



ADAPTATION FUND

GOVERNMENT OF MOZAMBIQUE

**REQUEST FOR PROGRAMME FUNDING
FROM THE ADAPTATION FUND**



ADAPTATION FUND

PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

PART I: PROGRAMME INFORMATION

Programme Category:	Regular Programme
Country:	Republic of Mozambique
Title of Programme:	National Natural Capital Programme to "harness resilient ecological infrastructure for systemic climate adaptation of cities, communities and industries, with blended finance and women/youth entrepreneurs"
Type of Implementing Entity:	Multilateral Implementing Entity (MIE)
Implementing Entity:	African Development Bank Group (AfDB)
Executing Entities:	Ministry of Land, Environment and Rural Development (MITADER), Ministry of Economy and Finance, World Wide Fund for Nature (WWF) (Feb 14, 2018)
Amount of Financing Requested:	US \$9,999,400

Definitions & Concepts

Natural capital: Natural capital is the stock of natural ecosystems on Earth including air, land, soil, biodiversity and geological resources, and underpins our economy and society by producing value for people and businesses.

Source: Natural Capital Coalition 2016

Ecological infrastructure: Ecological infrastructure refers to naturally functioning ecosystems that deliver valuable services to people.

Source: SANBI 2014. A Framework for investing in ecological infrastructure in South Africa. South African National Biodiversity Institute, Pretoria

Natural capital assessments: Complementing conventional financial analysis, natural capital assessments reveal the underlying networks of ecological infrastructure—such as rivers, soils, forests and coastal reefs—that affect the long-term risk-return profile of investments.

Source: WWF-Mozambique, 2018

Ecosystem based Adaptation: Ecosystem based Adaptation (EbA) is a nature-based solution for addressing climate change impacts; meaning it focuses on the benefits humans derive from biodiversity and ecosystem services, and how these benefits can be utilized in the face of climate change. Consequently, EbA is a people-centric concept, but one that acknowledges that human resilience depends critically on the integrity of ecosystems. Yet ecosystem health alone does not guarantee human resilience, so EbA is best implemented as an integrated element of a broader adaptation strategy.

Source: Making Ecosystem-based Adaptation Effective, A Framework for Defining Qualification Criteria and Quality Standard, by FEBA (Friends of Ecosystem-based Adaptation). (2017). Making Ecosystem-based Adaptation Effective: A Framework for Defining Qualification Criteria and Quality Standards (FEBA technical paper developed for UNFCCC-SBSTA 46). Bertram, M.,¹ Barrow, E.,² Blackwood, K., Rizvi, A.R., Reid, H., and von Scheliha-Dawid, S. (authors). GIZ, Bonn, Germany, IIED, London, UK, and IUCN, Gland, Switzerland.

A. PROGRAMME BACKGROUND AND CONTEXT

1. National context

Mozambique is located in Southeast Africa, bordered by the Indian Ocean to the east, Tanzania to the north, Malawi and Zambia to the northwest, Zimbabwe to the west, and Swaziland and South Africa to the southwest. It is separated from Madagascar by the Mozambique Channel in the east.

The country has a tropical climate with two seasons, a wet season from October to March and a dry season from April to September. Climatic conditions vary depending on altitude. Annual precipitation varies from 500 to 900 mm depending on the region, with an average of 590 mm. Cyclones are common during the wet season. Average temperatures in the northern provinces of Niassa and Cabo Delgado, where this proposal would support interventions, ranged between 19-30 degrees Celsius between 1960-2000 (INGC 2009).

Mozambique's considerable biodiversity holds great promise for tourism. There are 740 bird species, including 20 globally threatened species, and over 200 mammal species endemic to Mozambique, including the critically endangered Selous' zebra, Vincent's bush squirrel and 13 other endangered or vulnerable species. Protected areas of Mozambique include thirteen forest reserves, seven national parks, six nature reserves, three transfrontier conservation areas and three wildlife or game reserves.

Mozambique has grown at approximately 7 percent over the past 20 years, driven by capital-intensive foreign direct investment in mega projects. However, despite the country's impressive GDP growth rate, impact on inclusive human prosperity is insufficient. On the Human Development Index (HDI), in 2014 the country ranked 178 (out of 187 countries). In 2015, the National Institute for Statistics (INE) reported that 46.1 percent of the population lives below the poverty line, while the number of those living in extreme poverty has risen by 5 million and the number of those without access to improved water and sanitation has increased by 3.8 million and 7.3 million, respectively¹. Electricity access rates standing at 39-40 percent, force the majority to rely on forest biomass for energy supply². A high urbanization rate at 3 percent per year is also driving a swift and largely uncoordinated expansion of Mozambique's cities, often in unplanned settlements concentrated on the coast where 60 percent of the population currently resides – while urbanisation is a major pressure, the growth of new urban areas also represents an opportunity to adopt new models for climate resilient, inclusive, low-carbon cities with minimal impact on natural capital assets.

Mozambique's population is young. Approximately 45 percent of the population is aged 15 or under - nearly 13 million people - and by 2040 it is estimated that 38 percent of the population will still be under the age of 15³. Preliminary results of the population census completed during 2017

Figure 1. Mozambique's Provinces

1. Niassa
2. Cabo Delgado
3. Nampula
4. Tete
5. Zambezia
6. Manica
7. Sofala
8. Gaza
9. Inhambane
10. Maputo (city)
11. Maputo



¹ ISS and Pardee Centre 2017, pp. 7

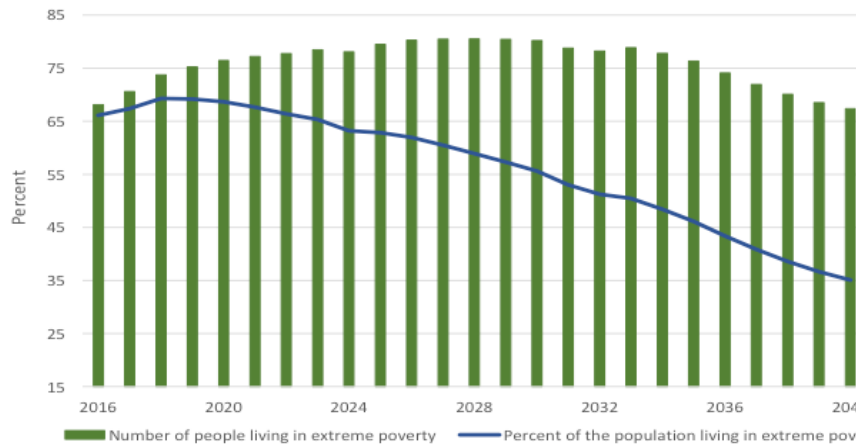
² <https://www.africa-eu-renewables.org/market-information/mozambique/energy-sector/>

³ ISS and Pardee Centre 2017, pp. 13

by the National Institute for Statistics (INE) indicate a total population of 27 million. By 2040, Mozambique may have 53 million people, which would make it the 10th most populous country in Africa⁴. Over 80 percent of the population depend directly on natural capital for their livelihoods, including subsistence farming and artisanal fishing for food, forest biomass for energy, and rivers and lakes for water supply. Continued rapid population growth will put additional strain on public services, natural capital assets and adaptive capacity for climate change.

By 2040 there will be nearly 19 million people in extreme poverty if Mozambique’s current trajectory of development remains unchanged – in other words, without systemic transformation, the absolute number of those in extreme poverty is forecast to remain relatively unchanged between now and 2040⁵.

Figure 2: National poverty projections 2016-2040



Source: IFs version 7.28, historical data from World Bank World Development Indicators (WDI)

Source: ISS and Pardee Centre 2017, pp. 11

About 37.5 percent of children complete primary school, just ahead of Somalia in global rankings⁶. Harnessing Mozambique’s population growth dividend depends on the education system and the capacity of its young entrepreneurs to innovate and create climate resilient businesses to drive lasting, shared wealth creation. Globally, Mozambique ranked 116 out of 132 on the Global Entrepreneurship Index⁷ – improving the weak conditions for entrepreneurship is key to transformation of the trajectory of poverty alleviation and climate adaptation capacity.

Mozambique is endowed with significant non-renewable assets, including deposits of gold, rubies, lithium, heavy sands (titanium), graphite, coal and natural gas. Interestingly, Mozambique has all of the major natural capital inputs (lithium, graphite and soon more low carbon electricity powered by natural gas) required to build batteries, an essential component of future electric powered, low-carbon mobility systems.

Contracts were signed on the 1st of June 2017 to begin natural gas production using a floating liquid natural gas (FLNG) unit offshore from Palma in the Rovuma Basin. The natural gas industry may accelerate investments in built infrastructure and downstream industries, as well as urbanisation trends in northern region of Mozambique. Throughout northern Mozambique gas driven economic activities are expected to heavily influence demographics and ecosystem dynamics, which may result in increased pressure on the country’s natural capital assets. It is important that new industries and built infrastructure be optimized with ecological infrastructure

⁴ Ibid

⁵ ISS and Pardee Centre 2017, pp. 11

⁶ ISS and Pardee 2017, pp. 23

⁷ Global Entrepreneurship Index 2016

– forests influencing the climate resilience of water supply and soils for food production, reefs and mangroves for coastal fisheries and coastal protection – to build climate adaptation capacity.

Both human and climatic pressures are putting an increasing strain on Mozambique’s stock of natural capital assets – its hardy Miombo forests, mighty rivers like the Zambezi and Rovuma, and coastal fisheries in the Indian Ocean. Over harvesting of renewable assets like soils, forests and fisheries, combined with rapidly rising population numbers and the expansion of built infrastructure are resulting in degradation and loss of natural capital assets. Rivers and aquifers are at increasing risk of depletion, coastal areas are at risk of rising sea-levels and salination of aquifers, soils are losing nutrients, forests are disappearing, fisheries are being overexploited, and landscapes and oceans are being polluted. Consequently, the country’s economy, water, food and energy supply and its capacity to adapt to climate change and counter its threats are increasingly at risk. Due to relatively lower adaptive capacity and higher poverty rates Mozambique, like many African countries, is extremely vulnerable to the degradation of natural capital and climate impacts. Enhancing, restoring and protecting natural capital assets, and aligning management strategies with development pathways is a vital enabling factor of climate resilience strategies.

In 2017, Mozambique ranked third among African countries⁸ most exposed to multiple weather-related hazards. Key climate change hazards for Mozambique include drought affecting agriculture harvests and riverine fisheries; rising ocean temperatures affecting coral reef-based fisheries; more intense rains increasing riverine flooding risks; and more intense tropical cyclones, combined with rising sea-levels, increasing coastal flooding risks. Together these climate hazards present serious threats to food security, vulnerable communities’ livelihoods, as well as built infrastructure and human settlements in the northern provinces of Niassa and Cabo Delgado (target Provinces’ for this project).

In addition to climate change hazards, anthropogenic pressure driven by population growth are threatening the capacity of ecosystems to provide goods and services for local communities, and provide livelihood alternatives. The population of Niassa grew from 1,634,162 in 2007 to 1,865,976 in 2017 and is projected to reach 2,569,604 by 2040, and in Cabo Delgado grew from 1,213,398 to 2,333,278 in 2007 and is projected to reach 3,635,695 by 2040⁹. In the 2014-2015 National Poverty and Well-Being Assessments, Niassa was ranked as the poorest province with 60.6 percent of below living below the poverty line¹⁰. Cabo Delgado, especially the coastal areas around Palma where new natural gas industries are growing, faces additional anthropogenic pressures due to inward migration from other provinces in search of jobs.

Compounding these climate hazards and anthropogenic pressures, the weak Government institutions and gaps in climate adaptation knowledge make adaptation capacity building interventions all the more important. Furthermore, currently conventional financial analysis and macro-economic planning systems tend to omit natural capital risks and dependencies in a fragmented project-by-project approach. Thus, economic growth threatens to damage, degrade and deplete natural assets that are central to building human and ecosystem resilience to climate change.

⁸ Global Facility for Disaster Reduction and Recovery, 2017

⁹ National Institute for Statistics, Government of Mozambique 2018.

¹⁰ Ministry of Economy and Finance, Government of Mozambique, 2016.

In Niassa and Cabo Delgado's landscapes, healthy forests provide a range of ecosystem services that are important to build adaptive capacity to climate change. This include soil protection against heavy rains; rainfall regulation reducing drought stress for agriculture and freshwater fishery reproduction processes; biodiversity and eco-tourism benefits as livelihood adaptation alternatives; agro-forestry benefits including food and livelihood adaptation alternatives; and riverine flooding protection for built infrastructure and settlements. In Cabo Delgado's seascapes, healthy mangroves and coral reefs provide a range of ecosystem services that are important to build adaptive capacity to climate change, including fisheries and marine farming for food security; biodiversity and eco-tourism benefits as livelihood adaptation alternatives; coastal flooding protection. Forests, mangroves and coral reefs are vital to the local economies, food security and protection of built infrastructure and human settlements in both provinces.

Without appropriate adaptation interventions, a majority of communities in Niassa and Cabo Delgado province will remain extremely vulnerable to the interacting effects of climate change and ecosystem degradation. This proposal addresses the climate adaptation challenges through a combination of Ecosystem based Adaptation (EbA), economically viable livelihood alternatives with entrepreneurship and blended finance innovations, and institutional knowledge and capacity building.

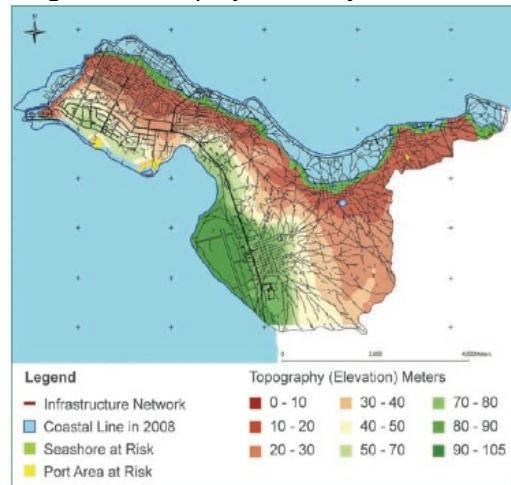
2. Climate change risks and challenges

Mozambique is exposed to a wide range of climate risks due to its position on the inter-tropical convergence zone; dependence on trans-boundary watersheds for over half of annual discharge; reliance of the majority of the population on subsistence rain-fed agriculture and artisanal fisheries; extensive lowlands below sea level; and long shoreline¹¹.

In 2013, Mozambique ranked number 10 on the global Climate Risk Index. Although cyclones can be common in Mozambique, their intensity and frequency have increased. Furthermore, six of the largest cities in the country, accounting for close to 60 percent of the population, are situated on the coast and exposed to the risks of sea-level rise, salination of groundwater, erosion.

With approximately 50 percent of Mozambique's territory below 100m elevation the country is very exposed to sea level rise (SLR) risks. By 2050, projections of cumulative land loss due to SLR range between 2,655 and 4,744 km² – without adaptation strategies, this could force close to one million people to migrate to higher ground¹² in the northern region of the country.

