarrollo sustentable del país.

Principio 10. Revisión y adaptación de la política: La incorporación de la perspectiva de género a nivel corporativo y de proyecto es una tarea a largo plazo y un compromiso sostenido, que incluye el seguimiento de su progreso. Los enfoques para la incorporación de la perspectiva de género evolucionan por eso es necesario revisar esta política en el año 2020.

Principio 11. Generación de conocimiento, comunicación e intercambio de experiencias: Para contribuir con el aprendizaje de la implementación de acciones en materia ambiental que tomen en cuenta las consideraciones de género y a la vez contribuir a la generación de información y datos de género y ambiente a partir de la aplicación de la política de género de Fundación Natura. Cuando corresponda, se identificarán y documentarán las buenas prácticas, se generarán espacios de intercambio de experiencias y conocimientos con otras organizaciones nacionales e internacionales interesadas en materia de género y ambiente. Fundación Natura considerará la pertinencia de catalizar una red de género y ambiente, con organizaciones que tengan experiencias sustantivas en materia de género que permita un intercambio de conocimientos.

OBJETIVOS

Fundación NATURA y las organizaciones ejecutoras de sus fondos se esforzarán alcanzar el objetivo de la igualdad de género y trato equitativo entre hombres y mujeres, para acceder a los recursos y servicios de la Fundación Natura en todos sus campos de acción a través de la transversalización de la perspectiva de género. − Transversalizar según corresponda, la perspectiva género en las operaciones, procesos, procedimientos y políticas, y en las estructuras de la Fundación Natura. − Garantizar el acceso equitativo entre hombres y mujeres a los recursos y beneficios de los programas y proyectos que implemente Fundación Natura. − Combatir y mitigar los riesgos asociados con las actividades financiadas por Fundación Natura. − Analizar y abordar sistemáticamente las necesidades específicas de mujeres y hombres en los proyectos de Fundación Natura.

ANNEX 7

Política de Salvaguardas Ambientales y Sociales 20 de febrero de, 2015 Política de Salvaguarda Ambiental y Social. Diciembre, 2014

CREDITOS Política de Salvaguardas Ambientales y Sociales. Fundación para la Conservación de los Recursos Naturales (Fundación NATURA). Panamá, Febrero. 2014.© Casa 1992 A y B, Llanos de Curundú Teléfono: (507) 232-8773 / Fax: (507) 232-7613 Apartado postal: 0816-06822, Panamá Dirección de correo electrónico: info@naturapanama.org Sitio web: www.naturapanama.org Política de Salvaguardas Ambientales y Sociales Instrumento para asegurar la calidad de la gestión ambiental y social con respeto a los derechos humanos y la sostenibilidad del desarrollo. 0

