



ADAPTATION FUND

REGIONAL PROJECT/PROGRAMME PROPOSAL

PART I: PROJECT/PROGRAMME INFORMATION

Title of Project/Programme:	Strengthening Adaptive Capacities for Smallholder Farmers in Water Stressed River Basins in Southern Africa
Countries:	Angola, Mozambique, Namibia, South Africa, Zimbabwe
Thematic Focal Area ¹ :	Transboundary water management Food and nutrition security, Disaster risk reduction and early warning systems
Type of Implementing Entity:	UN Agency
Implementing Entity:	United Nations Educational, Scientific and Cultural Organization (UNESCO)
Executing Entities:	Food and Agricultural Organization of the United Nations (FAO) and Food Agriculture Natural Resources Policy Analysis Network (FANRPAN)
Amount of Financing Requested	USD 14 Million

¹ Thematic areas are: Food security; Disaster risk reduction and early warning systems; Transboundary water management; Innovation in adaptation finance.

PROJECT / PROGRAMME BACKGROUND AND CONTEXT

INTRODUCTION

The Southern Africa Development Community (SADC) region is particularly vulnerable to the changing climate due to its low adaptive capacity and vulnerability (IPCC, 2007 & 2015). Climate-related disasters are the most important in terms of frequency of occurrence and impact (Table 1). According to the IPCC Special Report on Global Warming of 1.5°C (2019) the region is warming at twice the global rate. Climate change poses a number of risks to SADC member states in achieving their national goals, as well their Sustainable Development Goals. The projected increase in air temperature and increased frequency of floods, cyclones, and droughts may damage infrastructure, adversely affect crop and livestock production, reduce energy generation, disrupt livelihoods, and cause loss of life. The impacts of climate on the food and nutrition security of the region that mostly depends on rain-fed agriculture, are mediated through the impacts of climate change on water resources. The region needs strengthened capacities to anticipate the climate impacts, as well as develop sustainable response measures that build resilience at local, community and river basin level.

Table 1: Frequency, estimated number of affected people and economic damage of disasters experienced in the southern Africa region between the year 2000 and 2016

Disaster Type	Occurrence/Frequency	Total number of people affected	Estimated Total Damage in USD
<i>Drought</i>	46	73,842,258	2,108,000,000
<i>Flood</i>	198	16,142,359	2,424,204,000
<i>Earthquake</i>	15	196,444	515,000,000
<i>Storm</i>	87	5,397,912	858,722,000
<i>Insect infestation</i>	2	2,300,000	-
<i>Epidemic</i>	161	1,338,350	-
<i>Other</i>	36	377,127	964,000,000
<i>Total</i>	530	99,398,006	6,354,926,000

Source: Summarized from IOM (2017)²

Agriculture and climate change in southern Africa

Agriculture is a source of livelihood (directly and indirectly) for over 60% of the population of the SADC region. Thus, the performance of this sector significantly affects economic growth, poverty reduction, and food security (SADC, 2014 & 2016). Agriculture also contributes an average of 17% to the regional Gross Domestic Product (GDP). Despite its strategic regional importance, the average growth rate of the sector of about 2.6% per annum is way below the Regional Indicative Strategic Development Plan (RISDP) and Africa-wide Comprehensive Africa Agricultural Development Programme (CAADP) targets of at least 7% and 6% respectively (SADC, 2016). Low growth rate is attributed to recurrent drought events and prolonged dry periods, incidences of floods, poor agronomic practices and lack of access to credit and inputs by smallholder farmers, coupled with limited infrastructure for water harvesting and irrigation development (SADC, 2016). Climate change projections for the SADC region show that the greatest impacts will mostly be felt through water resources, which could severely affect food production, energy generation and sources of livelihoods for the communities (Schulze, R., 2012). Annual rainfall is expected to decrease by 20% by 2080 in southern Africa, and that could worsen the challenges of water and food insecurity (Conway et al., 2015) especially in riparian countries already facing resource scarcities. The challenges are exacerbated by population increase and industrial growth (Naik, 2017). Transboundary resources of the target riparian countries present an opportunity for regional cooperation in resource planning and management as a pathway to promote climate resilience and reduce vulnerabilities.

Water scarcity and climate change in southern Africa

² IOM.2017. Spaces of vulnerability and areas prone to natural disaster and crisis in six SADC countries Disaster risks and disaster risk management capacity in Botswana, Malawi, Mozambique, South Africa, Zambia and Zimbabwe: International Organization for Migration, 17 route des Morillons 1211 Geneva, Switzerland.

The SADC recognizes that climate change has disproportionately more severe impacts on water resources, with access to water predicted to become more challenging with the continued onset of climate change (<https://www.sadc.int/themes/meteorology-climate/climate-change-adaptation/>). Water scarcity is increasingly becoming a limiting factor for economic development across the majority of 15 river basins in the region. These basins are at the epicenter of projected climate change impacts which is affecting these water resources in four major ways: (a) increased temperature; (b) increasing aridity; (c) more frequent and intense droughts and floods; (d); and (e) increasing seasonal and inter-annual variability. Already, this is evident in the Kunene and Limpopo river basins targeted by the project, where the economic systems (agriculture, energy, industry), livelihoods (smallholder cropping, pastoralism, rural water supply), and ecosystems (ecosystem goods and services, catchment land quality) are highly dependent on water, have become vulnerable to climate impacts (Crane, 2011, Vermeuln, 2012). National and community level consultations conducted in the five countries to inform the scope and suitability of interventions in this proposal, reported that these countries are experiencing increasing water scarcity associated with climate variabilities and change. These affect economies of these countries through various ways, such as the reduction in agricultural yields/production, damage to ecosystems (compromising goods and services that they provide), increased migration, reduced social capital and heightened gender disparities in the provision and management of water.

The potential climatic impacts on the availability, quality and use of water resources are projected to increase in magnitude, diversity and severity, given the already large spatial and temporal variability of climate factors in the region (Gallego-Ayala, 2011). There is a marked increase in the frequency of droughts: for example five of the last seven seasons (2013/14 – 2019/20) have been bad agricultural seasons with inadequate and erratic rainfall in most parts of the region. The severity of the droughts have increased with the 2015/16 El Nino-induced drought leaving over 40 million people food insecure (SADC Regional Humanitarian Appeal, 2016). Cyclones Idai and Kenneth, some of the worst storms to ever hit the region, landed in 2019 causing unprecedented damage and affecting close to 2.2 million people in Mozambique, Zimbabwe and Malawi. In addition, the region experiences a myriad of other supply and demand pressures such as land degradation, pollution and urban population growth affecting water resources, and climate variabilities and change are projected to exacerbate these pressures in Southern Africa (United Nations, 2011). Local communities, particularly women, find it hard to grapple with the changing climate due to their poor adaptive capacities, coupled with the lack of gendered considerations in climate change adaptation (SADC 2016) and this affects sustainability as over 60% of women actively participate in provision and management of water. If resilience is not strengthened climate impacts are likely to increase food and water insecurity, reverse poverty alleviation gains and slow economic growth in the region, while causing loss of biodiversity and degradation of the natural resources..

Status of climate infrastructure and services in the SADC region

Many National Meteorological Services in the SADC region lack adequate observation network of both surface and upper air stations as well as remote sensing such as Radar networks, modern telecommunications infrastructure for efficient exchange of data and products in conformity with the World Meteorological Organization (WMO) WIS. The NMSs have inefficient data management systems and lack accurate medium range to long-term (1 to 3 months) prediction as inputs for early warning, and do not timely downscale and disseminate the weather and climate information to high risk communities, farmers, decision makers and other key stakeholders. Previous efforts by UNESCO and individual NMSs have provided significant improvements in the Global Observation System (GOS), Global Telecommunications System (GTS), Global Data Processing and Forecasting System (GDPS), Public Weather Services (PWS) and Data Management (DM). However, there are still countries in the SADC region that have significant deficiencies in the operation and maintenance of these programmes. Many NMSs have inadequate capacity (both human and financial) in these areas and the situation is exacerbated by the acute shortage of trained manpower and resources. The climate information is not timely available to smallholder farmers rural areas in the Kunene and Limpopo river basins, and when available it is usually in formats that are not actionable by the decision makers, including smallholders farmers and pastoralists.

Organization of early warning systems

The most widely adopted seasonal early warning mechanism in the region is spearheaded by the Southern Africa Regional Climate Outlook Forum (SARCOF). The SARCOF is a regional climate outlook prediction and application process adopted by the fourteen countries comprising the Southern African Development Community (SADC) Member States in conjunction with other partners. It is one of the WMO Regional Climate Outlook Forums developed under the World Climate Services Programme (WCSP) of the World Climate Programme active in several parts of the world, and routinely provides real-time regional climate outlook products. The SARCOF is coordinated by the SADC Climate Services Centre (SADC CSC) based in Botswana. The Famine Early Warning Systems Network (FEWS NET) also provides early warning and analysis on food insecurity to the SADC region. Early warning and response in the region also benefit from the Integrated Phase Classification systems in Southern Africa. However, the SARCOF climate information products are not timely and appropriately available to the communities in the Kunene and Limpopo River basins. There is need to downscale the regional climate products so that communities can use them to make climate smart decisions as they manage their water, crop and animal resources for improved food security and livelihoods.

The need for innovative approaches to climate change adaptation in the Kunene and Limpopo River Basins

Various initiatives have been undertaken at local, national and regional levels to address the impacts of climate on the Kunene and Limpopo River Basins. Most of these interventions did not adequately recognize the connectedness of the land use practices upstream and downstream and the transboundary nature of the challenges and opportunities for adaptation. In addition, most of the interventions lasted the duration of the programmes/projects because there were no incentives for the communities to continue implementing the adaptation interventions.