Figure 3: Pemba, provincial capital of Cabo Delgado – SLR projections by 2050

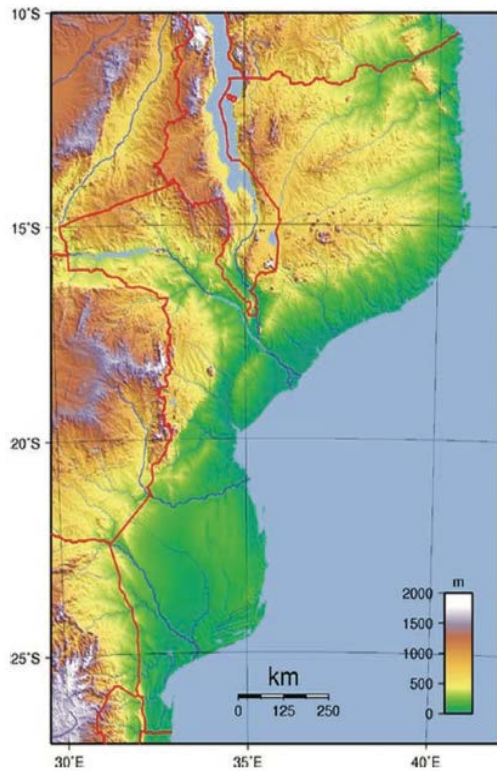


Source: INGC 2009, Synthesis Report – study on the impact of climate change on disaster risk in Mozambique

¹¹ MICOA 2012 National Climate Change Adaptation and Mitigation Strategy

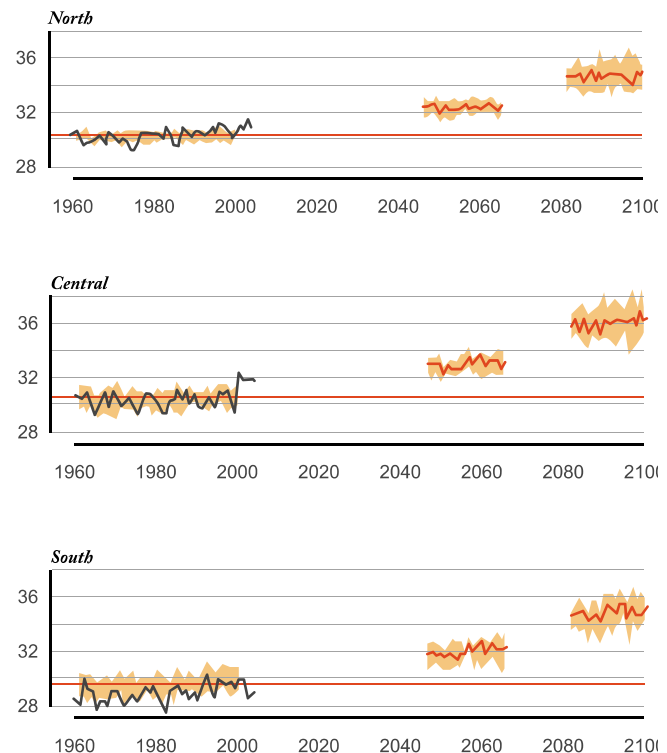
¹² World Bank 2010 The economics of adaptation to climate change in Mozambique

Figure 4: Topography of Mozambique



Source: INGC 2009, Synthesis report. INGC Climate Change Report: Study on the impact of climate change on disaster risk in Mozambique

Figure 5: Maximum temperature trends for Mozambique 1960-2100



Source: INGC 2009, Synthesis Report – study on the impact of climate change on disaster risk in Mozambique

The National Climate Change Adaptation and Mitigation Strategy 2012 highlights that low national adaptive capacity makes Mozambique vulnerable to climate risks already observed through “changes in temperature and precipitation patterns, sea-level rises and the increase in the frequency and intensity of extreme climatic events, such as droughts, floods and tropical cyclones, which affect different regions of the country every year. These events result in the loss of human lives; the destruction of infrastructure; increased dependency on international support; food price increases; and the destruction of ecosystems”¹³.

The National Disaster Management Institute (INGC) SLR projections by 2050 have highlighted risks of significant losses of existing coastal settlements in Pemba, the provincial capital of Cabo Delgado. INGC (2009) projections also covered Beria and Maputo but preceded the discovery of natural gas reserves off Palma in northern Mozambique, which is set to become another strategic, fast growing urban centre. Although Palma is on an elevated location, many surrounding fishing communities and the future natural gas industrial complex are lying 1-2 metres above sea level – similar to the scenario faced by Pemba.

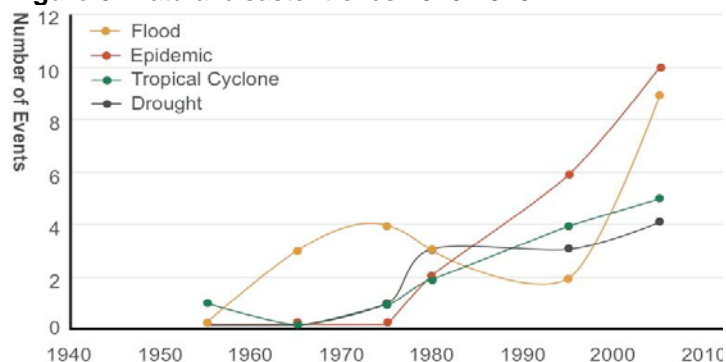
Leading up to 2050 climate change could lead to a 2–4 percent decrease in yields of major crops and higher evapotranspiration rates (9-13 percent by 2060) combined with erosion and deforestation will lead to reduced water recharge of aquifers, affecting rural wells, municipal water supply and irrigation (NCEA, 2015).

¹³ ibid

The graphs above illustrate temperature trends by region over the last 55 years. Temperature variation on the up-ward trend is being experienced in the South of country. Relatively higher temperature increases in the central region of Mozambique by 2100, combined with increasing demand for water driven by population growth, may force migration of communities, food production and industry into the northern provinces of Niassa and Cabo Delgado where marginally lower increases in temperatures are expected over the same period.

Niassa and Cabo Delgado (target Provinces' for this project) have a vast amount of natural assets – forest cover, mangrove forests and two of the country's biggest game parks etc. Natural gas stocks discovered offshore from Palma is driving expansion of built infrastructure and urbanisation, along with population migration to Niassa and Delgado. If the developments are not well planned and coordinated, it will lead to unsustainable exploitation of other natural resources in an attempt to sustain human settlement and other related activities, which could in turn reduce climate change adaptation capacity.

Figure 6: Natural disaster trends 1940-2010



Source: INGC 2009, Synthesis Report – study on the impact of climate change on disaster risk in Mozambique

Natural disaster trends have been gradually rising over the period 1950-2010 and may intensify as climate changes accelerate. Deforestation trends observed in Mozambique, if unchecked may increase the impact of floods, droughts and public health epidemics. A recent paper published in Nature Communications¹⁴ suggests that higher upstream tree cover is associated with lower probability of diarrhoea downstream, especially for rural households but not for urban households. Increasing floods and rising temperatures may also favour mosquito reproduction with higher risk of malarial outbreaks.

3. Natural capital risks and challenges

Up to 82 percent of the population depend directly on forest biomass for energy supply¹⁵ – forests are the powerhouses of Mozambique's energy systems. However deforestation of Mozambique's Miombo forests is driven by small holder agricultural expansion (89,407 ha/year; 65 percent), growth of urban areas and infrastructure development (16,285 ha/year, 12 percent), unsustainable logging (11,412 ha/year, 8 percent), charcoal production (9,027 ha/year, 7 percent), amongst other factors corresponding to a loss of up to 120,000 ha of forest/year¹⁶ – an area similar to the surface area of New York City and Paris combined.

Left unchecked, there is a risk that deforestation trends may increase around the major development corridors of Pemba-Lichinga Corridor in the target provinces of Niassa and Cabo Delgado, and the link to the Mtwara Corridor connecting Cabo Delgado and southern Tanzania.

¹⁴ Ricketts et al 2017 Watershed condition predicts rural child health

¹⁵ MITADER 2016 National REDD+ Strategy, pp. 1

¹⁶ MITADER 2016 National REDD+ Strategy, pp. 1

Given Mozambique’s high exposure to climate risks and low adaptive capacity, deforestation trends give cause for concern. In addition to the loss of important habitat and direct threats to biodiversity, deforestation will deplete carbon stocks, increase soil erosion, reduce water quality through higher sedimentation rates, reduce water flow regulation and increase flooding, and change precipitation patterns affecting agricultural productivity. Given forests’ role in hydrological cycles and Mozambique’s heavy dependence on forests for cooking fuel, hydropower for electricity supply (accounting for over 85 percent of electricity generating capacity) and rain-fed agriculture for food production, investing in forest health is central to enhancing Mozambique’s climate change adaptation capacity.

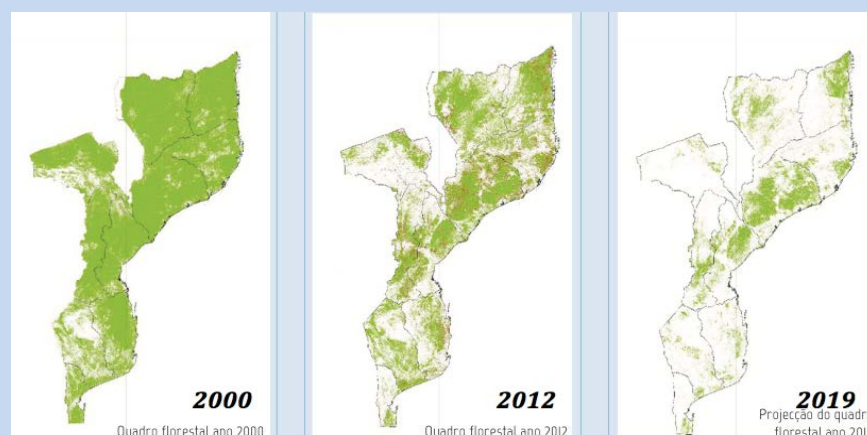
Where forests are cleared for agriculture, soils are the next natural assets at risk affecting the climate resilience of food production systems. A study completed by the European Space Agency of Mozambique’s lands discovered that 42 percent of soils are degraded and close to 19 percent are actively undergoing degradation¹⁷.

Fisheries are coming under increasing pressure too and

climate change may exacerbate that pressure by increasing ocean temperatures, damaging the health of marine reefs central to coastal fisheries’ reproduction cycles. Over the period 2002 to 2007 the number of artisanal fishers involved in marine fisheries doubled, leading to overexploitation of artisanal fisheries¹⁸. The combination of decreasing soil health, decreasing fish stocks, increasing atmospheric and ocean temperatures, changing precipitation patterns and rising population growth could bring serious systemic food, water, energy and climate change problems ahead. Without any changes to these trajectories dependency on food imports will increase. Globally, as climate change intensifies price volatility for food products is likely to intensify and where dependence on imports is high national food and social systems’ may become increasingly unstable.

Recognizing the value of biodiversity, Mozambique has focused on conservation measures, especially in-situ, which is demonstrated by the fact that 26 percent of the country is covered by Conservation Areas (CAs). The rapid economic development of the country over the past decade,

Box 1: Erosion of natural climate resilience assets – Mozambique’s forests



Source: Ministry of Land, Environment and Rural Development 2016

The links between forest health, watershed flow regulation, rainfall patterns, soil health, carbon cycles, agricultural systems and coastal fisheries are often cited. Further loss of forests could affect rain-fed agriculture, urban and rural community water supply, the performance of hydroelectric installations and the productivity of coastal fisheries.

¹⁷ World Bank 2017 LAUREL consultation meeting, (September 28th 2017)

¹⁸ Ministry of Fisheries 2014 Artisanal Fisheries and Climate Change Project

driven by investment in built infrastructure, extractives, agriculture, forests (forest plantations of exotic species and selective logging of native species) and fisheries, has resulted in considerable changes of natural ecosystems and biodiversity.

While investments are needed to protect, enhance and restore Mozambique's CAs, meeting the demands of a rapidly growing population under a changing climate will require a regionally explicit systems approach to managing natural capital in the economy. Natural capital assets of strategic public interest—ecological infrastructure—including rivers, forests, soils, mangroves, coastal reefs deliver valuable food, water, energy and climate resilience services to communities and businesses, and form a network of interconnected structural elements in a landscape or seascape. Under the Natural Capital Program, natural capital and climate assessments will identify spatially explicit, legally recognized Resilient Ecological Infrastructure Networks, developed as assets under the stewardship of local communities. Safe harvesting and management parameters for climate adaptation will be set for Resilient Ecological Infrastructure Networks to maintain the productivity and resilience of natural assets to adapt to climate change and meet the increasing demands of a growing population. Under this approach, Resilient Ecological Infrastructure Networks present a systemic way to transform the architecture of the economy to direct financial capital flows towards climate resilient, inclusive natural capital wealth accumulation.

4. Drivers of change and sub-causes

Several forces are driving large-scale change in Mozambique's ecosystem health and climate resilience, which can be managed with visionary policy decisions today.

Major drivers of change:

- a. Population growth - Mozambique's population of 27m could reach 53m by 2050¹⁹;
- b. Urbanisation - the majority of Mozambicans will live in cities by 2030;
- c. Climate - precipitation and temperatures will increase flooding, drought and sea level;
- d. Consumption - Africa's middle class is expected to grow from 355 million in 2010 to 1.1 billion by 2060²⁰ and increasing the rate of draw down on stocks of natural capital;
- e. Built infrastructure - Lifting millions out of poverty and meeting rising consumption trends will require big investments in roads, bridges, power, water and sanitation systems.

The scale and growth of threats to a narrowing stock of natural capital assets reveal the urgent need for a more systematic and an integrated approach. Appropriate incentives and optimisation of priorities between vertical actors and horizontal sectors are required to drive systemic change. The scale of interventions cannot be limited to CAs because the services and goods provided by ecological infrastructure span much larger areas of watersheds, forests and coastlines. Investing in ecological infrastructure is a systems oriented approach to building capacity for adaptation to climate change and provides people with what they need to survive and thrive, underpinning socio-economic development and jobs, especially in developing countries.

Problem: sub-causes underpinning the drivers of change

Incentives & Policy

¹⁹ ISS & Pardee IFs 2017 Mozambique by 2040, pp. 13

²⁰ WWF & AFDB 2015 African Ecological Futures, pp. 5

- a. Prevailing fiscal policies and market signals drive short-termism and a linear draw-down on natural assets—there are no incentives to invest in natural capital as systems level.
- b. Absence of visible, spatially explicit, publically accessible information on ecological infrastructure risks and investment opportunities.
- c. Weak natural capital tenure, and no risk and benefit redistribution systems.
- d. Safeguard systems are reactive and do not address cumulative impacts, considering natural capital benefits and risks too far downstream (as opposed to up-front).
- e. Fragmented institutional arrangements and barriers to policy integration inhibit integrated systems scale management of natural capital benefits and risks and volatility.

Capability & Knowledge

- a. Insufficient open source natural asset data at all administrative levels, on the location, risks, dependencies and status of natural capital and climate resilience.
- b. Inadequate scenario assessment tools appropriately adjusted to all administrative levels.
- c. Insufficient skilled staff in public sector knowledge and planning roles to manage and communicate interdependent natural capital and climate dependencies and risks.
- d. Weak government/private sector joint de-risking for natural capital and climate resilience.
- e. Low awareness among youth and women entrepreneurs, private sector, investors, public policy makers and general public interdependent natural capital and climate dependencies and risks.