Índice A.
OBJETIVOS Y DIRECTRICES DE LA POLÍTICA DE SALVAGUARDAS AMBIENTALES Y SOCIALES DE LA FUNDACIÓN NATURA

Política de Salvaguarda Ambiental y Social. Diciembre, 2014 1 A. Objetivos y directrices de la política de salvaguardas ambientales y sociales de la Fundación Natura (2014) La labor de Fundación Natura, consiste en facilitar y contribuir al cumplimiento de objetivos ambientales suscritos por el Estado panameño, mediante el apoyo, la planificación, la ejecución y la supervisión de proyectos asociados a la conservación y protección de los ecosistemas, su biodiversidad y los recursos naturales de Panamá, usualmente asociado a actividades humanas relacionadas todas con el alcance de un desarrollo sostenible para el país. Esta labor, ante sus múltiples variables, no está exenta de riesgos que pueden atentar potencialmente contra el propósito mismo de sostenibilidad, por tanto son necesarias salvaguardas ambientales y sociales que reduzcan aquellos riesgos dentro del ciclo completode proyectos apoyados por la Fundación Natura. Este documento define y desarrolla en sus diferentes dimensiones y alcances las salvaguardas ambientales y sociales de la Fundación Natura. La Política de Salvaguardas Ambientales y Sociales de la Fundación Natura, eleva la calidad, credibilidad y factibilidad de sus prácticas habituales, como hacen otros organismos financieros y de apoyo al sector público, aumentando los beneficios del desarrollo sostenible, evitando la disminución de la calidad del ambiente para el entorno natural y las comunidades, identificando los riesgos ambientales y sociales potenciales de cada actividad y tomando las medidas necesarias para eliminar estos riesgos, evitarlos o mitigarlos. Esta política adopta principios generales que se desarrollan a través de criterios que describen los temas a tenerse en cuenta durante la preparación, adjudicación, ejecucióny seguimiento de cada proyecto. La práctica de adoptar este tipo de resguardos éticos de altonivel por parte de organismos financieros y de apoyo económico al desarrollo, responde a una práctica mundial para el alcance de la eficiencia de los procesos y la excelencia en la calidad de cada parte que es componente de tales procesos, procurando que los objetivos primordiales de desarrollo sostenible no sean perdidos de vista por quienes implementan lasacciones directamente en campo, ni por quienes planifican y monitorean tales acciones. Asílas cosas, la Política de Salvaguardas Ambientales y Sociales de la Fundación Natura se basaen las normas legales y reglamentarias vigentes en la República de Panamá, así como en losacuerdos internacionales suscritos por ésta, todo bajo un enfoque de derechos humanos quegarantiza la aplicación en campo de los valores que estos instrumentos prescriben tanto paralos Estados, como para los particulares en toda su amplia diversidad cultural, social y ambiental. De la misma forma, ésta política se integra al resto de las políticas existentes de la Fundación Natura, a modo de sistema de trabajo operativo basado en valores y prácticas positivas con los distintos actores involucrados, incluyendo al ambiente, hoy día también sujeto de derechos colectivos y difusos. La adopción y observancia de esta política no

transforma los roles existentes entre la Fundación Natura y las entidades o grupos implementadores de proyectos, éstos continuarán siendo responsables del manejo de los riesgos asociados con los proyectos, la diferencia está en que el riesgo existente resultará implícitamente incluido en la relación existente entre la Fundación y aquellos, y será analizado y evaluado en los niveles correspondientes. Política de Salvaguarda Ambiental y Social. Diciembre, 2014 2 A los ejecutores de proyectos, les podrá ser requerida su capacidad y compromiso para indicar los riesgos sociales y ambientales, sin perjuicio de que algunos proyectos y programas apoyados por la Fundación Natura, puedan tratar en sí sobre el manejo del riesgo. Así las cosas, el propósito de esta política ambiental y social, considera:

1) Abordar cuestiones sociales y ambientales en los proyectos de La Fundación: Para atender esta necesidad, la política puede aplicarse en cualquiera de las etapas del ciclo de proyectos, garantizando que los aspectos sociales y ambientales se consideren y se aborden de manera apropiada siendo algunos de los aspectos a considerar los siguientes: • Inclusión de las posibilidades de riesgo ambiental y social en la concepción, formulación y divulgación de proyectos y convocatorias. • Tomar en cuenta las posibilidades de riesgo ambiental y social en el proceso de revisión, evaluación y adjudicación de las propuestas asociadas a los proyectos, mediante una evaluación de riesgo preliminar, entre otros instrumentos. • Tomar en cuenta el manejo del riesgo en la aplicación de los marcos de seguimiento y presentación de informes que sirven de marco de referencia para la implementación de los programas nacionales. • Tomar en cuenta la posibilidad y manejo del riesgo ambiental y social para la aplicación de otras actividades financiadas por La Fundación Natura.
2) Asistir a los beneficiarios en el desarrollo de actividades y proyectos bajo los parámetros de este marco: Los proyectos y actividades apoyadas por la Fundación Natura, pueden compatibilizarse con los esfuerzos nacionales de reducción del riesgo ambiental y social de la comunidad, en armonía con los objetivos que estas políticas establecen: • Brindando un marco orientador sobre la conducta a llevar por parte de los ejecutores del proyecto o actividad de la que se trate, de acuerdo a parámetros establecidos dentro de la política. • Brindando una referencia adicional sobre los objetivos que cada proyecto debe seguir, haciendo referencia por ejemplo a grupos vulnerables, consideraciones de género y de vulnerabilidad ambiental, entre otros. Los Principios de Política son cometidos generales que fundamentan el resultado esperado, los criterios a la vez derivan de y encaminan hacia la consecución de tales principios. B. Política de salvaguardas ambientales y sociales de la Fundación Natura