Given the above background, the United Nations Educational, Scientific and Cultural Organization (UNESCO), the Food and Agriculture Organization of the United Nations (FAO), and the Food Agriculture Natural Resources Policy Analysis Network (FANRPAN), in collaboration of national and local level partners, intend to implement a set of concrete adaptation activities aligned to the Adaptation Fund results framework and structures to build systemic capacities at various levels in the Kunene and Limpopo River basins. These interventions will be targeted at systems, institutions, commodity value chains, subsistence and smallholder farmers and communities at the selected geographical areas within these two water stressed river basins. Interventions will also be targeted at SADC regional institutions (e.g. SADC secretariat) and river basin level institutions (namely Limpopo Watercourse Commission (LIMCOM) for the Limpopo River Basin, and Permanent Joint Technical Commission (PJTC) for the Kunene River Basin), subsistence and smallholder farmers as well as communities at the selected Programme geographical sites. This proposed project seeks to pilot and demonstrate sustainable water resources management technologies, approaches and practices for increased food security, and explore pathways for scaling out and sustaining the impacts of the adaptation measures.

The proposed Programme

The projects sites

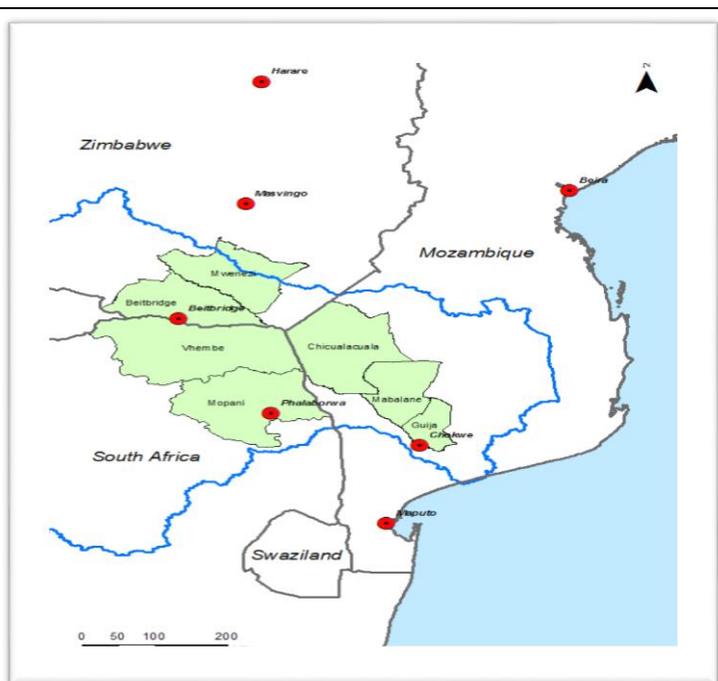
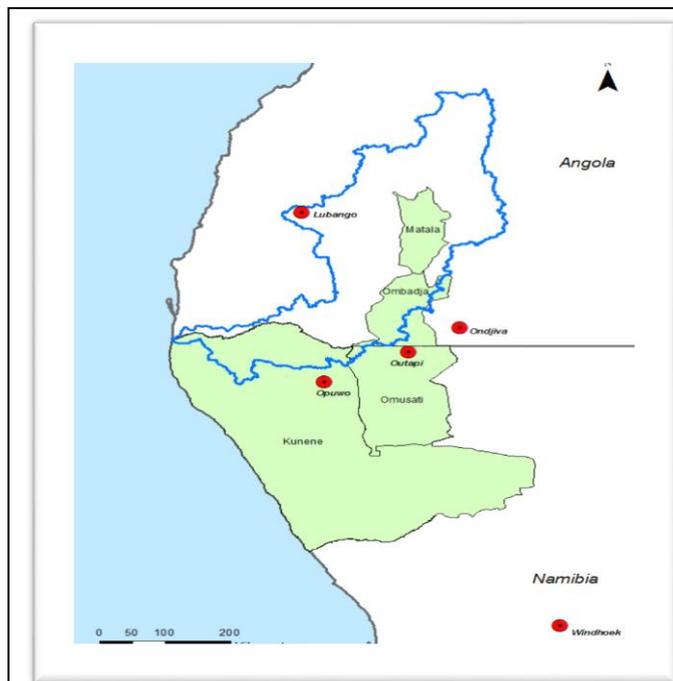
Selection process

It is recognized that all the 15 transboundary river basins in the SADC region are water stressed and face similar social, economic and ecological challenges, including low agricultural productivity, food insecurity and degradation of natural resources. The project formulation used a consultative and participatory process to select the project geographical sites and the adaptation interventions. The process is fully described in Section I of Part II below. Briefly, consultations were undertaken through a five step process that started with regional level stakeholders SADC Secretariat, LIMCOM, PJTC, the Climate Resilient Infrastructure Development Facility (CRIDF) and Chemonics International who provided guidance on the priority basins. These consultations took place between June and August 2018 and led to the selection of Kunene and Limpopo River Basins. The two basins were selected because (i) there was need in these basins for more support to build resilience especially of agriculture, food security and nutrition systems and (ii) to avoid duplication of efforts. Kunene has an extra dimension of the unique adaptation measures for pastoralist who live in this basin.

This was followed by national level consultations with government departments responsible for agriculture and climate change, civil society organizations and communities. These took place between April and July 2019 and led to the identification of target provinces/districts. After the national consultations further engagements were held with political and traditional leaders at the province and district levels who selected the target areas within their provinces/districts. The fourth and most important step in the consultation process was with communities in the target areas to get their views on impacts of climate change and the solutions. The final step in the consultation process took place in Johannesburg 27-29 November 2019 and was the validation of the findings from the community consultations and was attended by representative of government departments and civil society organizations operating in the target communities.

Table 2. Project sites identified through consultative process

Basin	Country	Province/Region	District/Municipality	
Kunene	Angola	Cunene	Ombadja	
		Huila	Matala	
	Namibia	Kunene	Epupa	
		Omusati	Ruacana	
Limpopo	Mozambique	Gaza	Chicualacuala, Guija, Mabalane	
		South Africa	Limpopo	Mopani Vhembe
			Zimbabwe	Masvingo Matabeleland South



Key:



Ocean

Urban Centres



i. *Figure 5: Location of Project sites in Kunene and Limpopo Basins (Developed by Authors for the project)*

Biophysical and socioeconomic features

Kunene River basin

The Kunene river basin is located in South-West Africa covering an area of 106 500 km², with 14 700 km² (13.3 %) in Namibia and 95 300 km² (87.7 %) in Angola. Total human inhabitants amount to approximately 3 million with between 3 to 5 million livestock. The Kunene river is 1 050 km long and is one of the few perennial rivers in this region with a mean annual discharge of 5.5 km³ at its mouth. The selected sites are in the south-western lower reaches of the basin where extensive subsistence pastoralism is predominant and an important way of life for more than 100,000 people.. The main crops grown in both Angola and Namibia are millet, sorghum and maize, with some intercropping of pumpkin, bean and groundnut, combined with the rearing of cattle, sheep and goats.

Angola

The frequency and intensity of climate related hazards has increased in recent times. Since 2008 recurrent cycle of droughts and floods are affecting southern Angola with Cunene province the most affected. For example, during the 2015 El Niño-induced drought, 1.1 m people in Cunene, Huila and Namibe were affected, with over 600 000 of them in Cunene. There have been high agricultural and livestock losses mostly affecting pastoralist populations. Agropastoralist communities have lost the capacity to cope with compounding environmental hardships, such as a decrease in the quality of pasture and rangeland, decreased access to water for human and animal consumption, livestock health and losses, and related lack of capacity to cultivate fields, and degradation of soils fertility and water. This has resulted food insecurity and prolonged transhumances

Two sites namely **Matala** and **Ombadja** municipalities were identified through the consultation described above. **The Matala Municipality** in Huila Province 180 kilometers east of Lubango and has an estimated population of more than 243 000 inhabitants. The Huila Province is dry, with rainfall ranging from 100 to 1,000 mm per year³. **Ombadja municipality** is located in Cunene Province. Although the area are dry and highly susceptible to drought, they hold tremendous agriculture potential with fertile soils, abundant underground water, and a favorable climate⁴. The use of purchased seeds, plants or cuttings is rare.

Namibia

Two sites are **Ruacana District** in **Omusati Region** and **Epupa District** in the Kunene Region. In Omusati region, an estimated 95 percent of the population lives in the rural areas and are mainly engaged in mixed farming. **The Ruacana district** is a semi-arid and characterized by the high temperatures ranging between 25-37 degrees Celsius. The average rainfall per year is about 350-500 mm between Novembers to April⁵. **The Kunene** is considered one of the poorest regions with poverty levels of 39% in 2011. Majority (56%) of the employed population is in the agricultural sector and depend on subsistence farming, predominantly nomadic pastoralism, as their main source of livelihood and income.

³ Revermann, R., Krewenka, K.M., Schmiedel, U., Olwoch, J.M., Helmschrot, J. & Jürgens, N. (eds.) (2018) Climate change and adaptive land management in southern Africa – assessments, changes, challenges, and solutions. Biodiversity & Ecology, 6, Klaus Hess Publishers, Göttingen & Windhoek.

⁴ https://www.citypopulation.de/en/angola/admin/cunene/1603_ombadja/

⁵ http://www.omusatirc.gov.na/documents/550777/552716/Omusati_Regional_Profile/15467267-7686-429c-a7fc-a18651d9184c

Limpopo River Basin

At 408 250 km² and estimated population of 14 million people, the Limpopo river basin is one of the largest drainage system in the SADC region, covering large portions of Botswana, Mozambique, South Africa and Zimbabwe (LBPTC, 2010). The basin supports a wide range of socio-economic activities from mining and industry to agriculture in the rural areas to government, finance and consumer services in the large urban centres. Most of the basin population (64 % Zimbabwe – 80% Mozambique) depends on rainfed smallholder agricultural production of crops and livestock. Poverty is widespread within the Basin with the rural population of Mozambique having the highest level of poverty at 38%. The basin is considered to be water scarce with water scarcity posing the greatest threat to livelihoods, economies and ecosystems (Petrie, *et al.*, 2014).