Currently market incentives encourage uncoordinated independent actors to increase natural capital extraction effort until the asset—for example coastal fisheries, freshwater aquifers, hydrocarbon reserves, arable soils and natural forests—are exhausted. Thus spatial patterns of development are led by demographics, mega-projects (such as mines, industrial complexes and built infrastructure) and conversion of natural systems for community subsistence (small holder farmers and artisanal fisheries). When natural assets are exhausted, actors then move on to open new frontiers. However, there are few new frontiers left to open. On a crowded planet, natural capital scarcity is becoming the limiting factor to continued economic growth, not physical or financial capital. The cumulative impacts that occur by allowing development trajectories to be led by demographics, multiple individual projects and undirected expansion of subsistence activities results in the degradation and exhaustion of ecological infrastructure vital to the resilience of water, energy and food systems.

The lack of incentives for investments in natural capital and the absence of systems thinking in national planning frameworks drive public and private sector transactions that erode natural assets fundamental to climate resilient, thriving communities and long-term business value. In social-ecological systems, from subsistence fishing and farming communities, to large-scale industries and global policy formulation, natural capital benefits, costs and risks are underrepresented and access to knowledge is fragmented and incomplete. This is destroying the ecological infrastructure networks that are fundamental to adaptation, economic productivity and healthy societies. Two compounding factors include (1) the temporally and spatially diffuse distribution of costs, benefits and risks among different actors, and (2) the cumulative impact of multiple individual projects that cannot be managed by safeguard systems designed to react to investment plans rather than systematically lead investment planning. Natural capital is not measured, not legally managed under local tenure arrangements and not managed to optimise inclusive societal outcomes; it is a

problem magnified by a globalised economy and a systemic barrier to realising the global Sustainable Development Goals (SDGs) and Paris Agreement.

Government of Mozambique Natural Capital Program

Meeting the combined demands of a rapidly growing population and threats of multiplying climate hazards requires a regionally connected systems approach to managing natural capital in the economy. Complementing conventional financial analysis, employing natural capital assessments will reveal the underlying networks of ecological infrastructure—such as rivers, soils, forests and coastal reefs—that affect the long-term risk-return profile of investments. Ecological infrastructure forms a network of interconnected structural elements in a landscape or seascape that delivers valuable food, water, energy and climate resilience services to communities and businesses.

Going forward, Mozambique requires assistance to identify strategic ecological infrastructure, formulate ecological infrastructure enhancement incentives, run performance management models and enforce policies at the scale of watersheds, landscapes and seascapes systems. Equal access to locally relevant knowledge, informed and empowered public participation, strong state capability for policy enforcement and alignment of actors' interests for the long-range path of inclusive prosperity are all necessary conditions to avoid negative outcomes for society. Thus, in response, the Government has developed a national Natural Capital Program, under the co-leadership of the Ministry of Economy and Finance together with the Ministry of Land, Environment and Rural Development. The Natural Capital Program is a keystone initiative under the Government's vision set out in its Green Economy Roadmap to become an "inclusive middle income country by 2030, based on rational use of natural capital to guarantee development within planetary limits." The goal of the Natural Capital Program is to shift the economic growth and investment paradigm towards harnessing and enhancing Resilient Ecological Infrastructure Networks to optimize design and operation of built infrastructure, industries and cities for lasting, shared human prosperity, economic productivity and climate resilience.

The Government of Mozambique's national Natural Capital Program—starting under phase one in the provinces of Niassa and Cabo Delgado—includes natural capital and climate assessments that will identify spatially explicit, legally recognized REINs, under the stewardship of local communities. Safe harvesting and management parameters for climate adaptation will be set for REINs to maintain the productivity and resilience of natural assets to adapt to climate change and meet the increasing demands of a growing population. Under this approach, REINs present a systemic way to transform the architecture of the economy to direct financial capital flows towards climate resilient, inclusive natural capital wealth accumulation. In essence, the Government's investment in REINs under the Natural Capital Program, represents an Ecosystem based Adaptation approach to help people adapt to climate change by pro-actively investing in biodiversity and ecosystem services, complemented by interventions aimed at improving and diversifying community livelihoods in collaboration with private sector, and building institutional adaptation capacity.

B. PROGRAMME OBJECTIVES

Goal: Harness resilient ecological infrastructure to transform built infrastructure, cities, communities, industries and ecosystems into inclusive, productive and climate resilient systems.

Impact:

- 1. Human prosperity:** increased blended finance and women/youth entrepreneurship opportunities in resilient energy, water supply, irrigation and food systems, and tourism, housing and transport for priority rural areas and future urban growth poles.
- 2. Ecosystem productivity & resilience:** improved climate resilience and productivity of ecological infrastructure for the performance of built infrastructure and ecosystems vital to rural and urban energy, water supply, irrigation and food systems, and tourism, housing and transport.
- 3. Institutional capability:** enhanced private and public sector anticipation and management of climate-related hazards and threats, and ability to form and manage appropriate incentives to harness the benefits of ecological infrastructure.

Objectives

Component 1 – Increase blended finance and women/youth entrepreneurship opportunities for climate resilient investments in technology, energy, water, and food systems, and forestry, tourism, housing and transport infrastructure, supporting sustainable livelihood diversification and job growth. *Aligned with Adaptation Fund Results Framework Outcome - Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas*

Component 2 – Improve the climate resilience and productivity of ecological infrastructure and technology vital to rural and urban energy, water, housing, transport and coastal protection, and agriculture, fisheries and tourism. *Aligned with Adaptation Fund Results Framework Outcomes - Outcome 4: Increased adaptive capacity within relevant development sector services and infrastructure assets, & Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress*

Component 3 – Strengthen private sector and public sector institutional climate-risk knowledge, technology and integrated planning capabilities to harness ecological infrastructure to improve adaptive capacity of ecosystems and human livelihoods. *Aligned with Adaptation Fund Results Framework Outcomes - Outcome 1: Reduced exposure to climate-related hazards and threats, Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses, Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level, & Outcome 7: Improved policies and regulations that promote and enforce resilience measures.*

Table 1. Overview of Adaptation Actions Addressing Climate Risks

Climate Change, Risks and Impacts		Adaptation Actions		
Climate Change	Risks and impacts (Note: overlapping interactions & feedback loops)	Component 1 – Increase blended finance and women/youth entrepreneurship opportunities	Component 2 – Improve the climate resilience and productivity of ecological infrastructure (EbA)	Component 3 – Strengthen private sector and public sector institutional climate-risk knowledge
I. Landscapes Higher atmospheric temperatures, reduced frequency of rainfall, higher intensity of rainfall	<ol style="list-style-type: none"> Higher temperatures and reduced frequency of rainfall cause drought, crop failure and reduced agricultural harvests threatening food security – further potential interacting impacts: compaction and hardening of topsoil leading increases intensity of flooding and reduces groundwater recharge; expansion of areas under cultivation leading to deforestation with additional impacts on flooding, topsoil stability and water retention capacity (reducing groundwater recharge); farming intensification through shorter crop rotation cycle, with higher risks of increased soil erosion and reduced soil nutrient content; increasing pressure on freshwater and ocean fisheries threatening fish stocks; human migration to higher elevations, increasing human pressure on ecosystems in concentrated geographic areas. Higher intensity of rainfall causes increased riverine flooding threatening human settlements and built infrastructure – further potential interacting impacts causing: impaired access to markets for agricultural producers reduces rural incomes; physical damage/ loss of human dwellings entrenches poverty; increased public built infrastructure disaster recovery costs affects the state’s capacity to provide other essential services (ex. 	<ol style="list-style-type: none"> Agro-forestry (timber and food) value chains, entrepreneurship and private sector partnerships. Freshwater fisheries value chains, entrepreneurship and private sector partnerships. Conservation Area eco-tourism entrepreneurship and private sector partnerships. Ecological infrastructure investment and management with tech-entrepreneurs and blended finance private sector partnerships. 	<ol style="list-style-type: none"> Protect and enhance strategic water source areas (managed under REINs) supporting ground-water recharge during the rainy season and increased base flow in dry seasons. Protect and enhance freshwater fishery no-take zones and reproduction areas (managed under REINs). Protect and enhance strategic soil conservation areas (managed under REINs) reducing soil erosion and water sedimentation loads. Protect and enhance strategic flood regulation areas (managed under REINs) reducing damage to settlements and built infrastructure. 	<ol style="list-style-type: none"> Build public sector scientific research and knowledge on REINs. Public sector and community leaders—prioritising women and youth—education and awareness on the role of REINs for adaptation. Private sector—prioritising women and youth— education and awareness on the role of REINs for adaptation. Virtual Open Knowledge Hubs for increased anticipation and public participation in the formulation of actions reducing exposure to climate-related hazards and threats using REINs. Creation of public sector institutional units and data systems to manage REINs; and south-south knowledge exchanges. Reforming National Planning and Budget System annual and five planning and policy formulation; reforming tenure arrangements and regulations that

	health, education, social protection), reducing human adaptive capacity; increased topsoil erosion and a rise in river sedimentation loads affecting water storage capacity and water quality for irrigation and settlements, coastal fisheries reproduction and coral health, and coral dive-tourism.			incentivise and enforce REINs. 7. REINs Management Platforms, blended finance Investment Blueprints, and feasibility Study for an Ecological Infrastructure Trust Fund to sustain Management Platforms with public sector revenues.
II. Seascapes Higher ocean temperatures and sea-level rise	<ol style="list-style-type: none"> Higher ocean temperatures cause coral bleaching threatening food security and dive tourism – further potential interacting impacts: loss of coastal protection provided by coral reefs leading to increased storm surge damage to coastal settlements and built infrastructure; reductions in fishery habitat, reduced fishery species diversity and abundance, and reduced fish catch, driving human migration and intensifying reliance on other ecosystems (increasing pressure on mangroves, terrestrial forests and soils). Sea-level rise causes increased coastal flooding – further potential interacting impacts: salt water intrusion increases salination of aquifers affecting agriculture irrigation and water supply for human settlements; impaired access to markets for fishing communities and coastal agricultural producers reduces rural incomes; physical damage/ loss of human dwellings entrenches poverty; increased public built infrastructure disaster recovery costs affects the state’s capacity to provide other essential services (ex. 	<ol style="list-style-type: none"> Coastal eco-tourism entrepreneurship and private sector partnerships. Marine farming value chains, entrepreneurship and private sector partnerships. Ecological infrastructure (reefs and mangroves) tech-entrepreneurship and private sector partnerships. 	<ol style="list-style-type: none"> Protect and enhance strategic coral climate refugia areas (managed under REINs) for coral larval recruitment and recovery of most vulnerable reefs. Protect and enhance mangrove and coral reef strategic fishery no-take zones and reproduction areas (managed under REINs). Protect and enhance mangrove and coral reef strategic coastal flooding and erosion protection areas (managed under REINs). 	<ol style="list-style-type: none"> REINs Community Tenure Systems designed REINs establishing community management rights, management objectives, and performance-based reward mechanisms. Built infrastructure project technical studies and Urban Planning Frameworks to reduce exposure to climate-related hazards and threats to REINs, improving the resilience and cost-effectiveness of basic human services (water and sanitation, housing, transport).

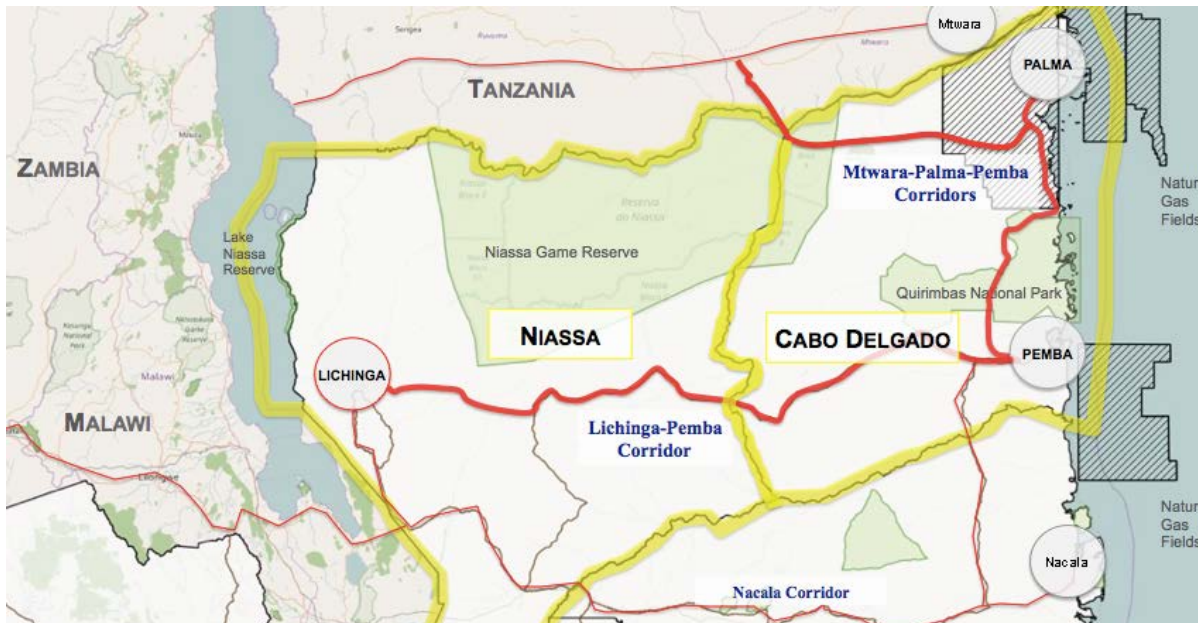
	health, education, social protection), reducing human adaptive capacity; human migration to higher elevations, increasing human pressure on ecosystems in concentrated geographic areas.			
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Implementation phases

Under phase 1, Mozambique's northern provinces of Niassa and Cabo Delgado have been chosen by the Government to begin the Natural Capital Program, which will eventually expand to national scale in subsequent steps of funds mobilization. This proposal will support Phase 1 to develop new national planning and investment systems aligned and optimised with Resilient Ecological Infrastructure Networks. Following the Phase 1 provinces, with new knowledge generated and institutional capacity improved, activities will be extended to other provinces.

Niassa has a population of 1.7 million people and a surface area of c. 129,000km². Cabo Delgado has a population of 1.8 million and a surface area of c. 83,000km² and includes 750km of coastline. Delimiting the shared border with Tanzania, the Rovuma River traverses Niassa and Cabo Delgado and enters the Indian Ocean near the coastal village of Palma. Offshore from Palma, the 4th largest proven natural gas reserves in the world were recently discovered and production is expected to begin by 2025.