Principio 1. General de Compromiso Ambiental y Social. La Fundación Natura adopta por este medio un compromiso de salvaguarda ambiental y social con el objeto de que sus actividades, fondos o Política de Salvaguarda Ambiental y Social. Diciembre, 2014 3 estructuras no apoyen de ninguna forma, proyectos o actividades que de cualquier manera afecten negativa e innecesariamente al ambiente natural, rural o urbano, ni la salud o bienestar de quienes habiten esos entornos, acorde con los principios y valores propios de derechos humanos, adoptados formalmente por la sociedad panameña a través de sus instituciones, a nivel nacional o internacional. Lo anterior será asegurado a través de los siguientes criterios: • La Fundación tendrá un sistema ambiental y social que asegure que los riesgos asociados a estos aspectos sean identificados y tratados desde la etapa más temprana posible del diseño de proyectos o actividades concebidas, convocadas, financiadas o apoyadas por la Fundación, mediante la utilización de la evaluación del riesgo preliminar

por parte de los colaboradores asignados en esta etapa a los respectivos proyectos. • La Fundación adoptará medidas para evitar, o donde no resultare posible, mitigar aquellos riesgos durante la implementación de las actividades o proyectos. La Fundación monitoreará y mantendrá al alcance de los interesados, el estatus de aquellas medidas adoptadas para cumplir con esta política durante y posterior a su ejecución.

Principio 2. Buen Gobierno. La Fundación se compromete a aplicar dentro de todo el ciclo de sus actividades y proyectos, las normas propias de buen gobierno y probidad de administración, de manera coherente con los compromisos vinculantes y morales de país a nivel interno y externo. Lo anterior, será asegurado con la observancia de los siguientes criterios: • Garantizar la integridad y responsabilidad de la gestión de fondos vinculados con las actividades de La Fundación. • Aplicar un sistema adecuado de rendición de cuentas y legitimidad de todos los órganos propios de La Fundación, a través de mecanismos como la evaluación continua y presentación de reclamaciones. • Garantizar el cumplimiento de la Ley, el acceso a la justicia, los recursos que sean efectivos para tal acceso y a colaborar con las autoridades competentes para la solución de posibles controversias legales. • Asegurar la transparencia y la accesibilidad de la información relativa a las actividades de la Fundación, incluida una difusión activa entre las partes relevantes e interesadas sin discriminación alguna. • Asegurar la coordinación institucional e interinstitucional, así como facilitar la comunicación entre el Estado y otros actores relevantes, como lo son los pueblos indígenas, campesinos, comunidades costeras y demás grupos vulnerables que dependen del manejo adecuado de los recursos naturales para su bienestar.