Mozambique

The three districts found in the Gaza province in Mozambique were identified for consultations, namely **Guija, Chicualacuala, and Mabalane districts**. These 3 districts are equally vulnerable and can potentially be selected as the geographical sites where this proposed project/programme can be established and implemented. The extreme events of flooding and droughts which affect the different areas of Gaza province makes smallholder farmers particularly vulnerable. Guija are affected by floods almost yearly while Mabalane and Chicualacuala are affected by severe water shortage, due to drought⁶. **Chicuacuala District** has approximately smallholder 6,000 smallholder and the main agricultural crops grown are maize cassava, cowpea, groundnutst, and sweet potato. the farmers rear cattle, pigs, sheep and goats. are the livesto **Guijá District** covers 4,207 square kilometers and a population of 75,303 as of 2007. In the district there are 13,000 farms which have on average 2.9 hectares of land. Similar to Chicualcuala, the main crops grown are maize, cassava, cowpea, groundnuts, sweet potato and rice with cattle, pigs, sheep and goats being the livestock reared. **Mabalane District** covers 9,107 square kilometers and has a population of 32,040 (2007). In the district, there are 5,000 farms which have on average 4.1 hectares with . maize, cassava, cowpea, groundnuts, sweet potato and rice being the main crops grown⁷.

South Africa

The Vhembe and Mopani district municipalities are located in the Limpopo Province. This province has strong reserves of agriculture, mineral and tourism resources many of which remain hugely under-exploited. In terms of agriculture, commercial farmers in mainstream value chains produce high volumes of mangoes, citrus, bananas, litchis and avocados, with little or no inclusion of smallholders. Other products include tea, nuts, guavas, sisal, cotton and tobacco, timber, sunflower, maize, wheat cultivation as well as grape. Most of the northern parts are devoted to cattle and game ranching. The Mopani and Vhembe districts are dominated by smallolder farmers who could be linked to the established value chains in the province.

Zimbabwe

Beitbridge District is located in the most southern part of Zimbabwe and isone of the least developed districts in the country. It is located in Agroecological Region V, which is characterized by low (less than 450mm annual total), erratic rainfall and very hot conditions. As a result, it is not suitable for crop farming, although this takes place through irrigation schemes. It is significant to mention that although the rivers have potential for tourism because of their richness in flora and fauna, this potential has not been tapped into by the country⁸. Prevalence of income and food poverty was 71.5% (2017) and 31.2% (2016), respectively. **Mwenezi district** is located in Masvingo Province. Masvingo province is located in the low veld of the country where rainfall is minimal and uncertain. Most parts of the province, therefore, are generally unfit for agriculture, apart from cattle ranching. The province is predominantly semi-arid, rainfall is minimal, highly variable/erratic and uncertain making the province prone to droughts. The bulk of the province is set as region 5 in the country's climatic agro-ecological regions⁹. Prevalence of income and food poverty was 62.3% (2017) and 28.7% (2016), respectively.

⁶ https://agritrop.cirad.fr/569511/1/document_569511.pdf

⁷ <https://www.revolvy.com/folder/Districts-in-Gaza-Province/549830>

⁸

https://www.researchgate.net/publication/337164346_Beitbridge_Minority_Farmer_Communities_and_Climate_Change_Prospects_f_or_Sustainability

⁹https://www.google.com/book_9789004281554_B9789004281554-s004-preview.pdf

Historical management of transboundary water resources in Kunene and Limpopo river basins Kunene river basin.

Attempts to manage the water resources of the Kunene River in an integrated manner between the two countries has a long history. Several agreements were concluded, each one reinforcing the provisions of the previous agreement. The Permanent Joint Technical Commission (PJTC) was established based on Article 2.2 of the Third Water Use Agreement, dated 21 January 1969 to act solely in an advisory capacity, to study and report on matters relating to this Agreement. It was particularly instructed to oversee the implementation of development projects on the river basin encompassing the construction of three dams, a power station, and a pumping station. The PJTC has several sub-committees that deal with issues regarding the management of the basin including:

- **Task Force Calueque (TFC)** – responsible for sharing information on the resource base of the Kunene River basin; oversee the implementation of water supply projects (for human consumption, irrigation, and other industrial uses) in the basin especially those of a transboundary nature; as well as advising the PJTC on the impact of projects that are implemented.
- **Baynes Committee (BC)** - responsible for overseeing and updating the results of the studies that were carried out in the 1990's to evaluate the feasibility of building major hydroelectric schemes in the Lower Kunene.
- **Committee on Bilateral Agreements** - which focuses on studying and analyzing the articles and provisions of both the 1964 and 1969 Agreements with a view to identifying those aspects which have become obsolete, and warrant further clarification or require updating.
- **Committee on the Kunene River Basin Master Plan** – this plan is not yet operational as a consensus regarding the need for and objectives of a river basin master plan are yet to be reached between Angola and Namibia.

Limpopo River basin

Cooperation between the Limpopo River basin states can be traced back to a number of regional initiatives, agreements and institutions that help to promote a cooperative spirit within the basin. These include:

- **Tripartite Permanent Technical Committee (TPTC)** one of the first attempts at a regional water agreement.
- **Limpopo Basin Permanent Technical Committee (LBPTC)** between Botswana, Mozambique, South Africa and Zimbabwe, established in 1986.
- **Joint Permanent Technical Commission (JPTC)** between Botswana and South Africa on the Limpopo, Molopo and Nossob Rivers, formalized in 1987.
- **Joint Permanent Commission for Co-operation (JPCC)** was a joint agreement between Botswana and South Africa that was established in 1997 to deal with a variety of issues, including the transfer of water from the Molatedi Dam on the Marico River.

A notable point is that the focus of the role of the Permanent Joint Technical Commission (PJTC) for Kunene and the Limpopo Watercourse Commission (LIMCOM) currently is that these are pitched at policy level and have largely been on macro projects/industrial projects—left to negotiate large dam projects, macro projects/industrial projects and power generation projects. They have largely not been relevant to smallholder communities especially taking into account the increasing impacts of climate change on the smallholder's farmers and pastoral habitats of the Kunene basin. They have largely not taken into account the increasing impacts of climate change on other land uses, especially on the smallholder farming and pastoralism in the two basins. There is need for further support of platforms for joint planning, implementation, coordination, and learning to build adaptive capacities and resilience to climate change addressing the issue of transboundary water management for agriculture and other livelihoods.

Projected impacts of climate change in the Kunene and Limpopo Basins

The climate simulation models predict increases in temperature and changes in total and in-season distribution of rainfall.

- Climate change is expected to **increase mean annual temperature and extreme temperature episodes, as well as to modify seasonal temperatures** (day- and/or nighttime temperature). The region is warming at twice the global rate and for water resources the direct implications include higher water temperature and higher evaporation rates. Indirectly, **this could severely affect food production and energy generation** (Schulze, R. A, 2011).
- **Annual rainfall is expected to decrease** by 20% by 2080 in southern Africa, and that **could worsen the challenges of water and food insecurity**, especially in countries that already face resource scarcities (Conway, 2015). Therefore, a **transboundary approach** in climate change adaptive activities especially related to water resources management in SADC river **basins is key**.
- **Aridity is projected to spread** due to changes in both temperature and precipitation, especially in southern Africa. Consequently, temperature changes have a direct bearing on water resources availability within southern Africa. This implies drier and more denuded ecosystems, with more damaged and deteriorating catchments (Schulze, 2011).
- **Climate models suggest greater variance in the magnitude of rainfall volumes**, including the likelihood of more heavy rainfall events in parts of the two river basins. Climate change is expected to impact the frequency, duration and intensity of floods. Changes in the intensity of rainfall events modify flood patterns and groundwater recharge, and changes in average annual rainfall volumes alter mean annual runoff and system yields (Water Research Commission, 2009). Droughts will intensify in southern Africa in the 21st century (IPCC, 2014b). The impacts on water resources include less surface and ground water recharge, which implies lower flows in rivers during periods of drought.
- **Onset and duration of wet and dry seasons will become more erratic**, altering the hydrological cycle and increasing unpredictability around availability of water..
- **Increases in incidence of crop and animal pests and diseases**, including zoonotic ones,, making it ever more necessary to enhance adaptive capacities for rural farming communities. A combination of native African armyworms and fall armyworms from the Americas as well as *Tuta absoluta* and fruit fly are ravaging staple crops, fruit and vegetables across southern Africa. New strains of food and mouth disease have been reported in southern Africa in 2018. If uncontrolled, these pests and diseases have the potential to cause major food shortages and catastrophic consequences on rural communities whose livelihoods depend on agriculture.

Community perceptions on climate change and proposed solutions

During the development of this proposed project proposal, consultations were undertaken through participatory workshops and meetings with identified communities, key stakeholders and potential strategic partners within the Kunene River and Limpopo basins, to gather information covering the following:

- Identifying historical and current climate risks and vulnerabilities that they are exposed to.
- The identification, prioritization and co-designing of suitable adaptation options and interventions (*that are informed by their local contexts, indigenous knowledge systems and citizen science*) that can be proposed, resourced and implemented as part of this project/programme? to build their climate resilience.

Details and descriptions of these communities, consultation processes and approaches that were used in each member countries, as well as the outcomes, are presented in the sections below

Kunene

These communities generally experience limited investments from development actors, especially in response to the impacts of climate changes on their livelihoods. They require adaptation measures that factor in their changing social, ecological and economic conditions.

Hazards and shocks, their impacts and required adaptation measures reported by target communities in Kunene River Basin during consultations

District/Municipality	Ranked hazards and shocks	Reported impacts	Proposed adaptation measures
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Ombadja	1. Drought and heatwave	<ul style="list-style-type: none"> Water scarcity; crop failure/low yields; increased pest attacks Livestock disease outbreak; loss of income 	<ul style="list-style-type: none"> Solar powered small irrigation systems; drought tolerant crops; Tree planting; Strengthening value chains for crops and livestock produce Strengthening of national institutions on climate change; develop early warning systems
	2. Pests 3. Strong wind	<ul style="list-style-type: none"> 	
Matala	4. Floods	<ul style="list-style-type: none"> Floods damage infrastructure and crops; human and livestock deaths 	
Epupa Ruacana	1. Drought	<ul style="list-style-type: none"> Crop failure; high livestock mortality; water shortage; poor livestock condition leading to reduced market prices; Increased pests and diseases Increased human/wildlife conflict 	<ul style="list-style-type: none"> Cross to Angola for grazing; Crop diversification and water-efficient agronomic practices; small scale irrigation; improved post-harvest management; Water storage facilities; use of efficient water management practices public-private partnerships for crop and livestock inputs and markets;
	2. Floods	<ul style="list-style-type: none"> Destroy infrastructure and cause soil erosion; human and livestock mortality; Increased human/wildlife conflict; increase in water-borne diseases 	
	3. Lightning 4. Wind 5. Heat wave 6. Pests and diseases		

Limpopo

One of the key threats to the Basin is increased levels of drought due to climate change and increasing competition for water (Petrie et. al., 2014). This was confirmed during the consultations as communities identified drought as the most important hazard affecting their livelihoods.