Figure 3: Target provinces of Niassa and Cabo Delgado (borders in yellow), with major development corridors of Lichinga-Pemba and Mtwara-Palma-Pemba (in bold red), protected areas (in green) and natural gas fields (in striped black)



C. PROGRAMME COMPONENTS AND FINANCING

Table 2. Components and major budget lines

Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
Component 1 Increase blended finance and women/youth entrepreneurship opportunities in ecological infrastructure and climate resilient water and food systems, forestry, eco-tourism, housing and transport infrastructure, supporting sustainable livelihood diversification and job growth	1.1 Ten (10) blended finance proposals worth a combined total of fifty million USD (\$50 million) originated by consortiums (private sector, entrepreneurs, DFIs, impact investors, banks, CSOs, academia and Government) to access climate funds for investments in climate adaptation technology and climate resilient energy, water, and food systems, and forestry, tourism, housing and low-carbon electric transport targeting the provinces of Niassa and Cabo Delgado	1.1 Blended finance partnerships increase the pipeline of bankable climate-smart projects to access climate funds for investments in climate adaptation technology and climate resilient energy, water, and food systems, and forestry, tourism, housing and low-carbon electric transport	\$2,500,000
	1.2 Twenty (20) entrepreneurial women and youth start-ups* initiated in the provinces of Niassa (10) and Cabo Delgado (10) open to the following areas of business: a) Water supply and water access; b) Freshwater fisheries value chains; c) Agro-forestry (food and timber) value chains; d) Eco-tourism in Conservation Areas; e) Climate resilient housing; f) Transport infrastructure climate resilience; g) Finance and technology to enable above businesses *Leveraging and collaborating with existing start-up platforms and initiatives including for example Seedstars, Lionesses of Africa, SLUSH, Standard Bank's Incubator in Maputo, the Netherlands Embassy's Orange Corners incubator initiative in Maputo, and the Tony Elumelu Foundation Entrepreneurship Forum, amongst others.	1.2 Entrepreneurs drive expansion of jobs and improved livelihoods opportunities in energy, water, food (agriculture and fisheries), forestry, tourism, housing, low-carbon electric transport, finance and technology, supporting the enhancement and protection of Resilient Ecological Infrastructure Network	

<p>Component 2</p> <p>Improve the climate resilience and productivity of ecological infrastructure and technology vital to rural and urban energy, water, housing, transport and coastal protection, and agriculture, fisheries and tourism</p>	<p>2.1 Five (5) Resilient Ecological Infrastructure Networks—energy, freshwater, coasts, soils, forests—Management Models activated and diffused for Niassa and Cabo Delgado for climate resilience of twenty one (21) Municipal and urban growth points, rural communities in a combined total of thirty one (31) Districts, and strategic industries (extractives, agriculture, tourism) benefiting a combined total of three and a half million (3.5 million) people across both provinces for:</p> <p>a) Water and sanitation services;</p> <p>b) Climate resilient housing;</p> <p>c) Transport infrastructure climate resilience; d) Freshwater fisheries value chains;</p> <p>e) Agro-forestry (food and timber) value chains;</p> <p>f) Eco-tourism in Conservation Areas.</p>	<p>2.1 Resilient Ecological Infrastructure Networks Management Models enable community-driven reinvestment and innovation to maintain the productivity and resilience of ecological infrastructure for effective, long-term adaptation to climate change</p>	<p>\$3,000,000</p>
	<p>2.2 Community Tenure Systems completed for combined total of thirty one (31) Districts for both Niassa and Cabo Delgado Provinces for communities and local stewards of five (5) types of Resilient Ecological Infrastructure Networks—energy, freshwater, coasts, soils, forests—incentivising community and private sector enhancement, restoration and protection of Resilient Ecological Infrastructure Networks, including all fifteen (15) Districts of Niassa and all sixteen (16) Districts of Cabo Delgado Province</p>	<p>2.2 Empowerment of local communities and stewards to capture dividends flowing from Resilient Ecological Infrastructure Networks, diversifying livelihoods and sources of income for vulnerable people in targeted areas</p>	
	<p>2.3 One (1) National and two (2) Provincial (Niassa & Cabo Delgado) public communications and awareness programs on the role of Resilient Ecological Infrastructure Networks in the climate resilience of food, water and energy systems, communities, cities and industry and built infrastructure</p>	<p>2.3 Public awareness on the role of Resilient Ecological Infrastructure Networks in food, water and energy systems and climate resilience is significantly improved</p>	

<p>Component 3</p> <p>Strengthen private sector and public sector institutional climate-risk knowledge, technology and integrated planning capabilities to harness ecological infrastructure for climate resilience</p>	<p>3.1 Five (5) spatially explicit, temporally dynamic Resilient Ecological Infrastructure Networks—energy, freshwater, coasts, soils, forests—identified for Niassa and Cabo Delgado for climate resilience of food, water and energy systems serving a combined total of twenty one (21) Municipal and urban growth points, rural communities in a combined total of thirty one (31) Districts, and strategic industries (extractives, agriculture, tourism) benefiting a combined total of three and a half million (3.5 million) people across both provinces.</p>	<p>3.1 Improved scientific and technical knowledge on Resilient Ecological Infrastructure Networks for the identification, prioritization and implementation of adaptation actions vital for climate resilience and productivity of energy, food and water systems serving cities, communities and industries.</p>	<p>\$3,000,000</p>
	<p>3.2 One hundred (100) public sector and community leader representatives—prioritising women and youth drawn from Niassa and Cabo Delgado, in particular from local CSOs, towns and municipal authorities, and district authorities for technology, water, energy, infrastructure, climate, agriculture and fisheries—capacity built to undertake scenario based planning and experiential (simulation) of social, climate and economic risks and dependencies with Resilient Ecological Infrastructure Networks.</p>	<p>3.2 Public sector and community leaders’ awareness, institutional and technical capacities and human skills strengthened to identify, prioritize, implement, monitor and evaluate adaptation actions reducing exposure to climate-related hazards and threats.</p>	
	<p>3.3 Two hundred (200) Mozambican private sector representatives—prioritising women and youth entrepreneurs drawn from 9 strategic thematic areas (1. Extractives, 2. Construction, 3. Fisheries 4. Agriculture, 5. Forestry, 6. Energy, 7. Water, 8. Technology and 9. Finance)—engage in learning exchanges with pioneering private sector representatives from at least five (5) other south-south partner countries visiting Mozambique, improving their capacity for investments in climate adaptation technology and ecological infrastructure</p>	<p>3.3 Private sector—prioritising women and youth—awareness and technical capacities to identify climate risks and formulate investments in climate adaptation technology and ecological infrastructure is significantly improved</p>	
	<p>3.4 One (1) Virtual Open Knowledge Hubs—including one (1) website and one (1) matching civic-technology app—for national Resilient Ecological Infrastructure Networks, serving the two (2) provinces of Niassa and Cabo Delgado, with a performance dashboard and early warning system accessible to all CSOs, government, media, academia and private sector actors at a scale to suitable to decision makers at local level.</p>	<p>3.4 Increased anticipation and public participation in the formulation of actions reducing exposure to climate-related hazards and threats and transfer of climate-smart technologies</p>	
	<p>3.5 Three (3) Knowledge Management Units with three (3) risk management experts in each (finance, climate and ecological) for Resilient Ecological Infrastructure Networks, one (1) embedded in</p>	<p>3.5a Public sector institutional and technical capacities and data systems strengthened to identify, prioritize,</p>	

	<p>the Ministry of Economy and Finance Provincial Directorates in Niassa (Lichinga) and one (1) in Cabo Delgado (Pemba), managed by one (1) lead unit at national level in the Ministry of Economy and Finance (Maputo).</p>	<p>implement, monitor and evaluate Resilient Ecological Infrastructure Networks for climate change adaptation strategies and risk management measures.</p> <p>3.5b Multi-sector (Government, private sector, CSOs and communities and academia) knowledge exchange and joint planning efforts strengthened to monitor and manage Resilient Ecological Infrastructure Networks for climate change adaptation strategies and risk management measures.</p>	
	<p>3.6a Five (5) Management Models designed for Resilient Ecological Infrastructure Networks—energy, freshwater, coasts, soils, forests—and one (1) Feasibility Study for an Ecological Infrastructure Trust Fund to sustain Management Models.</p> <p>3.6b Five (5) Community Tenure Systems designed for Resilient Ecological Infrastructure Networks—energy, freshwater, coasts, soils, forests—establishing community management rights, management objectives, and performance reward mechanisms.</p> <p>3.6c One (1) National Planning and Budgeting Systems (SNPO) overhaul to integrate Management Models and Community Tenure Systems for Resilient Ecological Infrastructure Networks.</p> <p>3.6d One (1) national planning and policy Stress Testing Tool for Knowledge Management Units to integrate Resilient Ecological Infrastructure Networks in all levels of Annual and 5-Year Government Socio-Economic Plans for all sectors.</p>	<p>3.6 Improved national planning and development policies, data systems, tenure arrangements and regulations incentivise and enforce climate adaptation actions by communities, government and private sector actors</p>	
	<p>3.6e One (1) data-system for Resilient Ecological Infrastructure Networks integration in System of National Accounts (SNA).</p>		

	<p>3.6f Two (2) National Territorial Development Plan (terrestrial, marine, freshwater) overhauls, one (1) for Niassa Province and one (1) for Cabo Delgado Province—managed by the Ministry of Land, Environment and Rural Development—to integrate Resilient Ecological Infrastructure Networks in spatial territorial zoning systems.</p> <p>3.6g One (1) Strategic Environmental Assessment (SEA) system and one (1) overhaul of the Environmental Impact Assessment system to de-risk climate and ecological infrastructure factors in investment projects through the national safeguard systems.</p>		
	<p>3.7a Five (5) groups of built infrastructure—roads, ports, power, dams for water supply and irrigation for agriculture—technical studies demonstrating the optimal prioritisation and alignment of built infrastructure investments for Resilient Ecological Infrastructure Networks performance.</p> <p>3.7b One (1) Regional Urban Planning Framework for Municipalities and urban growth points’ basic human services investment plans for optimal alignment with Resilient Ecological Infrastructure Networks at regional scale for Niassa and Cabo Delgado and transboundary dynamics (trade, climate, ecology).</p> <p>3.7c Twenty eight (28) Municipal and urban growth point Local Urban Planning Frameworks for optimal alignment with local scale Resilient Ecological Infrastructure Networks.</p>	<p>3.7a Reduced exposure to climate-related hazards and threats to Resilient Ecological Infrastructure Networks stemming from built infrastructure systems.</p> <p>3.7b Reduced exposure to climate-related hazards and threats to built infrastructure, provided by Resilient Ecological Infrastructure Networks (e.g. coastal protection, riverine flood protection).</p> <p>3.7c Reduced exposure to climate-related hazards and threats to Resilient Ecological Infrastructure Networks stemming from Municipal and urban growth point expansion and improved basic human services.</p>	
	Programme Execution cost (Government, AfDB & WWF)		\$ 807,500
	Total Project/Programme Cost		\$9,307,500
	Programme Cycle Management Fee charged by the Implementing Entity (Government, supported by WWF)		\$691,900
	Amount of Financing Requested		\$9,999,400

Projected Calendar:

Milestones	Expected Dates
Start of Project/Programme Implementation	October 2018
Mid-term Review (if planned)	June 2021
Project/Programme Closing	June 2024
Terminal Evaluation	December 2024

PART II: PROGRAMME JUSTIFICATION

A. Describe the 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.

Actions to systematically identify, manage, enhance, restore and maintain ecological infrastructure at regional socio-ecological systems scale must be ramped up. The three project components are aligned to this goal and structured around building institutional capacity, ecosystem resilience, and meeting financing and entrepreneurial innovation needs for systemic climate adaptation capacity. Harnessing and enhancing Resilient Ecological Infrastructure Networks will enhance Mozambique's systemic adaptive capacity at community level, industrial level and city level, from local up to regional scales.

Natural capital and climate assessments conducted by MITADER, with technical support from WWF, South Africa's Council for Scientific and Industrial Research and Columbia University, will spatially and temporally identify REINs, their adaptation and livelihood benefits (ex. coastal protection, riverine flooding protection, soil protection, water supply and quality, fisheries productivity) and the main dependent beneficiary groups, including communities, businesses, cities and industries.

Management Platforms for REINs, co-led by communities, local government and private sector, will set management objectives and safe climate adaptation operating parameters for harvesting and use. Where REINs benefits can be equitably and adequately paid for by beneficiary groups through a financial transfer mechanism, those benefits will be transferred to REINs community stewards, identified under Community Tenure Systems. REINs blended finance investment blueprints will be developed to sustain Management Platforms for effective management of REINs and their benefits. Where REINs benefits cannot be equitably and adequately paid for by beneficiary groups, then options to finance REINs through a national Ecological Trust Fund will be explored. The most suitable type of Management Platform will depend on the geographic scale of REINs; population density and poverty rates of communities living within REINs and empowered through REINs Community Tenure Systems; and the need, willingness and ability to pay for REINs benefits by different beneficiary groups.

Approaches to EbA are still early-stage, though rapidly evolving. The framework for effective EbA prepared by Friends of Ecosystem Based Adaptation²¹ will be used to guide further planning and design stages in proposal development. Furthermore, the concept of a systemic integrated approach to EbA, harnessing resilient ecological infrastructure networks, across a number of types of ecosystems (freshwater, coastal, forests, soils) within national planning systems is also very new and complex, thus facing a number risks. The ‘Framework for investing in ecological infrastructure in South Africa’ (SANBI 2017) will also be used to guide further planning and design stages in proposal development.

In the next stages of proposal development, further steps to elaborate the Management Platforms for REINs will draw on TNC’s work on Water Funds in Africa (with the first one launched in Nairobi in 2017) and Latin America. WWF collaborates with TNC under the Natural Capital Project, along with keystone academic institutions, namely Stanford University and the University of Minnesota. In Maputo, in May 2018, WWF and TNC will co-host a workshop where TNC will provide training to the Government’s Natural Capital Program leaders on making the business case for and designing management platforms for Water Funds.

Lessons learned from the WWF-CARE Alliance integrated ecological infrastructure and livelihood programs, in the coastal areas and islands of Primeiras and Segundas Conservation Areas in Nampula and Zambezia provinces, highlight the vital importance of working closely with private sector to ensure the economic sustainability of interventions. The WWF-CARE Alliance focused on conservation agriculture and fisheries sanctuaries. While conservation agricultural and fishery sanctuaries significantly improved productivity, financing mechanisms to sustain technical assistance to manage and invest in ecological infrastructure still require much work. These lessons are reflected in the strong attention to engaging private sector to co-design investments in REINs and entrepreneurship at community level. Through WWF Mozambique’s contract with Third Way Africa, an impact investing and financial advisory company, initial scoping of blended finance solutions for investments in ecological infrastructure in Niassa and Cabo Delgado is already underway.

Throughout the planning and implementation of all activities (described in the table below), there will be regular sharing of information and experiences among the project partners. The project will start with a full stakeholder analysis in each province and the drawing up of agreements with the organizations and communities that are to be involved in the management of REINs, including communities, government, private sector and civil society organizations.

Component 1 ‘Increase blended finance and women/youth entrepreneurship opportunities for climate resilient investments in energy, water, and food systems, and forestry, tourism, housing and transport’.

Activities under Component 1 address major “gaps and barriers” identified in Mozambique’s Intended Nationally Determined Contribution (INDC) 2015 including “low public investment and private participation in the adaptation actions”; “insufficient financing available to climate proof

²¹ FEBA 2017. Making Ecosystem-based Adaptation Effective, A Framework for Defining Qualification Criteria and Quality Standard.

investments in country, associated with the complexity of the criteria and procedures for accessing the international climate financial resources”; and “insufficient incentives to attract the participation of the private sector and civil society in developing initiatives to contribute to climate change adaptation”. This will be achieved through activities that build (2) blended finance partnerships will increase the pipeline of bankable climate-smart projects to access climate funds for investments in climate resilient energy, water, and food systems, and forestry, tourism, housing and low-carbon electric transport and (2) improved conditions for entrepreneurs will drive the expansion of jobs and improved livelihoods opportunities in energy, water, food (agriculture and fisheries), forestry, tourism, housing, low-carbon electric transport, finance and technology.