Principio 3 Igualdad de Oportunidades y No Discriminación. La Fundación Natura se compromete a brindar un trato justo y equitativo a sus beneficiarios potenciales y en propiedad, en los niveles que Política de Salvaguarda Ambiental y Social. Diciembre, 2014 4 correspondan. Sus actividades y proyectos no interferirán ni menoscabarán de ninguna forma los servicios básicos de salud, agua segura y servicios sanitarios, educación, vivienda digna, condiciones laborales adecuadas y derecho sobre la tierra. Estas actividades o proyectos no deben exacerbar las diferencias o desigualdades preexistentes en las comunidades, en especial con respecto a grupos ya marginados y vulnerables. Para el cumplimento de esto, serán empleados los siguientes criterios: • Las actividades y proyectos financiados o apoyados por la Fundación Natura evaluarán la presencia y evadirán la incidencia de impactos adversos en grupos marginados y vulnerables como las mujeres, los niños, ancianos, población indígena, refugiados, o discapacitados. • El no incurrir en ninguna clase de discriminación por razón de raza, condición social, género, religión, discapacidad o deformidad física, respetando el derecho de los individuos y de los grupos vulnerables a expresarse y a trabajar en la medida de sus posibilidades en las actividades y proyectos asociados a La Fundación. • Será asegurado el derecho de participación equitativa en materia de género, recibiendo beneficios sociales y económicos de manera equitativa, en todo el ciclo de actividades y proyectos de La Fundación. • Será procurado en proyectos o acciones dirigidos a pueblos indígenas, el consentimiento libre, previo e informado, así como sus mecanismos tradicionales de toma de decisiones, las cuales deben ser respetadas al darse, de manera coherente con la Declaración de las Naciones Unidas sobre los Derechos Indígenas y otros instrumentos de derecho internacional similares. • Las actividades y proyectos de La Fundación respetarán el conocimiento tradicional de los pueblos indígenas y comunidades locales, de manera coherente con lo establecido en la Constitución Política y en el derecho

nacional e internacional aplicable. • Las actividades y proyectos de La Fundación no propiciarán asentamientos involuntarios, en caso que éstos sean inevitables, se seguirá un debido proceso para que las personas desplazadas tengan total acceso a sus derechos y reciban una compensación previa, justa y equitativa acorde a lo establecido en la normativa internacional aplicable al país, como por ejemplo y no limitado a, la Declaración Universal de los Pueblos Indígenas y los Principios de Ecuador, así como la normativa local de referencia. • Las actividades y proyectos de La Fundación cumplirán con las disposiciones laborales nacionales vigentes y pertinentes.

Principio 4. Conservación de los Ecosistemas. La Fundación Natura se compromete a la promoción de medios de subsistencia sostenible, apoyando actividades y financiando proyectos que no incurran en la degradación injustificada de los ecosistemas, incluyendo los establecidos en el Sistema Nacional de Áreas Protegidas (SINAP), así como sus zonas de amortiguamiento, las zonas de reserva o de manejo marino costero integral, reconocidas por las autoridades, como de alto valor de conservación. Lo anterior, será asegurado a través de los siguientes criterios: Política de Salvaguarda Ambiental y Social. Diciembre, 2014 5 • Las actividades y proyectos de La Fundación serán diseñados de tal manera que eviten la reducción o pérdida de la diversidad biológica y la introducción de especies invasoras. • Las actividades y proyectos de Lla Fundación serán diseñados de tal forma que no incrementarán de manera significativa, las emisiones de gases de efecto invernadero u otros precursores del cambio climático. • Las actividades y proyectos de La Fundación contribuirán, en lo posible, a ejecutar una política de economía baja en carbono dirigida por las autoridades competentes, compatible con los demás sectores de la economía de acuerdo a lo establecido en el derecho local e internacional vigente.

Principio 5. Reducción de la Pobreza. La Fundación se compromete a emplear en sus actividades y proyectos, esquemas para contribuir efectivamente a la reducción de lapobreza. Para esto, Las actividades y proyectos de La Fundación, serán ejecutadas, cuando sea pertinente, en armonía con las estrategias nacionales de reducción de la pobreza y otros objetivos de desarrollo sostenible, incluyendo aquellos que son parte de los Objetivos de Desarrollo del Milenio.

Principio 6. Reducción de la Contaminación. La Fundación Natura se compromete, en el marco de sus competencias y funciones, a la reducción de los factores de contaminación, incluyendo la ineficiencia en el uso de los recursos naturales, en armonía con las normas y estándares nacionales e internacionales en esta materia, de esta manera, las actividades y proyectos de La Fundación tendrán un impacto positivo en la salud de la población.

Principio 7. Protección al Patrimonio Cultural. La Fundación Natura se compromete a que sus actividades y proyectos serán diseñados y ejecutados de manera que eviten o minimicen cualquier riesgo de alteración, daño, remoción de cualquier sitio de valor patrimonial, así reconocido por las autoridades competentes, poblaciones indígenas o autoridades académicas, lo cual se extiende al Patrimonio Inmaterial de los Pueblos Indígenas, a la preservación de sus lenguajes, al Patrimonio Cultural Sub Acuático y a los sitios de patrimonio mundial.