Hazards and shocks, their impacts and required adaptation measures reported by target communities in Limpopo River Basin during consultations

District/Municipality	Ranked hazards and shocks	Reported impacts	Proposed adaptation measures
Chicualacuala, Guija, Mabalane	1. Increased frequency and severity of drought 2. Reduced frequency but increased intensity of floods 3. Increased crop pests 4. Human/wildlife conflict 5. Strong winds	Reduced crop yields and production;	Promote: <ul style="list-style-type: none"> crop diversification and use of drought tolerant crops CA; intensive production in greenhouses; small scale irrigation
		Livestock management	<ul style="list-style-type: none"> livestock supplementary feeding and vaccinations; production of small indigenous livestock breeds
		Deforestation	<ul style="list-style-type: none"> promote non-timber forest products; sustainable forest management; improved stove and charcoal production
		Water management	<ul style="list-style-type: none"> Establish multifunctional water reservoirs Rehabilitate dams Promote rain water harvesting Establish watering points for livestock
Mopani and Vhembe	1. Drought and extremely high temperatures 2.	<ul style="list-style-type: none"> Crop failure/reduced yields Deaths of livestock Water scarcity Livestock deaths 	<ul style="list-style-type: none"> Improved irrigation management

	3. Floods and hailstorms	<ul style="list-style-type: none"> • Damage to infrastructure affecting market access • Damage to crops 	<ul style="list-style-type: none"> • Use of water saving irrigation techniques such as drip irrigation
	4. Soil erosion	<ul style="list-style-type: none"> • Low crop yields • Damage to infrastructure – bruising of fruits on way to market 	<ul style="list-style-type: none"> • Adoption of CA and other CSA technologies • Use of climate smart crops • Adoption of climate smart livestock management – grow fodder, feedlots and establish water sources
Mwenezi and Beitbridge	<ol style="list-style-type: none"> 1. Droughts 2. In-season dry spells 3. Wildlife human conflict (Beitbridge only) 4. Heat wave 5. Flash floods 6. Strong winds 	<ul style="list-style-type: none"> • Low crop productivity and production (including frequent crop failure) • Livestock deaths • Lack of drinking water for people and livestock • Damage to infrastructure 	<ul style="list-style-type: none"> • Water harvesting and irrigation development • Conservation agriculture and other CSA practices • Use of indigenous crop and livestock genetic material • Improved soil fertility and pest and disease management • Improved goats value chain • Solar drying and processing and packaging of fruits and vegetables

The adaptation measures proposed by the communities were reviewed and assessed by technical experts from organizations that are implementing projects in the target project sites at the validation workshop held in Johannesburg 27-29 November 2019. The validation workshop provided a list of technically and environmentally feasible interventions that the programme could implement to achieve community expressed needs.

The case for transboundary approach to water resources management

The consequences of climate variabilities and the long-term change on ecosystems are closely tied to water resources. Hence, the shared and transboundary nature of SADC’s resources implies that there are greater gains and more prospects of success if developmental efforts are focused at the regional level as opposed to the national level. Unlocking development at the regional level would ultimately allow greater progress at the national level and allow for genuine integration and inclusive development. Therefore, incorporating a basin wide approach in the development of water resources management and agriculture investment plans ensures efficient resource utilization and sustainability under climate change. Participatory community consultations undertaken during the development of this proposal explored the community’s understanding of how climate variabilities and change impacts natural ecosystems and water resources. This was crucial to the formulation of robust business case models and overall adaptation interventions and planning for common transboundary cooperation to strengthen water resources management across the 2 river basins. Communities reported that water resources within the river basins are undergoing significant changes due to climate variabilities that result in water scarcity and threats to livelihoods, economies and ecosystems including species richness.

Whilst in some countries, funded initiatives to address impacts of climate change have concentrated adaptation activities in some parts of the river basin(s); it is important to note that options for building resilience to climate change will be inadequate if limited to actions undertaken by individual countries only—and stand to run the risk of counter-productive investments when viewed at the regional scale, and the potential for **maladaptation in other parts of the basins**. The transboundary nature of the river basins forms the basis for the development of regional instruments that support joint management of water resources for inclusive development and the strengthening of regional cooperation and integration. This was emphasized by targeted communities and other stakeholder who strongly advocated the need for coordinated planning and implementation of climate risks adaptation interventions at transboundary level during the consultations for the project. From these consultations, indications were that pastoralists are more often limited in pursuing other farming options due to the diminished carrying capacity of the land, and regional integration of interventions through planning and implementation was recommended as a viable option for sustainable natural resources integration.

a. Summary of problems to be addressed through this proposed project

Given the analyses done in the preceding sections, it is clear that water scarcity and insecurity in Southern Africa is a growing concern. The majority of the region's watersheds are shared between two or more countries, implying that what happens in the upper rivers and watersheds affects people, wildlife and ecosystems downstream. Thus, emphasizing the need for regional responses and coordination to ensure equitable access, allocation and use of the scarce water resources within the Limpopo and Kunene river basins. There is higher water demand, increased water stress spanning from chronic water scarcity (less than 1666 m³/person/year) in many areas, while other areas are experiencing frequent flooding and increasing temperatures leading to higher crop and animal disease and pest incidence including those of a transboundary nature. There is also increased unsustainable activities along key value chains along the river basins leading to overgrazing and land degradation.. Furthermore, there is also increased pressure on the natural ecosystems, which is incrementally reducing their ability to provide ecosystem services. These challenges are happening in a space where there is:

- Weak institutional framework/arrangements for farmers to participate viably in priority value chains;
- Low application of climate-smart technologies and practices (e.g. agro-ecological, conservation agriculture, ecosystem based adaptation etc) by smallholder farmers along the agricultural value chains;
- Inadequate and/or no policy measures and instruments by governments and authorities to support and incentivize actors along value chains to take up climate-smart technologies and practices;
- Weak adaptive capacities and systems, especially among the smallholder farming communities; and
- Limited private sector and farmer driven technologies and practices along the agricultural value chains in the region.

An interplay of these characteristics leads to less resilient livelihoods which is the main problem the proposed project seeks to address. The full implementation of Southern Africa's adaptation strategies and related actions requires increased human, financial and institutional capacities, and all these are currently limited in the SADC region. Whilst Governments have been investing in several analyses including downscaling of climate data; there has been limited investments in technical capacities and resources to implement these strategies and action plans to build climate resilience of the vulnerable communities and key socio-economic sectors (including water resources, agriculture, human health, human settlements, etc.). Furthermore, the most affected populations reside in marginalized rural areas and depend on farming for their livelihoods. Resilience-building strategies should therefore be prioritized in such areas to avoid further deteriorations in the food and nutrition security situation and improve the communities' ability to withstand future shocks. This proposed project also aims to assist governments located within these river basins in initiating and piloting a number of adaptation interventions that can be scaled up and implemented widely within the entire SADC region. It also aims to use concessionary funds from the AF together with grants from governments and loans from development finance institutions to facilitate the development and uptake of specific technologies and practices by smallholder farmers at specific sites, to enhance their climate resilience.

Basing on the Adaptation Funds' broad areas of focus, this proposed regional programme will be multi-sectorial in nature with strong elements of **1) Agriculture** – through building of private sector driven sustainable climate-smart agricultural value chains, **2) Food and nutrition security** – through focusing on smallholder farmers' priority agriculture value chains and high impact climate-smart and nutrition-sensitive interventions, **3) Rural development** – through building adaptive capacities of local, national and transboundary resources management institutions and communities, **4) Water Resources Management** – through introduction of nature based solutions and approaches (such as ecosystem based adaptation) to water resources protection and management; sustainable water and land management technologies and practices along agricultural value chains and other end users across boundaries, and **5) Forests** – through better management of non-timber forest products, agroforestry and alternative energy generation and saving solutions and technologies. This proposed project interventions will build on the existing partnership and collaborations between the UNESCO, FAO and FANRPAN. This proposed project will be implemented as a SADC Regional Programme that will

support and work closely with representatives from the two River Basins as well as transboundary commissions and institutions, including the climate and meteorological units of SADC.

Conceptual and strategic framework for the proposed programme

The primary goal of the proposed Programme is to reduce vulnerability and increase adaptive capacity of small holder farmers, communities, institutions and decision makers, (as beneficiaries) to respond to the impacts of climate change, including variability at local and national levels. The expected impact is increased resilience and adaptation to climate variabilities change of rural smallholder farmers, agro pastoralists and pastoralists in selected geographical areas within these water stressed river basins (Kunene and Limpopo) in Southern Africa. Figure 1 outlines the theory of change that is envisaged to build adaptive capacities for smallholders within these water stressed river basins. The Programme will implement a set of concrete adaptation activities structured to **build systemic capacities targeting systems, institutions, transboundary water resources management systems, and processes, commodity value chains, subsistence & smallholder farmers including associations and other bodies, communities and other relevant stakeholders.** Interventions will focus on Regional, member states institutions and communities within the SADC region prioritising the Kunene and Limpopo river basins. This would be in alignment with the member States (i.e. Angola, Botswana, Namibia, Mozambique, South Africa) climate change related policies, strategies and action plans; the SADC Protocol on Transport, Communications and Meteorology; Climate Change Adaptation (CCA) Strategy for the Water Sector and the SADC Policy Paper on Climate Change: Assessing the Policy Options for SADC Member States. In implementing this proposed project, UNESCO, FAO, SADC Secretariat and FANRPAN will collaborate with two existing River basin authorities; namely LIMCOM for Limpopo River Basin and the Permanent Joint Technical Commission (PJTC) as well as the Governments of Angola, Mozambique, Namibia, South Africa and Zimbabwe, to build resilient communities and climate-smart smallholder crop and livestock value chains that use scarce water resources in a sustainable manner (i.e. water efficient value chains). It seeks to strengthen local systems and institutions for service provision, including water resources management, climate and weather information to farmers. Thus, providing innovative market driven financial incentives, measures and facilities that catalyze value chain based private and public investment in the development and adoption of appropriate technologies and best practices in managing agricultural ecosystems.