Component 2 ‘Improve the climate resilience and productivity of ecological infrastructure vital to rural and urban energy, water, housing, transport and coastal protection, and agriculture, fisheries and tourism’

Activities under Component 2 support the achievement of the National Climate Change Adaptation and Mitigation Strategy adaptation actions to “increase the resilience of fisheries”; “increase the resilience of agriculture and livestock”; “increase capacity to manage water resources”; “increase the adaptive capacity of vulnerable people”; and “develop resilience mechanisms for urban areas and other settlements”. This will be achieved through activities that build (1) Resilient Ecological Infrastructure Networks Management Models enabling community-driven reinvestment and innovation to maintain the productivity and resilience of ecological infrastructure for effective, long-term adaptation to climate change, (2) Community Tenure Systems empowering local communities and stewards to capture dividends flowing from Resilient Ecological Infrastructure Networks, diversifying livelihoods and sources of income for vulnerable people in targeted areas, and (3) public awareness widely diffusing the role of Resilient Ecological Infrastructure Networks in food, water and energy systems and climate resilience.

Component 3 ‘Strengthen private sector and public sector institutional climate-risk knowledge and integrated planning capabilities to harness ecological infrastructure for climate resilience’

Activities under Component 3 support the overall objective of the National Climate Change Adaptation and Mitigation Strategy “to create resilience through climate risk reduction in communities and the national economy, and promoting low-carbon development and the green economy through its integration in the sectoral and local planning process”. They also address major “gaps and barriers” identified in Mozambique’s Intended Nationally Determined Contribution (INDC) 2015 including “low public investment and private participation in the adaptation actions”; and “difficulties and weak capacity to disclose knowledge about the climate change risks and actions”. This will be achieved through activities that build (1) scientific and technical knowledge on Resilient Ecological Infrastructure Networks for the identification, prioritization and implementation of adaptation actions vital for climate resilience and productivity of energy, food and water systems serving cities, communities and industries, (2) public sector and community leaders—prioritising women and youth—education and awareness programs strengthening institutional and technical capacities and human skills to identify, prioritize, implement, monitor and evaluate adaptation actions reducing exposure to climate-related hazards and threats, (3) private sector—prioritising women and youth— education and awareness programs that build technical capacities to identify climate risks and formulate investments in climate adaptation and ecological infrastructure is significantly, (4) Virtual Open Knowledge Hubs for increased anticipation and public participation in the formulation of actions reducing exposure to climate-related hazards and threats, (5) the creation of public sector institutional and technical

capacities and data systems to identify, prioritize, implement, monitor and evaluate Resilient Ecological Infrastructure Networks for climate change adaptation strategies and risk management measures and multi-sector (Government, private sector, CSOs and communities and academia) knowledge exchange and joint planning systems to monitor and manage Resilient Ecological Infrastructure Networks for climate change adaptation strategies and risk management measures, (6) national planning and development policies, data systems, tenure arrangements and regulations that incentivise and enforce climate adaptation actions by communities, government and private sector actors, and (7) built infrastructure project technical studies and Urban Planning Frameworks that reduce exposure to climate-related hazards and threats to Resilient Ecological Infrastructure Networks improving the resilience and cost-effectiveness of basic human services (water and sanitation, energy, housing, transport).

Table 3: Alignment with national climate adaptation priorities

Adaptation Actions	Summary Adaptation Benefits	Alignment with national climate adaptation priorities (Note, synergies and necessary overlaps exist between adaptation actions, adaptation benefits and responses to national adaptation priorities)
<p>Component 1 – Increase blended finance and women/youth entrepreneurship opportunities for climate resilient investments in ecological infrastructure and climate resilient water and food systems, forestry, eco-tourism, housing and transport infrastructure, supporting sustainable livelihood diversification and job growth – Adaptation Actions:</p> <ol style="list-style-type: none"> 1. Agro-forestry (timber and food) value chains, entrepreneurship and private sector partnerships. 2. Freshwater fisheries value chains, entrepreneurship and private sector partnerships. 3. Conservation Area eco-tourism entrepreneurship and private sector partnerships. 4. Ecological infrastructure investment and management with tech-entrepreneurs and blended finance private sector partnerships. 	<ol style="list-style-type: none"> 1. Diversification of climate adaptation livelihoods options; 2. Increase in climate resilient job opportunities and household incomes; 3. Sustainable financing mechanisms to maintain and enhance the health of ecological infrastructure in collaboration with private sector. 	<p>A) Priorities highlighted National Climate Change Adaptation and Mitigation Strategy 2013-2015:</p> <ol style="list-style-type: none"> 1. “increase the adaptive capacity of vulnerable people”. 2. “promoting best practice among operators and tourists, making use of public-private partnerships to build the resilience of the sector and the conservation of ecosystems”. <p>B) Priorities highlighted in the Intended Nationally Determined Contributions 2015 – key “Gaps and Barriers” to address:</p> <ol style="list-style-type: none"> 1. Financial (Insufficient financing available to climate proof in country, associated with the complexity of the criteria and procedures for accessing the international climate financial resources; Low public investment and private participation in the adaptation actions); 2. Political and institutional (Insufficient incentives to attract the participation of the private sector and civil society in developing initiatives to contribute to climate change adaptation; and Weak coordination and charge of the sectors in the implementation of the approved policies, strategies and plans, due to a low ability to verify and enforce the laws and regulations associated).

<p>Component 2 – Improve the climate resilience and productivity of ecological infrastructure vital to the climate resilience of rural and urban water supply and access, housing, transport infrastructure, agriculture, fisheries and eco-tourism – Adaptation Actions:</p> <ol style="list-style-type: none"> 1. Protect and enhance strategic water source areas (managed under REINs) supporting ground-water recharge during the rainy season and increased base flow in dry seasons. 2. Protect and enhance freshwater fishery no-take zones and reproduction areas (managed under REINs). 3. Protect and enhance strategic soil conservation areas (managed under REINs) reducing soil erosion and water sedimentation loads. 4. Protect and enhance strategic flood regulation areas (managed under REINs) reducing damage to settlements and built infrastructure. 	<ol style="list-style-type: none"> 1. Improved climate resilience of food systems (freshwater fisheries; agriculture; marine fisheries); 2. Improved climate resilience of water supply systems; 3. Improved climate resilience of settlements and built transport infrastructure. 	<p>A) Priorities highlighted National Climate Change Adaptation and Mitigation Strategy 2013-2015:</p> <ol style="list-style-type: none"> 1. “applying management practices that increase the adaptive capacity of ecosystems, and maximize the utilization of habitats and biodiversity conservation;” 2. “increase the resilience of fisheries”; 3. “increase the resilience of agriculture and livestock”; 4. “increase access to, and capacity to collect, store, treat and distribute water” 5. “develop resilience mechanisms for urban areas and other settlements” <p>B) Priorities highlighted in the Intended Nationally Determined Contributions 2015:</p> <ol style="list-style-type: none"> 1. “Increase the resilience of agriculture, livestock and fisheries, guaranteeing the adequate levels of food security and nutrition”. 2. “Ensure biodiversity’s protection”. 3. “Reduce soil degradation and promote mechanisms for the planting of trees for local use” 4. “Develop resilient climate resilience mechanisms for infrastructures, urban areas and other human settlements and tourist and coastal zones”.
<p>Component 3 – Strengthen private sector and public sector institutional climate-risk knowledge and integrated planning capabilities to harness ecological</p>	<ol style="list-style-type: none"> 1. Improved public sector scientific research and knowledge on 	<p>A) Priorities highlighted National Climate Change Adaptation and Mitigation Strategy 2013-2015:</p> <ol style="list-style-type: none"> 1. “create resilience through climate risk reduction in communities and the national economy, and

<p>infrastructure for climate resilience – Adaptation Actions:</p> <ol style="list-style-type: none"> 1. Build public sector scientific research and knowledge on REINs. 2. Public sector and community leaders—prioritising women and youth—education and awareness on the role of REINs for adaptation. 3. Private sector—prioritising women and youth— education and awareness on the role of REINs for adaptation. 4. Virtual Open Knowledge Hubs for increased anticipation and public participation in the formulation of actions reducing exposure to climate-related hazards and threats using REINs. 5. Creation of public sector institutional units and data systems to manage REINs and south-south climate technology knowledge exchanges. 6. Reforming National Planning and Budget System annual and five planning and policy formulation; reforming tenure arrangements and regulations that incentivise and enforce REINs. 7. Built infrastructure project technical studies and Urban Planning Frameworks to reduce exposure to climate-related hazards and threats 	<p>REINs and their role in building climate adaptation capacity;</p> <ol style="list-style-type: none"> 2. Improved public and private sector awareness of the role of healthy ecosystems for climate adaptation; 3. Improved access to climate risk information and improved participation in climate adaptation public policy formulation by private sector and communities. 8. Strengthened public sector institutional and human capacity to manage REINs and improved climate technology transfer 4. Stronger integration of EbA, through REINs, in National Planning and Budget Systems and policy formulation. 5. Improved climate de-risking in the spatial prioritisation of built infrastructure and urban expansion plans. 	<p>promoting low-carbon development and the green economy through its integration in the sectoral and local planning process”.</p> <ol style="list-style-type: none"> 2. “Strengthen capacity to prepare for and respond to climate risks”. 3. “increase capacity to manage water resources”; 4. “Develop and enhance climate change knowledge and the capacity to intervene” 5. “Promote technology transfer and the adoption of clean and climate change resilient technologies” <p>B) Priorities highlighted in the Intended Nationally Determined Contributions 2015:</p> <ol style="list-style-type: none"> 1. “Improve the capacity for integrated water resources management including building climate resilient hydraulic infrastructures”. 2. “Increase the effectiveness of land use and spatial planning (protection of floodplains, coastal and other areas vulnerable to floods)”. 3. “Increase the adaptive capacity of the most vulnerable groups”. 4. “Develop resilient climate resilience mechanisms for infrastructures, urban areas and other human settlements and tourist and coastal zones” 5. Strengthen research and systematic observation institutions for the collection of data related to
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<p>to REINs, improving the resilience and cost-effectiveness of basic human services (water and sanitation, housing, transport).</p>		<p>vulnerability assessment and adaptation to climate change”.</p> <ol style="list-style-type: none"> 6. “Develop and ameliorate the level of knowledge and capacity to act on climate change”. 7. “Promote the transfer and adoption of clean and climate change resilient technologies”. 8. Address “Gaps and barriers” in “Technology and knowledge: Weak capacity to determine the cost of the losses and damages caused by the impacts and of the measures to adapt to climate change and few research and investigation actions addressing climate change; Unavailability of adaptation technologies; Low capacity to measure, report and verify (MRV), including the effects of policies, strategies, plans and projects and of the availability and use of financial and technological resources; and Difficulties and weak capacity to disclose knowledge about the climate change risks and actions, associated with a low capacity to manage and communicate the results of studies and projects”.
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A2. Describe how the project would promote new and innovative solutions to climate change adaptation, such as new approaches, technologies and mechanisms.

Investing in coherently designed networks of ecological infrastructure—reefs, mangroves, forests, freshwater, soils—is a comparatively new measure for EbA and a unique approach to integrate the strengthening of both livelihoods and ecosystems’ adaptation. It has yet to be proven in Mozambique in particular and Africa in general; thus like any innovation it carries the additional risk of ‘first mover’. Globally, China’s national Ecosystem Critical Function Areas and Costa Rica’s national Payment for Ecosystem Services Program are leaders in this diverse field. The scaling up of this potential adaptation measure to in the phase one provinces under this project, and eventually to national scale in Mozambique, with a strong attention to financial and ecological sustainability will involve the development of new ecological infrastructure investment blueprints, livelihood practices and technological innovation for monitoring and distribution of benefits. Collaborating with ecosystem experts (MITADER, Council of Scientific and Industrial Research, WWF), natural capital and climate experts (WWF), blended finance experts (Third Way Africa, AfDB and MEF) and entrepreneurship experts (Seedstars, WWF, AfDB) during this concept development stage and in further proposal development stages will ensure that a strong focus on integrated financial, technological and ecological innovation is maintained.

B. Describe how the programme provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations.

The creation of Resilient Ecological Infrastructure Networks, with locally devolved Management Models and Community Tenure Systems will overcome four major interlinked barriers to achieving integrated economic, social and environmental benefits: (1) poor inter-institutional policy synergy, (2) inadequate open access to upfront knowledge on interdependent natural capital and climate risks (3) lack of incentives for enhancement and protection of ecological infrastructure, and (4) the mismanagement of cumulative impacts arising from multiple individual projects. Resilient Ecological Infrastructure Networks will build adaptive capacity and prioritise shared, lasting prosperity – enhancing the productivity and resilience of natural assets for economic stability, human well-being, environmental security and climate adaptation.

Management Models and Community Tenure Systems developed for Resilient Ecological Infrastructure Networks will recognise that industrial value chains, cities, communities, basic human services, built infrastructure and climate resilience all depend upon finite ecological systems that must be managed within ecologically and climatically safe operating thresholds, affected by landscape/ seascape scale risks and interdependencies that are often transboundary in nature. Key benefits can be grouped into four groups: (1) Social benefits for communities include stronger tenure and control over natural assets, and anticipation and management of climate risks in public and private sector investments and Annual and Five-Year National Planning and Budgeting Systems; (2) Women and youth benefits include prioritisation in natural capital and climate knowledge and awareness programs, and entrepreneurship programs creating opportunities for improved livelihoods and adaptation to climate change; (3) Economic benefits for private sector and macro economic stability include greater access to natural capital and climate risk knowledge, and integration of natural capital and climate risks in the management of supply chains and investment planning; and (4) Environmental benefits include the upfront systemic valuation and integration of natural capital and climate risks and rewards in investments and Annual and Five-Year National Planning and Budgeting Systems.

Social benefits for communities include diversification of women and youth livelihood options through entrepreneurship programs; increased income for community stewards of REINs flowing from Management Platforms; higher productivity of natural assets and thus harvests (fish, farming); reduced climate damage to settlements (housing); stronger tenure and control over natural assets through REINs Community Tenure Systems.

Economic benefits for private sector include avoided climate damage to built transport infrastructure and thus improved access to markets; new blended finance investment opportunities in ecological infrastructure; and avoided breaks in supply chains dependent on water supply, agriculture, fisheries.

Environmental benefits: include the upfront systemic valuation and integration of natural capital and climate risks and rewards in investments and Annual and Five-Year National Planning and Budgeting Systems. Environmental benefits are inherent in the ecosystem based adaptation approach proposed in the project, resulting in increased resilience of freshwater, soils and forest systems, mangroves and coral reefs, all essential to ecosystem provisioning and regulating services.

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

This section will be fully prepared during Stage Two of the application process considering a number of approaches, including but not limited to (1) cost-effectiveness analysis of built infrastructure options with and without investment in Resilient Ecological Infrastructure Networks for to avoid/ reduce the impact of climate hazards for shared, lasting prosperity of communities and (2) the cost of key components of the project per community level beneficiary compared against potential climate hazards.