Principio 8. Protección de los Bosques y Garantizar la Continuidad de sus Servicios Ecosistémicos. La Fundación Natura se compromete a que sus actividades y proyectos sean diseñados de tal forma que promuevan la conservación, restauración y recuperación de los ecosistemas y eviten su degradación para que éstos provean de valiosos bienes y servicios ecosistémicos. Lo anterior será logrado mediante los siguientes criterios: • Las actividades y proyectos de Fundación Natura, fomentarán un uso y aprovechamiento racional de los ecosistemas e incluso de los agro ecosistemas manejados de acuerdo a la capacidad de carga del entorno, de modo que se evite la degradación del bosque natural, Política de Salvaguarda Ambiental y Social. Diciembre, 2014 6 reduciendo su pérdida por la extensión no planificada de la frontera agrícola, la extracción ilegal de recursos naturales o la construcción de infraestructuras no acorde con la capacidad de carga del entorno y de las necesidades de manejo, seguimiento, fiscalización y control dentro de la gestión de los ecosistemas. • Las actividades y proyectos de la Fundación evitarán o mitigarán el cambio en el uso de la tierra, en las reservas de carbono en los bosques y otros sumideros de carbono, tomando en cuenta de manera explícita los servicios de los ecosistemas y la conservación de la biodiversidad en relación directa con los valores de los participantes locales y otros actores relevantes. • Con base a lo anterior, la Fundación incluirá las consideraciones encaminadas a la protección de los Bosques y Garantizar la Continuidad de sus Servicios Ecosistémicos en los procesos de acreditación de beneficiarios, incluyendo sus capacidades de identificar y responder a los riesgos asociados y a hacer suyos los compromisos de la Fundación. Para ello, la Fundación deberá asegurar que se incluyan las medidas apropiadas para evitar, reducir y mitigar riesgos, en los documentos de adjudicación de proyectos, o que surjan de la implementación de éste, y sean ejecutadas de manera inmediata, durante el ciclo de vida completo del proyecto o actividad de la que se trate.

C. Bases para procedimientos relativos al cumplimiento de la política de salvaguardas ambientales y sociales de la Fundación Natura Existen circunstancias de riesgo en cada actividad o proyecto que realice, apoye o patrocine la Fundación Natura, para lo cual estos se identificarán, incluyendo su seguimiento y evaluación durante las etapas correspondientes a la actividad o proyecto, cuando proceda, y la adopción de medidas de acuerdo con la posibilidad real de incidencia. Igualmente, se contará con un mecanismo de solución de quejas, transparente y sencillo de ejecutar. C.1. Advertencia, análisis y comunicación de condiciones de riesgo Toda actividad o proyecto apoyado o financiado por la Fundación Natura, será monitoreado y evaluado durante su ciclo de vida completo para determinar sus posibles riesgos ambientales y sociales, de acuerdo con los compromisos adquiridos en la presente política de salvaguardas. Todo proyecto, desde la etapa más temprana de su concepción, tomará en cuenta la presencia o no de riesgos relacionados a los principios de la Política de Salvaguardas Ambientales y Sociales de la Fundación. Éstos deberán ser identificados, mediante el procedimiento de evaluación de riesgo preliminar y evaluados por el personal encargado de su concepción y elaboración. Lo mismo operará con las actividades realizadas, patrocinadas o apoyadas por la Fundación Natura. La evaluación de los riesgos deberá mostrar en sus resultados, incluso los de la evaluación preliminar, los riesgos identificados, la intensidad del riesgo, las medidas para evitarlo o eliminarlo; en el caso que no pudiese evitarse, las medidas para mitigarlo o compensarlo, y finalmente, si fuese necesario, la recomendación de no ejecutar aquel componente que afecte de manera significativa y no mitigable esta política. En el caso que se identifiquen medidas de mitigación o compensación, se debe evaluar la existencia de recursos para su ejecución.