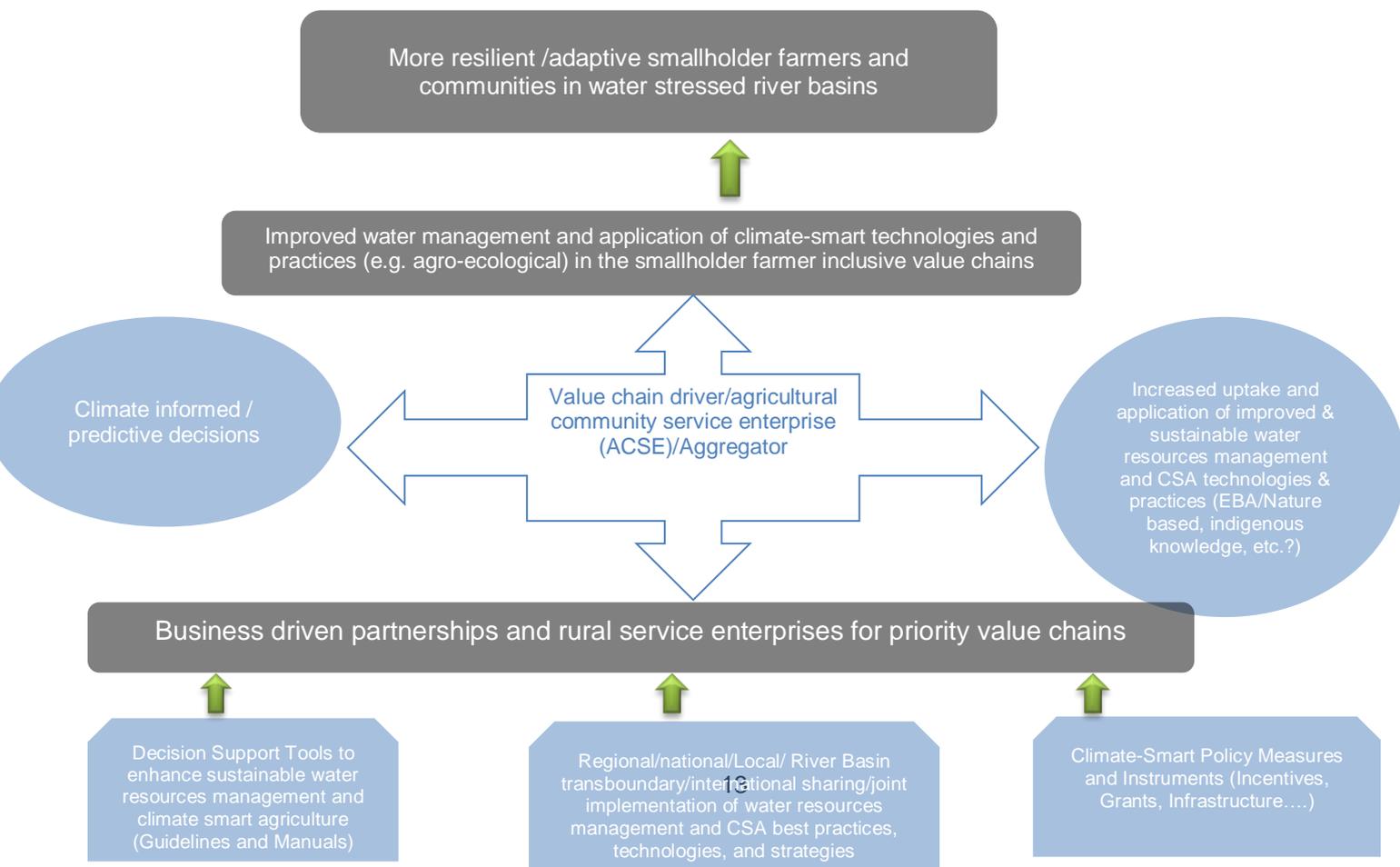


Figure 4: Theory of change for building adaptive capacities for smallholder holder value chains (and other selected beneficiaries) in water stressed river basins

Programme goal and objective

The **overall objective of this proposed project is to reduce vulnerability and increase adaptive capacity of smallholder famers through sustainable management of water resource for agriculture and food security in the Kunene and Limpopo river basins.** This will be achieved through catalyzing an integrated and transboundary approach to water resource management and gender mainstreaming and inclusion. The project employs a combination of improved information systems, institutional frameworks and infrastructure, water resources management systems, techniques and approaches that are linked to viable value chains, in order to provide opportunities for reducing vulnerabilities of the communities. The transboundary cooperation approach will ensure that countries and communities benefit from a full range of resilience options that were identified and will be applied through community level and stakeholder consultations and participatory processes.

The specific objectives of the proposed programme are:

- Increase the timely availability and use of regional, national and subnational agrometeorological data and analyses for decision making by smallholder farmers and other users at the local level.
- Facilitate the development and application by national level authorities of a compendium of policy level instruments, strategies and tools for supporting and incentivizing value chain actors to invest in sustainable water management and climate smart technologies and practices
- Increase the use of climate resilient ecologically based water and agronomic management approaches, practices and technologies along the selected smallholder staple value chains
- Facilitate inter-basin and transboundary sharing of information, knowledge, best practices around water resources management and climate smart agriculture technologies

The hallmark of strengthening adaptive capacities to be achieved through this programme is demonstrated by the numbers of concrete value chain productive adaptation infrastructure/assets suggested by the communities during the consultative exercise. As outlined in the preceding table under activity 2.2.4 the programme will invest the highest proportion of the budget in facilitating rehabilitation, construction and establishment of strategic livelihood and climate-smart infrastructure linked to value chains and other key livelihoods provided through various forms of partnerships. The table shows the main concrete productive adaptation infrastructure/assets to be provided through the programme.

Indicative Concrete productive adaptation infrastructure/assets		Envisaged number of units under project based on consultation
1	Solar powered drip irrigation micro irrigation systems	100 units
2	Construction and rehabilitation of weirs	40 units (2 per site)
2	Construction and rehabilitation of earth dams	40 units (2 per site)
3	Solar driven watering holes for grazing lands (and Wildlife zones) - for Zimbabwe and Namibia	8 units (2 per site)
4	Conservation Agriculture: Jab planters (manual driven)	5000 units 1 per each household
4	Conservation Agriculture: Direct seeders	500 units—group based
4	Conservation Agriculture: Rippers	5000 units----group based
5	Water efficient drought tolerant crop varieties Vitamin A enriched sweet potato varieties (Orange Fleshed) Drought tolerant Cassava varieties for Mozambique	5000 households
5	Adaptable goat breeds and fodder systems—Breeding stock (2 goats x 1000 households) and passed on—Namibia and Zimbabwe	1000 units
5	Improved Indigenous chicken production (incubators and hatchery components)—50 eggs per household/l hatchery per Group	100 groups (each of +-25 farmers)
5	Sweet potato vines and fertilizer inputs x 0.05ha	1000 households
6	Processing value addition infrastructure	
	Fresh produce grading and storage facilities	5000 households per site
	Honey filtering machine and accessories	1 per site
	Sweet potato processing equipment	1 per site
	Cassava processing equipment	2 for Mozambique
7	Enhanced Ecological Infrastructure	
	Soil erosion community control structures	USD50,000 per country
	Rehabilitation of wetlands	USD20, 000 per country
	Rangeland management	USD 100,000 ALL countries
8	Tailored local monitoring and early warning systems infrastructure(includes 10 automated weather stations per site)	10 units per site (200 Units total)

b. Programme components, outputs, broad activities, adaptation outputs and estimated costs

Adaptation Fund Impact: Increased climate resilience of water resources, smallholder farmers, communities, national, and regional Governments to climate variability and the long-term change, including extreme events within the Limpopo and Kunene River Basins, in the SADC region.		a) Programme Impact: Increased resilience to climate variabilities and change of water resources, rural smallholder farmers (including agro pastoralists, pastoralists), and communities in selected geographical areas within water stressed Limpopo and Kunene river basins of Southern Africa.			
<i>Programme component</i>	<i>Outputs</i>	<i>Description/Sub Activities</i>	<i>Adaptation Outputs</i>	<i>Estimated Budget</i>	<i>Focus member states within the SADC region</i>
1. Implementing measures to assess and reduce exposure to climate related risks, hazards and threats and enhance small holder farmers and the people's (communities) climate resilience.	Output 1.1: Climate risks and vulnerability assessments conducted; Adaptation Response plans developed, and updated at regional and national levels.	1.1.1 Generation of regular seasonal climate assessments, forecasting and projections by SADC Secretariat through SARCOF and NARCOFS downscaled to the selected or all Small holder farming communities in the region.	<ul style="list-style-type: none"> Regional historical, existing and future downscaled climate data baseline. Climate Risks and Vulnerability Assessments and analysis (CRIDA). Downscaled future climate data and information. Adaptation Strategy and sustainability action plan and yearly support to the Regional SARCOF. Post SARCOF national capacity building, moving towards sub-seasonal forecasts 	\$225 000,00	All SADC countries
		1.1.2 Capacities development /building of beneficiaries within the Limpopo and Kunene River Basins in climate vulnerability risk profiling for key crop and livestock production systems and value chains built.	<ul style="list-style-type: none"> Vulnerability risk profiles of the selected geographical areas within the river basins member countries. Localized/value chain specific climate risk/hazard response models/protocols. 	\$50 000,00	Namibia, Angola, South Africa, Zimbabwe, Mozambique
	Output 1.2: Targeted communities and small holder farmers (beneficiaries) d covered by adequate risks reduction systems.	1.2.1 Inventory of new/improved value chain specific climate-smart technologies, approaches and practices, applicable/suitable for each selected member state geographical areas of focus	<ul style="list-style-type: none"> Geo and value chain specific and localised climate smart technologies, approaches and practices inventory. 	\$75 000,00	Namibia, Angola, South Africa, Zimbabwe, Mozambique
		1.2.2 Build capacity of Agromet divisions in the Southern African region.	<ul style="list-style-type: none"> Capacity for agro-met divisions at national and SADC Secretariat. SADC Flood and Drought Early Warning System. Strong Earth Observation Data systems and GIS-climate capability of regional centers and networks. 	\$365 000,00	SADC Counties, Needs Based
		1.2.3 Facilitating harmonization of early warning and surveillance systems and mechanisms for priority climate induced transboundary risks and other hazards across member countries within the 2 river basins.	<ul style="list-style-type: none"> Tailored high-resolution Monitoring and Early Warning Systems for the selected geographical areas within Limpopo and Kunene River Basins or the entire SADC Region. Regional livestock and crop data/information collection, disease surveillance. Strong cross boarder and cross-basin disease surveillance and treatment? - EMPRES-i EMA. Strong long-term harmonized EWS information/tools for short and climate induced hazards and disasters. Regional Application of Monitoring and Early Warning system. National Application of Monitoring and Early Warning system. 	\$665 000,00	SADC countries