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

Recognizing dual challenge of rising climate change risks and pressure on natural capital assets, in 2012 the President of the Republic of Mozambique launched the Green Economy Roadmap at Rio+20 with the President of AfDB and the Director General of WWF. The Roadmap is a visionary document developed with the support of the African Development Bank (AfDB), the World Wide Fund for Nature (WWF), the United Nations Environmental Programme (UNEP) and the United Nations Development Programme (UNDP) to decouple social and economic progress from natural capital depletion and climate destabilisation. AfDB provided technical support to develop a Green Economy Action Plan in 2014, in collaboration with WWF and UNDP with in-depth sectoral policy recommendations, together by the common thread of natural capital and climate resilience. The Green Economy Roadmap and Green Economy Action Plan both directly support the objective of the National Climate Change Adaptation and Mitigation Strategy “to create resilience through climate risk reduction in communities and the national economy, and promoting low-carbon development and the green economy through its integration in the sectoral and local planning process”.

The three Components of this proposal are formulated to address need for a “set of key cross cutting actions including (i) institutional and legal reform, (ii) research and systematic observation and (iii) capacity building and technology transfer...for a prosperous and climate change resilient Mozambique, with a green economy in all social and economic sectors”, as outlined in the Intended Nationally Determined Contribution (INDC) of Mozambique submitted in 2015. The activities under the three Components in this proposal support all climate adaptation actions outlined in the INDC: “(1) Reduce climate risks through the strengthening of the early warning system and of the capacity to prepare and respond to climate risks; (2) Improve the capacity for integrated water resources management including building climate resilient hydraulic infrastructures; [SEP] Increase the effectiveness of land use and spatial planning (protection of floodplains, coastal and other areas vulnerable to floods); [SEP] (3) Increase the resilience of agriculture, livestock and fisheries, guaranteeing the adequate levels of food security and nutrition; [SEP] (4) Increase the adaptive capacity of the most vulnerable groups; (5) Reduce people’s vulnerability to climate change related vector- [SEP] borne diseases or other diseases; (6) Ensure biodiversity’s protection; (7) Reduce soil degradation and promote mechanisms for the planting of trees for local use; [SEP] (8) Develop resilient climate resilience mechanisms for infrastructures, [SEP] urban areas and other human settlements and tourist and coastal zones; (9) Align the legal and institutional framework with the National Climate Change Adaptation and Mitigation Strategy; (10) Strengthen research and systematic observation institutions for the collection of data related to vulnerability assessment and adaptation to climate change; (11) Develop and ameliorate the level of knowledge and capacity to act on climate change; and (12) Promote the transfer and adoption of clean and climate change resilient technologies”. [SEP]

The Government’s 5-Year Plan (PQG) 2015-2019 outlines five national priorities, distinguished by identifying the “Sustainable and transparent management of the environment and natural resources” as Priority V, wherein it stipulates key points shaping this Project “Guarantee the integration of the Green-Blue Economy and green growth agenda in national development priorities”; “Effect the valuation, mapping and monitoring of Natural Capital at national scale”; “Promote studies and research with the aim of reducing the risk of disasters and adaptation to climate change”; and “Reduce the vulnerability of communities, the economy and infrastructure to climate risks and to natural and man-made disasters”. In 2015 the Government’s inter-ministerial Green-Blue Economy Group conceived the Natural Capital Programme to support Priority V of the Government’s 5-Year Plan. This highlights how the national policy agenda recognises that business supply chains and basic human services depend on the productivity and climate resilience ecological infrastructure. The Programme will also contribute to delivering on social development priorities of the Government 5-Year Plan including the: “Promotion of jobs, productivity and competitiveness”; “Development of social and economic infrastructure”; “sustainable and transparent management of natural resources and the environment”; and “Enable women and youths as essential vectors in the modernisation and diversification of the national economy”. The activities under this Programme complement the African Development Bank’s (a) 10-year strategy for inclusive, resilient blue-green growth; (b) Presidential High-Five priorities (c) Mozambique Country Strategy Programme.

The Government’s inter-ministerial Green-Blue Economy Group identified the following categories of natural capital to be legally recognised under Resilient Ecological Infrastructure Networks: Freshwater; Renewable Energy (not included under this proposal given its focus on mitigation); Forests; Soils; and Oceans. Continued inter-ministerial coordination of activities under this proposal will be assured by the Green-Blue Economy Group, co-chaired by the Ministry of Economy and Finance and the Ministry of Land, Environment and Rural Development.

E. Describe how the 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

The Natural Capital Programme will identify spatially explicit Resilient Ecological Infrastructure Networks (REINs), legally recognised as assets of strategic public sovereign interest under locally devolved Management Models and Community Tenure Systems. They will be co-developed by community members, women and youth groups, CSOs, Government, academia and private sector to ensure shared, lasting benefits in the domains of environmental security, human basic services, climate resilience, economic stability, and political autonomy. All information on the performance (status & trends) of Resilient Ecological Infrastructure Networks will be publicly available on Virtual Open Knowledge Hubs (website and app). Prioritising women and youth, public sector and private sector knowledge and technical capability will be strengthened through learning exchanges and public communications programs. Resilient Ecological Infrastructure Networks will be legally protected under Community Tenure Systems and fully integrated in spatial zoning regulations including the National Territorial Development Plan (PNDT), National Planning and Budgeting System (SNPO) and macroeconomic policy and investment stress testing tools, the System of National Accounts, Environmental Impact Assessment and Strategic Environmental Assessment systems, regional infrastructure project master plans, and Urbanisation Planning Frameworks.

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

No, there is no duplication of the programme with other funding sources. This is the First Phase of the national Natural Capital Program.

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

Each of the three Project components will include learning and knowledge sharing activities where lessons will be generated to support the implementation of subsequent Project phases to expand to other provinces beyond Niassa and Cabo Delgado. Learning and knowledge management will be done at the national level to help with integration of Resilient Ecological Infrastructure Networks with other Government policies, especially for women and youth, and for private sector and entrepreneurs. Specific monitoring and assessment studies will be done on lessons generated e.g. on the integration of Resilient Ecological Infrastructure Networks under Community Tenure Systems and dedicated Management Platforms; performance measurement in the System of National Accounts; alignment and optimization of sector policies and plans in the National Planning and Budgeting System; preparation of climate adaptation funding proposals in Blended Finance partnerships; inter-government fiscal transfer systems; and GDP computation.

At community level, knowledge generation and communication initiatives will support women and youth groups, CSOs, local leaders and traditional institutions in Resilient Ecological Infrastructure Network identification and management. Experiential (simulation) training programs in local languages will be delivered to define benefits and reward mechanisms for Resilient Ecological Infrastructure Network stewards, improve conditions for rural entrepreneurial women and youth start-ups for climate resilient basic human services, climate adaptation technology, agroforestry, fisheries and tourism. At provincial level, experiential training programs for scenario based planning will support provincial planning and budgeting to manage and enhance Resilient Ecological Infrastructure Network for climate adaptation. Specialised regional and

international training will address dependencies and risks for transboundary ecosystems (e.g. Rovuma River basin, Miombo forests and the Indian Ocean).

Prioritising women and youth, representatives from the private sector will also benefit from the knowledge generation through climate adaptation technology and learning exchanges under the South-South cooperation. Results will be shared on the Open Virtual Knowledge Hubs hosted by MITADER's Knowledge Management Centre for Climate Change. Additionally, knowledge may be shared through the Green Growth Knowledge Platform's website, under the individual country pages.

As one of the first countries in Africa to engage in a major systems-level effort to incorporate green growth and climate resilience across all sectors in its national policy and planning, Mozambique's experience will be relevant to regional policy makers and experts interested in climate resilient green growth, including the Green Growth Knowledge Platform's Working Group on Natural Capital amongst others. The Natural Capital Program and this project's experience will deliver valuable lessons, which could be applied elsewhere on the continent.

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.

Initial consultations completed

The activities listed under each of the three Components of this proposal and their geographic focus were co-developed in a series of four initial consultations with a combined total of eighty seven (87) participants. These initial consultations took place in Palma District in the Province of Cabo Delgado, on December 18th 2017, with thirty five (35) representatives drawn from communities, local authorities and CSOs from Palma District, Nangade District, Mocímboa da Praia District, Mueda District, and the Administrative Posts of Nhica do Rovuma, Pundanhar and Quionga; in Pemba City, Provincial Capital of Cabo Delgado, on the October 24th 2017 with twenty six (26) participants from Provincial Government and a representative from the District of Palma; in Lichinga City, Provincial Capital of Niassa on October 26th 2017 with thirty (30) participants from Provincial Government and a representative from the District of Majune; and (D) in Maputo City, Capital of Mozambique on November 27th 2017 with sixteen (16) participants from National Government institutions. Consultations were structured around presentations on the outline of the three Components of this proposal, followed by four working group sessions to define specific activities and geographic areas of intervention.

1. Initial District/ Local Consultations

Province of Cabo Delgado group photo & participant list for district-level consultations | December 18th 2017 in Palma government and CSOs from Districts of Palma, Nangade, Mocímboa da Praia, Mueda, Nhica do Rovuma and localities of Pundandar and Quionga



REPÚBLICA DE MOÇAMBIQUE
GOVERNO DA PROVÍNCIA DE CABO DELGADO
DIREÇÃO PROVINCIAL DE TERRA, AMBIENTE E DESENVOLVIMENTO ALIADO
DEPARTAMENTO DE ESTUDO E PLANEJAMENTO

SEMINÁRIO DE DIVULGAÇÃO SOBRE O PROGRAMA NACIONAL DE CAPITAL NATURAL, AO NÍVEL DOS DISTRITOS

LISTA DE PRESENCIA

Local: Palma, Sala de Reuniões do Banco Alimentar (Distrito de Palma)
Data: 18 de Dezembro de 2017

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2.

Initial Provincial Consultations

Cabo Delgado group photo & participants list of provincial-level consultations | October 24th 2017 in Pemba, Provincial Capital of Cabo Delgado with Provincial Government & District of Palma




 REPUBLICA DE MOÇAMBIQUE
 GOVERNO DA PROVÍNCIA DE CABO DELGADO
 DIRECÇÃO PROVINCIAL DE TERRA, AMBIENTE E DESENVOLVIMENTO RURAL

SEMINÁRIO DE PLANIFICAÇÃO DO PROGRAMA DE CAPITAL NATURAL, PEMBA 24 DE OUTUBRO DE 2017


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Niassa group photo & list of participants of provincial-level consultations | October 26th 2017 in Lichinga, Provincial Capital of Niassa with Provincial Government & District of Majune



LICHINGA
26/10/2017


Programa de Capital Natural
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3. Initial National-level Consultations

Maputo group photo & participant list of national-level consultations | November 27th 2017 in Maputo City, Capital of Mozambique



REPÚBLICA DE MOÇAMBIQUE
 MINISTÉRIO DA TERRA, AMBIENTE E DESENVOLVIMENTO RURAL
 DIRECÇÃO DE PLANIFICAÇÃO E COOPERAÇÃO

LISTA DE PRESENCAS

Título do evento: Workshop de Planificação do Programa de Capital Natural
 Data: 27 de Novembro de 2017
 Local: Hotel Southern Sun, Maputo
 Hora: 8h30

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Next consultations planned

In the next stages of proposal development the consultation process will continue to be managed by the inter-ministerial Green-Blue Economy Group. Co-chaired by the Ministry of Economy and Finance and Ministry of Land, Environment and Rural Development, members of the inter-ministerial Green-Blue Economy Group include: Ministry of Economy and Finance (MEF); Ministry of Land, Environment and Rural Development (MITADER); Ministry of Sea, Interior Waters and Fisheries (MIMAIP); Ministry of Public Works and Hydraulic Resources (MOPRH); Ministry of Agriculture and Food Security (MASA); Ministry of Mineral Resources and Energy

(MIREM); Ministry for Transport and Communications (MTC); National Institute for Disaster Management (INGC); National Institute for Statistics (INE); and national academic institutions including the University of Lurio (based in Pemba), and University Eduardo Mondlane (UEM).

Private sector consultations will be managed through a Natural Capital Private Sector Forum, which is currently being set-up by WWF in collaboration with Third Way Africa, an impact investing company providing financial advisory services. The first meeting of this Forum is due to take place in early 2018. Private sector actors will be convened to engage in the Forum, including UX, Standard Bank, AbInBev, Coca-Cola, Tongaat Hulett, Illovo, Cahora Bassa Hydroelectric (HCB), Anadarko, ENI, Shell, Rift Valley, Verde-Azul, and hunting concession operators in the Niassa National Game Reserve.

Consultations will be held with the traditional authorities in the two provinces, including local Community Based Organisations (CBOs) and Non-Governmental Organisations. In Niassa Province, the multi-sector River Lugenda Basin Forum (created by WWF with local government and local CBOs) will also be convened. The Lugenda River in northern Mozambique flows from south to north from Lake Amaramba, its source, to the Ruvuma River. Also in Niassa Province, the Natural Capital Association (composed of public and private actors) will be consulted. In Cabo Delgado Province, the Palma-Nangade Forum (composed of communities and CBOs) will be convened. Also in Cabo Delgado Province, the Extractive Industry Platform (an NGO platform composed of CBOs and hosted by WWF) will be convened to seek inputs to ensure strong alignment with the priorities set by this group.

Beneficiary meetings with youth and women groups, farmer associations, Community Fishing Councils (CCPs), forest communities and entrepreneurs will be undertaken. The meetings will be to present the project objectives to the stakeholders with intent to seek their understanding and determine their priorities to ensure all planned activities are demand-driven and beneficial to them. Through this approach it is expected that a precise and legitimate adaptation strategy choice for beneficiaries will be agreed upon.

At Project implementation, at least 2-4 traditional leaders and 2-4 women and youth leaders will be selected to serve at the Provincial Management Steering Committee of the Project. Representation guidelines will ensure 50% female and 50% male members. The Project Proposal will follow the African Development Bank Group environmental and social safeguards.

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

The project aims to protect and improve, public natural capital assets—ecological infrastructure—so that they can continue providing critical services for climate adaptation and increasing productivity of food, water and energy systems for a rapidly growing population. Although natural capital seems limitless, it is finite. Identifying and protecting ecological infrastructure for climate resilient freshwater supply, coastal settlements, fisheries and agriculture can be cheaper, more inclusive and faster than restoring it or trying to develop built infrastructure alternatives. Underinvestment in ecological infrastructure could have serious repercussions for a rapidly growing population, especially in Mozambique due to its relatively lower adaptive capacity and higher exposure to climate shocks. As such, ecological infrastructure needs to be identified, managed and maintained, and restored if it has been degraded. Both the public and private sector have a role to play.

Left unchanged, as Mozambique's population grows, cities and built infrastructure expand, bigger industries emerge and climate change intensifies, there will be less space to move on to open up new frontiers, lower capacity to adapt to shocks and enduring systemic impediments to ending poverty. Mozambique cannot afford to become Locked-in on this trajectory.

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

Project outcomes are embedded in Mozambique's decentralised system of governance, empowering local authorities and Provincial Governments to set the agenda for adaptation interventions. Program sustainability is also ensured by integrating the Resilient Ecological Infrastructure Networks into all Government policies and strategies, and the exploration of project finance for permanence mechanisms, such as an Ecological Infrastructure Trust Fund. Localities (the lowest level of governance) will be assisted to ensure that project objectives and management systems are collaboratively managed by local community resource stewards and CSOs. The involvement of women and youth entrepreneurs and private sector in south-south technology exchange for climate adaptation technology will also strengthen the sustainability of activities. The participation of local communities in the design of Resilient Ecological Infrastructure Management Platform and Community Tenure Systems will empower and incentivise local resource stewards to enhance natural assets in a restorative and regenerative circular economy approach for long-term income generation and job growth.