Política de Salvaguarda Ambiental y Social. Diciembre, 2014 7 Los riesgos que puedan eliminarse o evitarse, serán reseñados en la actividad o el proyecto luego de ser identificados y, al igual que los demás, formarán parte del expediente del proyecto. De existir alguno de los riesgos que de forma directa o indirecta afecte, se relacione o sea pertinente a cualquiera de los principios o criterios de la Política de Salvaguardas de la Fundación Natura que impliquen la necesidad de mitigarlos o compensarlos, deberá ser señalado por el coordinador responsable del proyecto mediante comunicación dirigida a la Dirección Ejecutiva, sustentándose la causa del riesgo y adjuntándose de inmediato en el expediente correspondiente, el informe de evaluación de riesgos que incluye las medidas a adoptar. El informe de evaluación de riesgo que indique la ocurrencia de un riesgo que deba ser mitigado o compensado, o que recomiende la eliminación de algún componente del proyecto, será objeto de evaluación por parte de la Junta de Síndicos. Dentro de los criterios de esta evaluación, podrá considerarse la supresión de la tarea o factor que implique el riesgo, en favor de hacer el proyecto lo menos impactante posible a las Políticas de Salvaguarda Ambientales y Sociales de la Fundación Natura. Adicionalmente, en el evento que el proyecto se encuentre en ejecución cuando sea advertido el riesgo, se deberá variar la distribución de las partidas asignadas al proyecto, para asegurar la disponibilidad económica de recursos para reducir o evitar cualquier afectación de los principios que sustentan el actuar de la Fundación. Para tal fin, se realizará una evaluación conjunta, entre el ejecutor del proyecto y la Fundación Natura, para definir la pertinencia de la modificación de partidas y establecer en concordancia las acciones viables a seguir, incluyendo cuando sea pertinente y necesario, medidas dirigidas a la suspensión y/o cancelación del proyecto. Desde que esta política sea adoptada formalmente, los formularios, documentos y propuestas que lleven el sello de la Fundación Natura, deberán tomar en cuenta expresamente, en materia documental, social, ambiental, económica y financiera, el manejo del riesgo ambiental y social de acuerdo con la Política de Salvaguardas Ambientales y Sociales, para lo cual se harán los cambios logísticos, secretariales y de papelería correspondientes. C.2. Consulta Pública En el caso de actividades o proyectos que comprendan riesgos a ser mitigados o compensados, la Fundación Natura, dentro de las etapas correspondientes a la concepción, planificación, adjudicación y seguimiento de los proyectos que así lo requieran, dependiendo de la magnitud del proyecto del que se trate, previa evaluación de la Junta Directiva, con apoyo de las demás instancias de la Fundación, identificará en conjunto con las partes interesadas, a los actores pertinentes a quienes notificará en las etapas más tempranas posibles de planificación de las actividades y/o programas sobre los riesgos identificados en la evaluación de riesgo preliminar. Los resultados de esta consulta deben estar disponibles para cualquier interesado, hubiese o no participado en las consultas así llevadas a cabo. En el caso que comunidades sean afectadas por las actividades o proyectos de manera que las acciones arriba descritas deban ser invocadas, y después de evaluarse técnicamente la alta posibilidad de que un riesgo deba ser mitigado o compensado, la consulta deberá trasladarse al sitio Política de Salvaguarda Ambiental y Social. Diciembre, 2014 8 de afectación según lo establecido en el documento justificativo de la actividad o el proyecto que corresponda. Igualmente, los resultados serán accesibles, tanto a la comunidad, como a cualquier interesado y a las autoridades competentes. Las consultas también serán hechas, independientemente si el riesgo es advertido durante la implementación del proyecto o actividad. El producto final de tal mecanismo de consulta, incorporado a la actividad o proyecto del que se trate, deberá ser tomado en cuenta de forma expresa, ambiental, social, legal, económica y financieramente y también constará de manera expresa en la toma de