	Output 1.3: Strengthened capacity of smallholder farmers, communities, key socio-economic sectors, national and regional centers, and other related networks to respond rapidly to extreme weather.	1.3.1 Agro-climatic advisory and feedback mechanism/systems in the region strengthened.	<ul style="list-style-type: none"> • Database for intermediaries and smallholder farmer, community and other institutions users established. • Seasonal agriculture planners regularly produced. • Cost effective communication and feedback channel anchored on various the Connected Farmer Platform, and other relevant platforms of the various sectors (such as the health, human settlements, disaster risks reduction & management, etc.). • Continuous assessment, impact enhancement, learning, monitoring and evaluation. 	\$230 000,00	SADC Countries
	Output 1.4: Improved integration and mainstreaming of climate resilience strategies into country development plans.	1.4.1 Incentives and instruments for catalyzing adoption and mainstreaming of climate smart technologies approaches and practices? along value chains developed, improved and applied.	<ul style="list-style-type: none"> • Review of the policy instruments or basket of incentives for inclusive climate smart value chains and pro-active flood and drought risk management strategies. • Application of inclusive gender and youth sensitive basket of incentives. • Improved menu of policy tools available for inclusive climate smart Value chains development. • Recommendations for upgrading the procedures for the delivery of existing and new incentives. • Capacity for VC actors to access climate smart incentives and other climate financing resources. 	\$500 000,00	All SADC countries
		1.4.2 Develop capacities for targeted value chain specific actors to apply a range of new technologies/approaches/practices/initiatives, and climate-smart tools.	<ul style="list-style-type: none"> • Livestock Emergency Guidelines and Standards (LEGS) for agricultural extension workers. • Good Emergency Management Practice (GEMP) for animal health/veterinary officials. • Agro-pastoral community-based rangeland condition monitoring and early warning. • Guidelines and baseline analysis of current national drought and flood risk management strategies in the region and best practices worldwide. • Capacity of governmental agencies and parliamentarians on flood and drought risk management strategies. 	\$200 000,00	All SADC countries
		1.4.3 Establish and operationalize a Regional Knowledge Policy Action Platform on Climate Resilience for Southern Africa.	<ul style="list-style-type: none"> • Knowledge Action Platform on Climate Resilience for Southern Africa (Regional KAPP). 	\$25 000,00	All SADC countries
	Subtotal Component I			\$2 335 000,00	
2. Diversifying, strengthening and increasing adaptive capacities, livelihoods	Output 2.1: Targeted population groups participating in adaptation and risk reduction awareness activities.	2.1.1 Support platforms for joint planning, implementation, coordination to build adaptive capacities and resilience to climate change.	<ul style="list-style-type: none"> • Inter basin and transboundary learning, sharing and planning using the 'from Potential Conflict to Cooperation Potential' (PCCP) approach. • Evidence based adaptation information in the region (demonstration, documentation and reporting of good practices, lessons learned and success stories) developed and implemented • Inter-basin and transboundary joint planning, implementation, coordination committees initiatives using the PCCP approach. 	\$ 350 000,00	

and sources of income for vulnerable people in targeted areas.	Output 2.2: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability.	2.2.1 Identify and support priority value chains and non-agricultural sources of income opportunities for upgrading into inclusive climate-smart and business driven activities.	<ul style="list-style-type: none"> • Key value chains and non-agricultural options and opportunities in each basin identified and implemented? • Aggregators (Private Buyer) for the identified commodities in the project sites. 	\$100 000,00	Namibia, Angola, South Africa, Zimbabwe, Mozambique
		2.2.2 Develop profiles and upgrading plans/proposals for i) priority value chains and ii) non-agricultural livelihoods and income sources.	<ul style="list-style-type: none"> • Multi-stakeholder capacity development on the new VC soft methodology. • Modern GIS referenced profiles and registers of farmers (with farm plans, farm and farmer characteristics-economic, geographic, agro ecological). • Digital system/platform for managing start up inputs, extension, marketing and climate information. • Upgraded climate smart business model with Detailed Profiles of commodity value chain for the priority commodities by the communities and the business partners - with clear definition of all underlying business relationships. 	\$925 000,00	Namibia, Angola, South Africa, Zimbabwe, Mozambique (focus on Kunene and Limpopo River Basins).
		2.2.3 Facilitate business alliances/partnerships for viable farmer clusters (aggregated agro pastoral and farmer field schools) and individuals in priority value chains and non-agricultural livelihoods.	<ul style="list-style-type: none"> • Detailed assessment of farmer needs in upgraded business model (Inputs, water management infrastructure, climate smart technologies, approaches and practices). • farmer organization (producer level) - Women, Youth farmer Field and Adult farmer field schools. • farmer organizations to develop business relationships. • VC actors access resources/funds -through a 30% de-risking matching grant for farmers' needs. 	\$2 220 000,00	Namibia, Angola, South Africa, Zimbabwe, Mozambique (focus on Kunene and Limpopo River Basins).
		2.2.4 Facilitate rehabilitation, construction and establishment of strategic livelihood and climate-smart infrastructure linked to value chains and other key livelihoods provided through various forms of partnerships.	See next table for Details of productive and adaptive assets.	\$5 550 000,00	Namibia, Angola, South Africa, Zimbabwe, Mozambique (focus on, Kunene and Limpopo River Basins).
		Subtotal component II			\$9 145 000,00
Grant Total Direct Programme costs			11 480 000,00		
Execution costs			1 330 000,00		
Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)			1 190 000,00		
Amount of Financing Requested			14 000 000.00		

Projected Calendar:

Milestones	Expected Dates
Start of Project/Programme Implementation	01.02.2021
Mid-term Review	01.08.2022
Project/Programme Closing	30.01.2024
Terminal Evaluation	01.07.2024

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Describe the project / programme components, particularly focusing on the concrete adaptation activities, how these activities would contribute to climate resilience, and how they would build added value through the regional approach, compared to implementing similar activities in each country individually. For the case of a programme, show how the combination of individual projects would contribute to the overall increase in resilience.

The Programme has two main components; i.e., Component I with one outcome and four outputs, and Component II with one outcome and three outputs. Each of these is described in the proceeding section.

COMPONENT I: *Implementing Measures to Reduce Exposure to Climate Related Risks, Hazards and Threats and Enhance People's Resilience.*

Outcome 1: Measures to reduce exposure to climate related risks, hazards and threats and enhance people's resilience, implemented.

To achieve Outcome 1, the Programme will implement a range of measures aimed at reducing exposure to climate related risks, hazards and threats and enhancing smallholder farming and agro pastoral community's resilience. This includes strengthening vulnerability assessments, enhancing risks reduction systems, strengthening capacity of national and regional centers and networks to respond rapidly to extreme weather, and facilitating integration of climate resilience strategies into country development plans.

Output 1.1: Risk vulnerability assessments conducted and updated at regional and national levels

The following activities will be implemented to achieve Output 1.1:

- 1.1.1 Support generation of regular seasonal climate assessments, forecasting and projections by SADC Secretariat through SACCOF and NACCOFS and downscale the information to the farming communities in the selected river basins.
This will include the following sub activities:
 - i. Establishment of historical climate baseline statistics, trends and historical and future climate change hotspots (areas of concern) for selected agricultural communities: This will focus on analysis of historical baseline and trend derivatives as well as downscaled climate baseline statistics to create awareness and significantly contribute to climate risk management and climate change adaptation.
 - ii. To identify the current and future vulnerabilities of water and food and nutrition security in the pilot water basins, a baseline analysis is required. The Programme adopts the recently established Climate

Risk Informed Decision Analysis (CRIDA)¹⁰, which provides a collaborative 5-step framework to identify climate risks for the basins. By engaging with the local stakeholders, a set of performance indicators will be identified, together with their critical threshold levels for water and food security. Through a climate stress test, the impact of climatic and non-climatic drivers will be assessed, which will form the baseline for further economic analysis to identify adaptation pathways, in line with the local vulnerabilities to projected changes.