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

There are three levels of the environmental and social impacts and risks that have been identified and are relevant to the project. These can be grouped as follows:

- i) Local environmental and social risks and benefits stemming from Resilient Ecological Infrastructure Networks (REINs), blended finance partnerships and women and youth entrepreneurial start-ups – these will be identified during the next stage of local District level consultations and further elaborated during implementation following international best practice during project implementation.
- ii) Regional environmental and social risks and benefits stemming from Resilient Ecological Infrastructure Networks (REINs), blended finance partnerships and women and youth entrepreneurial start-ups – these will be identified during the next stage of regional level consultations and further elaborated during implementation following international best practice during project implementation.
- iii) National and international environmental and social risks and benefits stemming from Resilient Ecological Infrastructure Networks (REINs), blended finance partnerships and women and youth entrepreneurial start-ups – these will be identified during the next stage of national level consultations and further elaborated during implementation following international best practice during project implementation.

Table 4: Environmental and social risks and ESP Compliance

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
<i>Compliance with the Law</i>	Project will be undertaken in compliance with the law of Mozambique and with all international law	
<i>Access and Equity</i>	Project will provide equitable access to benefits in a manner that is inclusive and does not impede access basic human services and land/natural resource rights	
<i>Marginalized and Vulnerable Groups</i>	Project will strictly avoid any adverse impacts on marginalized and vulnerable groups including children, women and girls, the elderly, displaced people, refugees, people living with disabilities, and people living with HIV/AIDS	
<i>Human Rights</i>	Project will respect national human rights laws and international human rights conventions	
<i>Gender Equity and Women's Empowerment</i>	Project will be designed and implemented to prioritize women and girls' access to benefits and ensure they do not suffer disproportionate adverse effects	
<i>Core Labour Rights</i>	Project will meet national and international labor standards	
<i>Indigenous Peoples</i>	Minority and indigenous peoples' issues are not clearly defined. The largest ethno-linguistic clusters in the northern provinces of Niassa and Cabo Delgado include Macua and related Lómuè (the foremost group in the northern provinces of Nampula, Zambezia, Cabo Delgado and Niassa)	X
<i>Involuntary Resettlement</i>	Project will not cause any involuntary resettlement	
<i>Protection of Natural Habitats</i>	The project will not involve conversion or degradation of critical natural habitats; on the contrary it aims to increase the area of natural habitats under equitable and sustainable management	
<i>Conservation of Biological Diversity</i>	Project will be designed and implemented to climate and anthropogenic risks to biological diversity and avoid the introduction of known invasive species	
<i>Climate Change</i>	Project will not result in any significant or unjustified increase in greenhouse gas emissions, and through preservation of forests and mangroves may provide indirect climate mitigation benefits	

<i>Pollution Prevention and Resource Efficiency</i>	Project will be designed and implemented in a way that meets applicable national and international standards for maximizing energy efficiency and minimizing material resource use, the production of wastes, and the release of pollutants. However, the entrepreneurship and livelihood activities may require additional research potential indirect impacts	X
<i>Public Health</i>	Project will be designed and implemented in a way that avoids potentially significant negative impacts on public health, and should provide health benefits through improved quality of water supply and food security	
<i>Physical and Cultural Heritage</i>	Project will be designed and implemented in a way that avoids the alteration, damage, or removal of any physical cultural resources, cultural sites, and sites with unique natural values recognized as such at the community, national or international level; it will also not permanently interfere with existing access and use of such physical and cultural resources.	
<i>Lands and Soil Conservation</i>	The project will be designed to improve land and soil conservation	

PART III: IMPLEMENTATION ARRANGEMENTS

A. Adequacy of programme management arrangements, in compliance with the Gender Policy.

The Ministry of Land, Environment and Rural Development's National Sustainable Development Fund (FNDS) will be the primary Implementing Entity, supported by the Ministry of Economy and Finance, responsible for overall Program Execution, including staffing, financial management, reporting and coordination. FNDS will set up one Project Coordination and Management Unit (PCMU) based at Provincial level, to support execution of activities in both Niassa and Cabo Delgado Provinces. The PCMU will operate under the joint supervision of Ministry of Land, Environment and Rural Development and the Ministry of Economy and Finance, supported by WWF the African Development Bank. The PCMU will conduct Provincial Management Steering Committee meetings to guarantee strong engagement with all local stakeholders throughout project implementation. Both WWF and the African Development Bank have Memorandums of Understanding with the Government of Mozambique and have duly been supporting the Government in the in the design of the National Capital Program since 2015, as well as the Government's Green Economy Roadmap 2012 and the Green Economy Action Plan 2013.

Thus, FNDS will recruit and or Provincial Governments will second relevant staff for the PCMU for implementation of the Project. The PCMU staff requirement will include the Project Coordinator, Accounts Officer, Natural Capital Expert, Climate Expert, Blended Finance Specialist, Entrepreneurship Specialist, Monitoring and Evaluation Specialist, Knowledge Expert, Gender Expert and a Procurement Specialist. The services of other experts may be drawn from Provincial governments. Through the PCMU and Provincial Management Steering Committee the Provincial Governments will lead work activity planning, implementation, monitoring and also attract investors to collaborate with the Project. The PCMU will be charged with ensuring that the Project is on schedule and is implemented according to the agreed work plan and budget.

WWF will act as a secondary supporting Implementing Entity, with guidance from FNDS, responsible for designing and integrating specialized technical assistance for the Program under WWF's existing contracts with South Africa's Council for Scientific and Industrial Research and United States' Columbia University's Graduate School of Architecture, Planning and People. WWF is also collaborating with UNHABITAT in Mozambique for thought leadership on urban systems and practices, Seedstars and Standard Bank for entrepreneurship promotion and Third Way Africa for blended finance advisory services.

Under the joint leadership of the Ministry of Land, Environment and Rural Development and the Ministry of Economy and Finance a National Project Steering Committee (NPSC) will be established in Maputo City, the Capital of Mozambique, to provide strategic policy direction and oversight guidance for the project implementation. The NPSC will be led by co-chairs from the Ministry of Land, Environment and Rural Development and the Ministry of Economy and Finance, and composed of other key members of other inter-ministerial Blue-Green Economy Group, representatives from WWF and the African Development Bank, and other key partners such as UNHABITAT. Core activities of the NPSC shall include implementation of program strategy, oversee planning, review progress and impact, review/ approval of annual work plans and budgets as well as ensuring effective linkages with related programs, government policies and strategies. At provincial level, the NPSC will liaise with the PCMU and Provincial Management Steering

Committee to engage all Provincial Directors, beneficiary representatives, private sector partners and any other entity deemed relevant to the implementation of the Project.

The NPSC shall meet at least twice a year at national level. Also, at least twice a year the NPSC will join the PCMU at Provincial level for project management meetings. The meetings of the NPSC with the PCMU shall be aligned to support the local government planning, budgeting and monitoring cycle. Costs related to the meetings of the NPSC will be financed from the budget of Ministry of Land, Environment and Rural Development and Ministry of Planning and Economy budgets. Costs related to the PCMU and Provincial Management Steering Committee meetings shall be financed from the budgets outlined under this proposal.

B. Measures for financial and project / programme risk management.

Financial management arrangements: The Ministry of Land, Environment and Rural Development's National Sustainable Development Fund (FNDS) will be designated as the lead Executing Agency for the implementation of the Project, supported by WWF and the Ministry of Economy and Finance. The African Development Bank will undertake due diligence of the Ministry of Land, Environment and Rural Development much as the proposed project is expected to be managed by FNDS with assistance from WWF. WWF will act as the lead Implementing Entity, with guidance from FNDS, responsible for designing and integrating specialized technical assistance. Both WWF and the African Development Bank will assist FNDS to set up a project coordination and management unit (PCMU). WWF runs its own standalone financial information system, which, subject to the African Development Bank and Government of Mozambique will determine how the funds will move from the Special Account to the FNDS and WWF accounts and financial management controls.

Disbursement: - Disbursement of funds under the project shall be primarily by the Direct Payment method for the activities under the project. The PCMU will be responsible for certification of invoices submitted by other service providers or contractors and preparation of disbursement application which will be reviewed and signed off by the Government designated staff and submitted to the Bank for payment. The Special Account method to be managed by the PCMU will however be used for financing the smaller and recurring nature of some operating expenses. The opening of the Special Accounts denominated in United States Dollars together with the associated local currency account in Mozambique Metical at the Provincial level for project coordination will be required before disbursement of grant proceeds. Other methods of disbursement including the Reimbursement method will also be available with the agreement of the Bank. All disbursements will be made in accordance with the Bank's rules and procedures as laid out in the Bank Disbursement handbook as applicable.

Procurement: Procurement of goods (including non-consultancy services), works and the acquisition of consulting services, financed by the Grant proceeds will be carried out in accordance with the "Procurement Policy and Methodology for Bank Group Funded Operations" (BPM), dated October 2015. The use of the Government of Mozambique (Borrower Procurement System - BPS) will be the main reference point for procurement activities as prescribed under the Bank's procurement policy framework and Government of Mozambique's application of its Laws and Regulations using the national Standard Solicitation Documents (SSDs). However the extent to which Government procurement procedures will be applied for various procurement contracts will be fully determined at appraisal based on the Procurement Risk and Capacity Assessment (PRCA).

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

The current National Capital Program, emanating from Mozambique's National Green Economy Action Plan 2013 and all other sectoral strategies have been developed in a consultative manner with the full participation of all relevant stakeholders. The African Development Bank Group with WWF will engage in constant policy dialogue to ensure that the policy, institutional and funding (particularly public expenditure) environment remain conducive to the implementation of the Natural Capital Program. Furthermore, social risks will be reduced through gender-sensitive approaches and ensuring that the poor are primary beneficiaries of the project.

The two Provincial Governments and their institutions along with the beneficiary groups, the private sector, youth and women's associations, CSOs, etc. will be key stakeholders in these processes. To screen and assess social and environmental risks, as well as to mitigate potentially adverse impacts, a specific, measurable and time-bound set of indicators reflecting these risks will be integrated in the results framework of the project (to be developed in stage two of this proposal). In general, failure to comply with the Adaptation Fund's Environmental and Social Policy is believed to be a low risk given that the project focuses strongly on increasing resilience of social and environmental systems in the Project Region.

D. Monitoring and evaluation arrangements including budgeted M&E plan.

The foundation for the overall project monitoring and evaluation systems will be the logical framework, a series of key performance indicators and project operational manual (POM) which will be prepared by FNDS, with assistance from WWF shortly after project approval. The African Development Bank, Ministry of Land, Environment and Rural Development, Ministry of Economy and Finance and WWF shall monitor and evaluate overall impact of the project including environmental and social compliance and performance. The PCMU shall compile the project's quarterly and annual reports for dissemination to the African Development Bank Group, Government and the Adaptation Fund Secretariat. A mid-term review (MTR) will be undertaken two years after project start to review the project's achievements and constraints. Similarly, upon completion of project life time the PCMU will prepare a project completion and impact report.

Monitoring and evaluation (M&E) will be separated into technical M&E (adaptation actions and capacity building) and a financial and project management M&E. For the technical M&E the Project Management and Coordination Unit (PCMU) will develop criteria for participatory monitoring of the project activities. For financial and project management M&E an appropriate mechanism and methodology will be established at the very outset of the project. M&E activities will be based on the logical results framework (to be developed). The overall M&E format for the project will follow the instructions and guidelines of the Adaptation Fund, including compliance with the Fund's Environmental and Social Policy (ESP).

In addition, an ex-post assessment will focus on the sustainability of project results and lessons learned including best practices, anticipated costs, applying the lessons at the sectoral and thematic levels as the basis of the policy development and future implementation of Phase 2 and 3 of the Natural Capital Program. Independent of the Final Evaluation an ex-post assessment will be undertaken, focusing on assessing the sustainability of project results, lessons learned, including best practices and cost-benefit in relation to vulnerability and resilience. Both ex-post assessment and final evaluation will also provide key messages for further policy development and future uptake of the Natural Capital Program.

The Government of Mozambique's National Institute for Statistics (INE) leads the production and management of official statistics based on international standards. Their services will be used to assess the contribution of the project towards the Sustainable Development Goals (SDGs), country and regional development goals and objectives as defined in the relevant development plans. In using the performance indicators and targets specified in the results-based framework, tracking progress towards project results will take special note of changes that reflect advancement towards the translation of outputs into development outcomes. The key functions of the M&E Officer in the PCMU will be to ensure quality and accountability of monitoring; information management and knowledge sharing on monitoring and evaluation.

E. Provide a results framework for the project proposal, including milestones, targets and indicators.

A complete results framework, including all milestones, targets and indicators, is to be developed in stage two of the application process. It will ensure compliance with the Environmental and Social Policy Framework of the Adaptation Fund, with a particular focus on gender, vulnerability and environmental protection, amongst other. Below an indicative outline of the results framework is shared for reference.

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

To be prepared during Stage Two of the application process.

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.

A detailed budget, together with breakdown into cost categories, explanations, etc., will be developed for Stage Two of the project application process.

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

To be developed during Stage Two of the project application process.