decisiones correspondientes en los niveles que correspondan. La rendición de cuentas de la actividad o el proyecto, así como su éxito, será medido de acuerdo al tratamiento del riesgo ambiental y social, así como por los demás méritos convencionales. C. 3. Mecanismo de tratamiento y solución de quejas La Fundación Natura homologará su procedimiento de atención de quejas para incluir el riesgo ambiental y social de manera expresa. Cualquier instancia perteneciente o asociada a la Fundación, podrá recibir la queja y tendrá el deber de transmitirla a la Dirección Ejecutiva para su trámite. Esta instancia delegará al personal idóneo a lo interno de la entidad, la atención de la queja, para su discusión en un Comité Ad Hoc designado para ello, por la Junta de Síndicos. El expediente de la queja deberá ser evaluado en la reunión más próxima de la Junta que sea llevada a cabo, sin distinción del nivel de gravedad de la queja. Para este efecto, la agenda de la Junta de Síndicos de la Fundación Natura, tendrá un período de escucha y decisión sobre las quejas u observaciones que los interesados hagan sobre el tema, habiéndose preparado el material correspondiente por el Comité Ad Hoc. Lo anterior, funcionará sin perjuicio de que la queja conlleve elementos que ameriten la intervención de las autoridades correspondientes, para lo cual, el Comité Ad Hoc, recomendará a la Junta de Síndicos, el curso que la queja debe llegar en el evento que sean puestas en riesgo o vulneradas las normas jurídicas coincidentes con los principios que nutren la política. La decisión tomada por la Junta de Síndicos, influirá en el devenir de la actividad o proyecto del que se trate. Los contratos de la Fundación Natura con respecto a las adjudicaciones de proyectos y apoyo a actividades, deberán contemplar esta posibilidad. La Fundación Natura, a través de una dirección de correo electrónico habilitada expresamente para ello, así como una, igualmente identificada de apartado postal convencional, podrán recibir cualquier aporte para la supervisión pública de la implementación de la Política de Salvaguardas Ambientales y Sociales. La Fundación Natura, divulgará a lo interno de su estructura, de las estructuras de las instituciones y gremios que componen la Junta de Síndicos, y el público en general, tanto la Política de Salvaguardas Ambientales y Sociales, como sus mecanismos de implementación. Las modificaciones a ésta, serán igualmente comunicadas a los actores interesados. Política de Salvaguarda Ambiental y Social. Diciembre, 2014 9

D. Conclusión La Política de Salvaguardas Ambientales y Sociales de la Fundación Natura que por este medio se adopta, aspira a ser un instrumento más, compatible con las políticas preexistentes en materia de ética, combate a la corrupción y buenas prácticas administrativas que han sido adoptadas por esta organización, todo con miras a seguir cumpliendo una labor que por la naturaleza de sus acciones, debe ser lo más prístina posible en el manejo de recursos necesarios para coadyuvar en un verdadero desarrollo sostenible para el país. Esta herramienta, como todas, es susceptible al cambio y a la evolución positiva que brindan las experiencias técnicas y de campo, de modo que esta primera versión sienta las bases de una transformación cualitativa en los servicios ofrecidos a los usuarios que aspiran, como nosotros, a que las actividades humanas produzcan un saldo positivo en el ambiente natural y cultural que nos rodea

Fundación NATURA

January 6, 2023
FN-DE–002-2023

Mr. Mikko Ollikainen
Manager
Adaptation Fund Board Secretariat
Email: afbsec@adaptation-fund.org
Fax: 202 522 3240/5

Subject: Panama - Proposal Full Scale Program

Dear Mr. Ollikainen,

On behalf of Fundación Natura - Panama, we submit the proposal entitled "*Strengthening climate resilience in livelihoods and coastal ecosystems of the Central Pacific of Panama"* to the Full-Scale Program category. If is needed, please do not hesitate to contact us for further information.

All the best to the Adaptation Fund team and our best wishes for a prosperous and healthy 2023.

Sincerely,

Rosa Montañez
Executive Director