- iii. Capacity building and training in downscaling and bottom-up climate risk assessment techniques (e.g., CRIDA) and communication of uncertainties: This will include data processing and management, techniques for downscaling the seasonal forecast (e.g. blending of dynamical and statistical techniques), and communication methods. Capacity building workshops will rotate between member countries and the SADC Secretariat. The capacity building will reach 120 technical officials including 100 from the five focal countries and 20 from regional institutions. The countries will be supported to develop manuals for the downscaling process. Communication and outreach staff from SADC Secretariat and NMHSs will receive training on how to communicate uncertainty, and to develop a standard format for the main climate products, i.e. the downscaled seasonal forecast and the monthly and ten-day agro-meteorological bulletins. In addition, NMHS
- iv. Strengthening of the Regional SACOF under SADC Secretariat: The SARCOF process convened by the SADC Secretariat can be strengthened to play a stronger role in the regional climate outlook prediction and application process. In addition to yearly support to its convening, the Programme will develop a strategy and sustainability plan for the SARCOF to ensure that a long-term resource plan is in place. It is one of the World Meteorological Organization (WMO) Regional Climate Outlook Forums, developed under World Climate Services Programme (WCSP) of the World Climate Programme, active in several parts of the world, which routinely provide real-time regional climate outlook products. The SARCOF is coordinated by the SADC Climate Services Centre (SADC CSC) in Botswana.
- v. Post SARCOF High resolution forecast downscaling to national and river basin farming community level: There is a growing need for high resolution climate forecasts for target users in agriculture, hydrology, disaster management and health among others at sufficient lead times. To generate high resolution local climate anomalies, downscaling techniques, which can either be statistical or dynamical are applied. Some of these systems are already being applied by SADC Secretariat, however, for sustainability, capacity for both statistical and dynamical downscaling of seasonal forecasts will further be strengthened at NMHSs. Dynamical and statistical downscaling tools will then be routinely applied for skillful downscaling of weather and climate forecasts across participating countries to generate more reliable and actionable forecast products applicable for agricultural, household food and nutrition security planning and decision making. Downscaled products will act as basis for generation of agro-advisories upon which strategic and tactical decision making by farmers will be based and will provide the pathway for the development of climate services.

1.1.2 Build capacity in climate vulnerability risk profiling for key crop and livestock production systems and value chains

Building further on the CRIDA approach for vulnerability assessment of water and food and nutrition security, more localized/value chain specific climate risk/hazard response models and protocols will be required to counter the effect of climate change. This will involve the undertaking of climate vulnerability risk profiling for crop and livestock production systems and value chains using the ADAPT framework and the Climate Risk Informed Decision Analysis (CRIDA) tool. These tools assist in assessing potentially devastating risks to farming systems and prioritize the capital and operational investments you'll need to mitigate them, while providing a cost-effective portfolio of measures for prevention, preparation, response and recovery. These tools are relevant for smallholder farming because of their value chain approach, the

¹⁰ <http://unesdoc.unesco.org/images/0026/002658/265895e.pdf>.

discussion of institutional entry points for climate adaptation and resilience, and the modules on the food, water and agricultural sectors.

Output 1.2: Targeted population groups covered by adequate risks reduction systems

The following activities will be implemented to achieve Output 1.2:

1.2.1 Develop Inventory of new or improved value chain specific water management and climate-smart technologies, approaches and practices

Water management and Climate-smart technologies, practices and approaches along value chains will ensure long term sustainability of the chains will be identified. The Programme will facilitate profiling of new or improved value chain specific water management and climate-smart technologies, approaches and practices and establish an inventory of geo-specific crop production systems and value chain risk reduction strategies, technologies and practices. Such technologies will include solar-powered water infrastructure along predominant livestock migration routes, good practices such as community level fodder production, supplementary feeding and “bush-to-feed” initiatives. It will also include specific livestock breeds which are more heat, water-stress and pest tolerant, and require less biomass (good feed conversion ratio (FCR)) for agro pastoral livestock communities and water harvesting and conservation, include: small size dams, water harvesting systems, boreholes etc. Others will also include appropriate seed and fertilizers, rotation intensification, residues, mulches, rotation diversification, no tillage, cover crops, manure, terracing, soil amendments, grazing management, pasture improvement, water harvesting, intercropping, cross slope barriers, tree crop farming, agroforestry, alley farming, improved fallow, bio char, clearing invasive and encroaching species, and restoration of wetlands and marginal lands.

1.2.2 Build capacity of Agro-met divisions for participating in the Southern African region

The Programme will build the capacity of agro-met divisions for five focal countries and at SADC Secretariat. It will also build regional capacity for application of Earth Observation Data systems in early warning, monitoring and observation and build GIS-climate capability of regional centers and networks through infrastructure upgrades. In view of the increasing adverse impacts of severe weather and extreme climate associated with climate variability and change, the Meteorological Services in SADC are currently faced with high demand for timely and quality information, services and products. The social and economic value of weather and climate information is derived from the influence of this information on decisions made by users in the sectors sensitive to weather and climate conditions, with the value tending to increase with the quality, accuracy, timeliness, location specificity and user-friendliness of the information. NMSs require adequate infrastructure for observations, data processing and exchange and dissemination as well as trained personnel to achieve this. However, inadequate observational station network due to lack of instruments, shortage of trained personnel, telecommunications systems, data processing and information dissemination facilities are major drawbacks. The infrastructure and facilities have continued to deteriorate leading to great difficulties in giving weather and climate services in the region to meet national and regional needs.

1.2.3 Facilitate harmonization of early warning and surveillance systems and mechanisms for climate induced transboundary risks and other hazards

There is considerable variation in the institutional architecture for climate disaster management and response including early warning systems across Southern Africa. Particularly, there is a need for monitoring and early warning systems that provide coherent information in a transboundary setting, such as the pilot watersheds. Building further on the African Flood and Drought Monitor, regional and sub-regional information will be harmonized by establishing a SADC version of the Monitor, as well as higher resolution versions for the two pilot basins. Additionally, it is critical to support and contribute to regional crop and livestock data/information collection, disease surveillance, (with appropriate diagnostic support), monitoring and control of transboundary animal diseases (such as FMD, peste de petits ruminants and contagious bovine pleuropneumonia Fall armyworm, African armyworm and Migratory and Red Locusts))

and zoonoses (such as anthrax, rabies, brucellosis, etc.) in as far as they are enhanced by droughts and floods. The Programme will implement the following sub-activities through intra-basin planning and coordination:

- i. Establish a SADC regional Monitoring and Early Warning system (MEWS) and two pilot high resolution monitors for the transboundary watersheds, based on the African Flood and Drought Monitor architecture.
- ii. Provide technical support to regional crop and livestock data/information collection, disease surveillance and strengthen cross boarder and cross basin disease surveillance (possibly using similar platform as EMPRES-i EMA, FAMEWS, FAW Risk Mapping) and other systems being piloted by FAO in the region.
- iii. Strengthen long-term harmonized information collection and exchange for the regional and local MEWS and strengthen data collection tools and response protocols for the region for improved climate-informed decision making.
- iv. Roll out capacity building at the regional and local level on a) operationalization of Monitoring and Early Warning systems; b) data collection using agreed tools; and c) data analysis and decision making using the Monitoring and Early Warning products.
- v. Provide an incentive for all SADC members states to domesticate and uptake data collection tools and response protocols for the region's climate induced hazards and disasters.
- vi. Develop, promote and strengthen gender considerations in climate change adaptation planning and implementation in coherence with agricultural value chain development to ensure program gender responsive climate smart agricultural practices and technologies in order to increase access to assets and services (input/output markets).

Output 1.3: Strengthened capacity of national and regional centers and networks to respond rapidly to extreme weather

The following activities will be implemented to achieve Output 1.3

1.3.1 Strengthen Agro-climatic advisory and feedback mechanism and systems in the region

This will involve the following sub-activities:

- i. Establish database for intermediaries and farmer users, including baseline surveys in all project sites in order to establish benchmark demographic and socio-economic status in the communities using appropriate methodology: Baseline surveys will also identify climate information needs which will be basis for the project to prepare and design products and support climate information generation, use and management capacity.
- ii. Carry out climate diagnostics (spatial maps, figures and summary statistics on current and projected climate conditions, and implications of projected changes for climate-sensitive sectors)
- iii. Facilitate production of seasonal agriculture planners regularly through national participatory planning workshops and multi stakeholder dialogues at national and river basin levels to co-produce a comprehensive Seasonal Agricultural Planner (SAP) at least twice a year after release of every downscaled seasonal forecast.
- iv. Review existing feedback mechanisms at NMHSs: The NMHSs of the target countries currently receive little feedback in a systematic manner from climate information users, which means that there is no efficient process in place for continuous improvement of the services provided. This project will therefore support the countries to undertake an assessment of the existing feedback mechanisms, rank them and come up with key recommendations on how to improve on feedback delivery. Comparisons will be made with similar past and ongoing work within the region.
- v. Develop and apply a cost effective communication and feedback channel in order to obtain verifiable and actionable feedback from climate information disseminators and users: The communication and feedback channel will be anchored on the Connected Farmer Platform, which is a mobile software

solution that will link thousands of smallholder farmers by enabling access to information, services and markets.

- vi. Develop a performance management and impact enhancement system which includes monitoring and evaluation, capacity development, networking, as well as development of communication and social marketing strategies: This will include continuous monitoring learning evaluation and feedback, scheduled periodic evaluations (mid-term and end of term), continuous performance assessment and impact enhancement.

Output 1.4: Improved integration of climate resilience strategies into country development plans

1.4.1 Develop, improve and apply incentives and instruments for catalyzing adoption of climate-smart approaches along value chains

Climate impacts are taking place alongside rapid social, economic and demographic transitions that combine to influence development outcomes, including interacting challenges across the nexus of food security (Ford et al., 2015), water availability and energy supply (Conway et al., 2015). However, there is paucity of reliable climate information (Jones et al., 2015) and uncertainties about the timing of impacts and their spatial distribution (Davis, 2011). As climate change is a crosscutting issue, adaptation needs to be mainstreamed into sector-based policies (Stringer et al., 2014) and across different levels of governance (Urwin and Jordan 2008). Consequently, partnership building, strengthening and collaborations is strongly advocated to manage the impacts of climate change, as well as developing an appropriate institutional context and supporting policy instruments (Massey et al., 2014; Biesbroek et al., 2010).

Political, institutional and economic barriers

The enabling environment is critical for building the adaptive capacities of water stressed river basins of Southern Africa Region. There is need to take into account existing institutions and their capacities as well as the policy and regulatory framework, and the opportunities and constraints they provide. This is critical for effective implementation of adaptation actions (this may include extension services, taxes or subsidies on agricultural inputs, credit and insurance schemes) because they provide the rules and incentives (or disincentives) for adoption of innovation. Engagement and learning are critical, to create a space with key constituencies and actors to avoid political obstacles to the scaling processes (Linn, 2012).