Table 4. Results Framework (indicative)

Component	Activity	Output	Outcome
<p>Component 1 Increase blended finance and women/youth entrepreneurship opportunities for climate resilient energy, water, and food systems, and forestry, tourism, housing and transport</p>	<p>1.1 Blended Finance South-South climate technology transfer and investment model accelerator Events collaborating with impact investing funds (e.g. Acumen Fund, AgDevCo, Root Capital, Third Way Africa), Development Finance Institutions (DFIs), CSOs, academia and Government to originate proposals for investments in climate resilient energy, water, and food (agriculture and fisheries) systems, and forestry, tourism, housing and low-carbon electric transport</p>	<p>1.1 Ten (10) blended finance proposals worth a combined total of fifty million USD (\$50 million) originated by consortiums (private sector, entrepreneurs, DFIs, impact investors, banks, CSOs, academia and Government) to access climate funds for investments in, water, and food systems, and forestry, tourism, housing targeting the provinces of Niassa and Cabo Delgado</p>	<p>1.1 Blended finance and technology transfer partnerships increase the pipeline of bankable climate-smart projects to access climate funds for investments in rgy, water, and food systems, and forestry, tourism, housing and low-carbon electric transport</p>
	<p>1.2 Micro, small and medium size (MSME) women and youth entrepreneurial start-up programs* prioritising the following areas of business: climate resilient energy, water, food (agriculture and fisheries), forestry, tourism, housing, low-carbon electric transport, finance and technology, supporting the enhancement and protection of Resilient Ecological Infrastructure Network and taking advantage of local content goals set for the extractive industry</p> <p>*Leveraging and collaborating with existing start-up platforms and initiatives including for example Seedstars, Lionesses of Africa, SLUSH, Standard Bank’s Incubator in Maputo, the Netherlands Embassy’s Orange Corners incubator initiative in Maputo, and the Tony Elumelu Foundation Entrepreneurship Forum, amongst others.</p>	<p>1.2 Twenty (20) entrepreneurial women and youth start-ups* initiated in the provinces of Niassa (10) and Cabo Delgado (10) prioritising the following areas of business:</p> <ul style="list-style-type: none"> a) Water and sanitation services; b) Climate resilient housing; c) Transport infrastructure climate resilience; d) Freshwater fisheries value chains; e) Agro-forestry (food and timber) value chains; f) Eco-tourism in Conservation Areas. 	<p>1.2 Entrepreneurs drive expansion of climate resilient jobs and livelihoods opportunities in energy, water, food (agriculture and fisheries), forestry, tourism, housing, finance and technology, supporting the enhancement and protection of Resilient Ecological Infrastructure Network</p>

<p>Component 2</p> <p>Improve the climate resilience and productivity of ecological infrastructure</p> <p>vital to rural and urban energy, water, housing, transport and coastal protection, and agriculture, fisheries and tourism</p>	<p>2.1 Operationalize investments in four (4) Resilient Ecological Infrastructure Networks—freshwater, coasts, soils, forests—Management Platforms activated and diffused for Niassa and Cabo Delgado for climate resilience of twenty one (21) Municipal and urban growth points, rural communities in a combined total of thirty one (31) Districts, and strategic industries (extractives, agriculture, tourism) benefiting a combined total of three and a half million (3.5 million) people across both provinces for:</p> <p>a) Water and sanitation services; b) Climate resilient housing; c) Transport infrastructure climate resilience; d) Freshwater fisheries value chains; e) Agro-forestry (food and timber) value chains; f) Eco-tourism in Conservation Areas</p>	<p>2.1 Four (4) Resilient Ecological Infrastructure Network—, freshwater, coasts, soils, forests—Management Models activated and diffused for Niassa and Cabo Delgado for climate resilience of twenty one (21) Municipal and urban growth points, rural communities in a combined total of thirty one (31) Districts, benefiting a combined total of three and a half million (3.5 million) people for:</p> <p>a) Water and sanitation services; b) Climate resilient housing; c) Transport infrastructure climate resilience; d) Freshwater fisheries value chains; e) Agro-forestry (food and timber) value chains; f) Eco-tourism in Conservation Areas.</p>	<p>2.1 Resilient Ecological Infrastructure Networks Management Models enable community-driven reinvestment and innovation to maintain the productivity and resilience of ecological infrastructure for effective, long-term adaptation to climate change</p>
	<p>2.2 Extension services for allocation of Community Tenure Systems for local stewards of Resilient Ecological Infrastructure Networks to ensure ownership and rights-based management</p>	<p>2.2 Community Tenure Systems completed for communities and local stewards of five (5) types of Resilient Ecological Infrastructure Networks—energy, freshwater, coasts, soils, forests—incubating community and private sector enhancement, restoration and protection of Resilient Ecological Infrastructure Networks, including all fifteen (15) Districts of Niassa Province (Cuamba, Lago, Lichinga, Majune, Mandimba, Marrupa, Maúa, Mavago, Mecanhelas, Mecula, Metarica, Muembe, N'gauma, Nipepe and Sanga) and all sixteen (16) Districts of Cabo Delgado Province (Ancuabe, Balama, Chiúre, Ibo, Macomia, Mecúfi, Meluco, Mocímboa da Praia, Montepuez, Mueda, Muidumbe, Namuno, Nangade, Palma, Pemba-Metuge, Quissanga)</p>	<p>2.2 Empowerment of local communities and stewards to capture dividends flowing from Resilient Ecological Infrastructure Networks, diversifying livelihoods and sources of income for vulnerable people in targeted areas</p>

	2.3 National and Provincial public communications, awareness and climate technology transfer programs on the role of Resilient Ecological Infrastructure Networks in food, water systems and climate resilience	2.3 One (1) National and two (2) Provincial (Niassa & Cabo Delgado) public communications, awareness and climate technology transfer programs on the role of Resilient Ecological Infrastructure Networks in food, water systems and climate resilience	2.3 Public awareness on Resilient Ecological Infrastructure Networks for climate resilient technology, food, water is significantly improved
Component 3 Strengthen private sector and public sector institutional climate-risk knowledge and integrated planning capabilities to harness ecological infrastructure for climate resilience	3.1 Execute two (2) provincial (Niassa and Cabo Delgado) assessments covering 212,000 km ² for both provinces identifying Resilient Ecological Infrastructure Networks—, freshwater, coasts, soils, forests—vital for climate resilience and food, water and energy systems serving cities, rural communities, and industries.	3.1 Four (5) spatially explicit, temporally dynamic Resilient Ecological Infrastructure Networks—, freshwater, coasts, soils, forests—identified for Niassa and Cabo Delgado for climate resilience of food, water systems serving a combined total of twenty one (21) Municipal and urban growth points, rural communities in a combined total of thirty one (31) Districts, and strategic industries (extractives, agriculture, tourism) benefiting a combined total of 3.5 million people.	3.1 Improved scientific and technical knowledge on Resilient Ecological Infrastructure Networks for the identification, prioritization and implementation of adaptation actions vital for climate resilience and productivity of energy, food and water systems serving cities, communities and industries.
	3.2 Run one (1) public sector and community leader—prioritising women and youth drawn from Niassa and Cabo Delgado—professional education, knowledge and technology exchange program on the social, climate and economic risks and dependencies based on Resilient Ecological Infrastructure Networks.	3.2 One hundred (100) public sector and community leader representatives—prioritising women and youth drawn from Niassa and Cabo Delgado, in particular from local CSOs, towns and municipal authorities, and district authorities for technology, water, energy, infrastructure, climate, agriculture and fisheries—capacity built to undertake scenario based planning and experiential (simulation) of social, climate and economic risks and dependencies based on Resilient Ecological Infrastructure Networks.	3.2 Public sector and community leaders’ awareness, institutional and technical capacities and human skills strengthened to identify, prioritize, implement, monitor and evaluate adaptation actions reducing exposure to climate-related hazards and threats.
	3.3 Run one (1) private sector south-south climate adaptation and ecological infrastructure technology, investments and practices learning exchange program—prioritising women and youth entrepreneurs drawn from 9 strategic thematic areas (1. Extractives, 2. Construction, 3. Fisheries 4. Agriculture, 5. Forestry, 6. Energy, 7. Water, 8.	3.3 Two hundred (200) Mozambican private sector representatives—prioritising women and youth entrepreneurs drawn from 9 strategic thematic areas (1. Extractives, 2. Construction, 3. Fisheries 4. Agriculture, 5. Forestry, , 6. Water, 7. Technology and 8. Finance)—engage in learning exchanges with pioneering private sector representatives from at least five (5) other south-south partner countries visiting Mozambique, improving	3.3 Private sector—prioritising women and youth—awareness and technical capacities to identify climate risks and formulate investments in climate adaptation and

	Technology and 9. Finance)—with partners from Southern African Development Community (SADC), India, China, Brazil and other emerging markets.	their capacity to design and execute investments in climate adaptation and ecological infrastructure	ecological infrastructure is significantly improved
	3.4 Set up a Virtual Open Knowledge Hub (website and matching civic-technology app) for national Resilient Ecological Infrastructure Networks performance serving the two (2) provinces of Niassa and Cabo Delgado, with a performance dashboard and early warning system.	3.4 One (1) Virtual Open Knowledge Hub—including one (1) website and one (1) matching civic-technology app—for national Resilient Ecological Infrastructure Networks, serving the two (2) provinces of Niassa and Cabo Delgado, with a performance dashboard and early warning system on status and trends accessible to all CSOs, government, media, academia and private sector actors at a scale to suitable to decision makers at local level.	3.4 Increased anticipation and public participation in the formulation of actions reducing exposure to climate-related hazards and threats
	3.5 Set up three Knowledge Management Units for Resilient Ecological Infrastructure Networks composed of one (1) financial risk expert embedded in the Ministry of Economy and Finance responsible for (a) managing and updating the Virtual Open Knowledge Hub on Resilient Ecological Infrastructure Networks in coordination with public sector, private sector, academia and CSO actors, (b) updating the System of National Accounts with Resilient Ecological Infrastructure Networks performance data, and (c) integrating all levels of annual and 5-Year Government Socio-Economic Plans for all sectors, and policies for all sectors in accordance with the management objectives set for Resilient Ecological Infrastructure Networks aligned with the climate resilient ecological red-lines (safe harvesting and replenishment parameters).	3.5 Three (3) Knowledge Management Units with three (3) risk management experts in each (finance, climate and ecological) for Resilient Ecological Infrastructure Networks, one (1) embedded in the Ministry of Economy and Finance Provincial Directorates in Niassa (Lichinga) and one (1) in Cabo Delgado (Pemba), managed by one (1) lead unit at national level in the Ministry of Economy and Finance (Maputo).	3.5a Public sector institutional and technical capacities and data systems strengthened to identify, prioritize, implement, monitor and evaluate Resilient Ecological Infrastructure Networks for climate change adaptation strategies and risk management measures. 3.5b Multi-sector (Government, private sector, CSOs and communities and academia) knowledge exchange and joint planning efforts strengthened to monitor and manage Resilient Ecological Infrastructure Networks for climate change adaptation strategies and risk management measures.

	<p>3.6 Adaptation of public sector national planning and budgeting systems, and national development policy formulation systems to achieve Resilient Ecological Infrastructure Networks management objectives</p>	<p>3.6a Four (4) Management Platforms for Resilient Ecological Infrastructure Networks—energy, freshwater, coasts, soils, forests—setting climate resilient ecological red-lines (safe harvesting and replenishment parameters) supported by four (4) REINs Investment Blueprints to harness blended finance for their management, and one (1) Feasibility Study to create an Ecological Infrastructure Trust Fund to invest public revenues from extractives and other sources in Management Models for the enhancement and protection of Resilient Ecological Infrastructure Networks.</p> <p>3.6b Five (5) Community Tenure Systems for local stewards of Resilient Ecological Infrastructure Networks—energy, freshwater, coasts, soils, forests—establishing community management rights, setting management practices and objectives, and performance reward mechanisms, all co-developed with rural communities, CSOs, private sector and government.</p> <p>3.6c One (1) Ministry of Economy and Finance’s National Planning and Budgeting Systems (SNPO) overhaul, adapted to integrate Management Platform and Community Tenure Systems for Resilient Ecological Infrastructure Networks.</p> <p>3.6d One (1) Ministry of Economy and Finance planning and policy Stress Testing Tool for Knowledge Management Units to integrate all levels of annual and 5-Year Government Socio-Economic Plans for all sectors, to achieve the management objectives set for Resilient Ecological Infrastructure Networks aligned with the climate resilient ecological red-lines (safe harvesting and replenishment parameters).</p> <p>3.6e One (1) performance and data system developed for Resilient Ecological Infrastructure Networks and integrated in the System of National Accounts (SNA),</p>	<p>3.6 Improved national planning and development policies, data systems, tenure arrangements and regulations, financial mechanisms and incentivise and enforce climate adaptation actions by communities, government and private sector actors.</p>
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		<p>managed by the Knowledge Management Units in the Ministry of Economy and Finance.</p> <p>3.6f Two (2) National Territorial Development Plan (terrestrial, marine, freshwater) overhauls, one (1) for Niassa Province and one (1) for Cabo Delgado Province—managed by the Ministry of Land, Environment and Rural Development—to integrate Resilient Ecological Infrastructure Networks.</p> <p>3.6g One (1) Strategic Environmental Assessment (SEA) system, with institutional arrangements and enforcement systems created, and one (1) overhaul of the Environmental Impact Assessment system—both managed by the Ministry of Land, Environment and Rural Development—to de-risk climate and ecological infrastructure factors in investment projects through the national safeguard systems in accordance with the management objectives set for Resilient Ecological Infrastructure Networks aligned with the climate resilient ecological red-lines (safe harvesting and replenishment parameters).</p>	
	<p>1.7 Prepare technical scoping studies focused on the development corridor built infrastructure investments and urban areas along the Lichinga-Pemba Corridor (Niassa and Cabo Delgado Province), and the Pemba-Palma-Mtwara Corridor (Cabo Delgado Province, linking to Tanzania) for optimisation and alignment of:</p> <p>1.7a Built infrastructure—focused on roads, ports, power, dams for water supply and irrigation for agriculture—optimisation and alignment with Resilient Ecological Infrastructure Networks to reduce climate and ecological risks, improve risk-return profiles of investments</p>	<p>3.7a Five (5) groups of built infrastructure—roads, ports, power, dams for water supply and irrigation for agriculture—technical studies demonstrating the optimal prioritisation and alignment of built infrastructure investments for Resilient Ecological Infrastructure Networks performance to reduce climate and ecological risks, improve risk-return profiles of investments and improve the long-term shared benefits of investments at regional systems scale.</p> <p>3.7b One (1) Regional Urban Planning Framework for Municipalities and urban growth points’ basic human services investment plans for optimal alignment with Resilient Ecological Infrastructure Networks at regional scale for Niassa and Cabo Delgado and transboundary dynamics (trade, climate, ecology).</p>	<p>3.7a Reduced exposure to climate-related hazards and threats to Resilient Ecological Infrastructure Networks stemming from built infrastructure systems.</p> <p>3.7b Reduced exposure to climate-related hazards and threats to Resilient Ecological Infrastructure Networks stemming from Municipal and urban growth point</p>

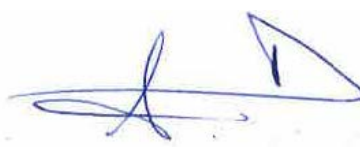
	<p>and improve the long-term shared benefits of investments at regional systems scale</p> <p>1.7b Municipalities and urban growth points basic human services investment plans—focused on urban microclimate, human mental health, access to climate resilient housing, low-carbon electric mobility systems, food systems, renewable energy systems and public water services—optimisation with Resilient Ecological Infrastructure Networks</p>	<p>3.7c Twenty one (28) Municipal and urban growth point Local Urban Planning Frameworks for optimal alignment with Resilient Ecological Infrastructure Networks at local scale including nine (13) for Cabo Delgado—Pemba, Palma, Mueda, Negomano, Mocimboa da Praia, Afungi, Aldeia de Namatil, Vila de Silva Macua, Metoro, Mecufi, Metuge, Ilha do Ibo and Chai—plus twelve (15) for Niassa—Lupiliche, Muembe, Maniamba, Lichinga, Unango, Matchedje, Cóbue, Massangulo, Majune, Marrupa, Mandimba, Maúa, Nipepe, Mavago, Malanga.</p>	<p>expansion and improved basic human services.</p>
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PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government²² *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:*

Ms. Sheila Afonso <i>Permanent Secretary, Ministry of Land, Environment and Rural Development, Government of Mozambique</i>	Date: <i>December 20th 2017</i>
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B. Implementing Entity certification *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address*

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development Plan, INDC and National Climate Change Mitigation and Adaptation Strategy, and Green Economy Action Plan and subject to the approval by the Adaptation Fund Board, <u>commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund</u> and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
Ayanleh Daher Aden Implementing Entity Coordinator	
Date: <i>January 15th 2018</i>	Tel. and email: (+225) 20 26 43 47; a.daheraden@afdb.org
Project Contact Person: James Peters Opio-Omoding	
Tel. And Email: (+225) 20 26 15 33; J.OPIO-OMODING@AFDB.ORG	

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