To be on track, with the related Malabo commitment, the five focal countries need to:

- Facilitate the integration of climate change adaptation, in coherent manner, into relevant new and existing policies, programmes, activities, in particular development planning processes and strategies, within all relevant sectors and at different levels, as appropriate.
- Optimize policy coherence within sectors and across sectors in order to achieve adaptation outcomes that support development aspirations.
- Facilitate for integration of adaptation strategies in key sector plans, and facilitate for the adaptation responses that require coordination between sectors, provinces, and Local government
- Also conform with regional policy frameworks and commitment in terms of the SADC.

This will involve the following sub-activities which are underpinned by an approach which deals with policy research to generate research-based evidence, capacity strengthening of various stakeholders to engage fruitfully in policy processes, and policy advocacy.

(i) Policy Research

- Review of the policy instruments or basket of incentives for inclusive climate smart value chains available at national, provincial and regional levels in each country.
- Identify and support implementation of incentives and institutional arrangements that enable and empower farmers, in particular women, to adopt climate-smart agriculture. Further, this will require training and supporting all value chain actors to access climate-smart incentives and other climate financing resources.
- Facilitate definition and introduction of missing incentives and ensure that the basket of promising identified incentives climate-smart, are gender- and youth-sensitive.

- Develop recommendations for (i) improving the menu of policy tools available for inclusive climate-smart agriculture value chains development; and (ii) upgrading the procedures for the delivery of existing and new incentives.

(ii) *Capacity Strengthening:*

- Train intermediaries and government officials and parliamentarians on policy processes relating to transboundary water management, disaster risk reduction and climate risk management for floods and droughts. This will also ensure buy-in and ownership of policy reforms by government officials and relevant stakeholders.
- Build institutions and incentives to enable all farmers to adopt climate-smart practices, such as low transaction cost mechanisms for accessing climate finance, support to farmers' organizations and policy instruments that produce trade-offs between food security, adaptation and mitigation.

(iii) *Policy Advocacy*

- Convene multi-stakeholder local, national and regional policy dialogues with targeted constituencies to identify knowledge and action gaps, share lessons on viable instruments, institutions, policies, and contribute to achieving multi-stakeholder consensus on priorities for appropriate investment and action by different actors/stakeholders for building resilience for food and nutrition security. In addition, this will be supported by capacity building of the identified policy change, dissemination and awareness initiatives.

1.4.2 Develop capacities for targeted value chain specific actors to apply a range of new technologies/approaches/initiatives, climate risk reduction and climate smart tools

This will involve the following sub-activities:

- Training on Livestock Emergency Guidelines and Standards (LEGS) for 250 agricultural extension workers and key livestock value chain actors: The ultimate objective is to assist people affected by crises through livestock-related interventions. LEGS bring a livelihoods perspective into disaster relief for communities relying fully or partially on livestock and promotes rights-based approaches to development
- Training on Good Emergency Management Practice (GEMP) for Animal 250 health/veterinary officials and Community Animal Health Workers (CAHWs): Livestock Disease emergencies that are becoming more and more frequent in Kunene and Limpopo basins are one of the most challenging situations that a veterinary service can confront. The aim of GEMP is to set out in a systematic way the elements required for preparedness for any emergency disease in animals. Emergency management preparedness programmes should provide the key to identifying and prioritizing disease incursion threats.
- Agro-pastoral communities' skills enhancement through tailor-made and co-created Agro pastoral farmer field schools' trainings on Community-based Rangeland Condition Monitoring for early warning.

1.4.3 Establish and operationalize a Regional Knowledge-Action Policy Platform (KAPP) on Climate Resilience for Southern Africa

The Programme will facilitate stronger regional collaboration through design, validation and operationalization of a Regional Knowledge-Action Policy Platform (KAPP) on Climate Resilience for Southern Africa, with a particular focus on flood and drought risk management policies to improve transboundary water management. The platform will facilitate the development, sharing and scaling-up use of proven approaches, technologies and practices including resilience measurement, evaluation and learning approaches that are designed to address the unique challenges that resilience poses. The KAPP will be a collaborative network that facilitate highly integrative sustainability in knowledge co creation and application. The Regional Knowledge-Action Policy Platform (KAPP) is envisioned as a self-sustaining collaboration

between likeminded stakeholders working on resilience. The project period will see structuring of the platform in a consultative manner, i.e. specific Terms of Reference, work plan etc using the project resources. Specific champions/eminant persons will be identified to provide strategic push post project. Most importantly the KAPP will ride on the regional footprint of the SADC secretariat, the river basin-wide footprints of the LIMCOM and Permanent Joint Technical Commission (PJTC) of Kunene. These institutions together with UNESCO and FAO will continue to form part of the KAPP beyond the project

COMPONENT II: *Diversifying, strengthening and increasing adaptive capacities, livelihoods and sources of income for vulnerable people in targeted areas*

Outcome 2: Diversified, strengthened and increased adaptive capacities, livelihoods and sources of income for vulnerable people in targeted areas

To achieve Outcome 2, the Programme will implement measures for diversifying, strengthening and increasing capacities, livelihoods and sources of income for vulnerable people in the selected basin areas. Targeted populations will be capacitated to participate in in adaptation and risk reduction awareness activities. Agro pastoral and farmer field schools will be established as a vehicle to aggregate and connect smallholder farmers to markets through innovative business alliances driven by an 'aggregator/agricultural community service enterprise of value chain driver' in targeted river basin areas; and improved smallholder farmers' access to climate smart technologies.

Output 2.1: Targeted population groups participating in adaptation and risk reduction awareness activities

2.1.1 Support platforms for joint planning, implementation, coordination, and learning to build adaptive capacities and resilience to climate change

This will involve the following sub activities:

- i. *Facilitating inter basin and transboundary exchange visits and study tours:* The Programme will facilitate 3 visits in each year for 50 farmers from each basin. Exchange visits offer a bundle of benefits including information sharing at several levels and assessing the relevance of new approaches. Information comes alive, in dialog, in detailed responses to specific queries, in conversations enriched by the perspective of distance and difference and gender social inclusion Exchange visits also provides a platform to discuss the already developed climate information and services and to receive feedback on the way forward.
- ii. *Support to activities of inter-basin and transboundary joint planning, implementation, coordination committees:* Joint planning and management of transboundary water resources requires a common understanding on water issues and complementary *strategies* for water management. Adoption of basin wide approaches follows the main principles of Integrated Water Resources Management (IWRM) including inter-sectoral cooperation, public participation and strengthening human capacities. The activities will make use of the methodologies developed as part of the UNESCO Programme on joint management of transboundary rivers: from Potential Conflict to Cooperation Potential (PCCP)¹¹.
- iii. *Support evidence-based adaptation information in the region through demonstration, documentation and reporting of good agricultural practices, lessons learned and success stories:* Building further on the CRIDA baseline assessment of climate vulnerability and proposed adaptation pathways, information will be provided through documentation of success stories, reporting and setting up of community sites for demonstrating adaptive crop pathways and practices for communities at high risk of climate change related impacts. Demonstration plots will be established at each site and will also serve as a venue to research and test new methods

¹¹ <http://www.unesco.org/new/en/pccp>.

alongside traditional ones. They will also help with the uptake of new concepts that are transforming agriculture including precision agriculture (for efficient resource utilization) and other climate smart technologies such as the uptake of climate services developed during the project.

Output 2.2: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability

The project facilitates aggregation through the 'value chain drivers/aggregators/agricultural community service enterprise' as a vehicle not just to ensure sustainable market led production, but adoption of specific climate smart agriculture technologies, practices and approaches along selected agricultural value chains in the river basins. The 'value chain driver' (private buyer) approach, is a major missing link in smallholder farmer development which creates the necessary and appropriate security and business conditions for private sector to do business with smallholder farmers. The value chain driver with their business partners (farmers, and other value chain actors such as private and public financiers as well as off takers) will clearly specify and profile the underlying business relationships between different value chain actors. The projects then facilitate meetings and business alliances, and adoption of technologies by value chain actors.

Smallholder farmers' aggregation and commercialization will start with the selection of sites, beneficiaries, and potential aggregators at all sites in the three river basins (at least one site in each country). The final Aggregation models adopted at each site will depend on the outcomes of the in-depth value chain analysis.

This is then followed by profiling and registration of the farmers at specific sites which is done together with a process profiling and adopting an upgraded business model for the identified commodity chains. This will also involve a detailed assessment of the registered farmers needs within the upgraded business model. It will also include the setting up and strengthening of business-driven farmer organization, into clusters/syndicates along these value chains. Capacities will be developed for the farmers to formalize aggregation agreement with the private buyer/aggregator and enter into business relationships with other value chain actors according to the adopted upgraded business model. This will enable the farmers to access quantity and quality goods and services including land care and climate smart technologies, and the specifications will be outlined in the aggregation agreement.

Support to smallholder farmers' access and application of climate smart technologies will start with assessment, documentation and dissemination of available climate smart technologies including land care, conservation agriculture, agro-forestry and others (outlined in component 1). Then the designing and rolling out of policy and financial tools (matching grant) to be used to promote farmers and other value chain players to conservation agriculture and climate smart technologies will be done. Other public and private sector players will be engaged in the preparation and signing of PPP agreement for blended financial support to aggregate farmers and other value chain players. The project will contribute an equivalent of UD\$3 Million to be disbursed in grants per farmer as startup funds for inputs towards the blended PPP finance agreement. The intervention will ensure that equitable participation and benefits to women and men. It will pay attention to the involvement of marginal groups such as women, youths, people with disabilities and the elderly. This will include the following sub activities:

- i. *Identify priority value chains and non-agricultural sources of income opportunities for upgrading into inclusive climate smart and business driven activities:* This will involve the launch of a process to select sites, beneficiaries, and aggregators/Private Buyer at all sites. FAO will be responsible for design of a call (terms of reference), its advertisement, adjudication and awarding to the successful aggregators. In line with the different Government spatial definition of agro priority areas, and in application of FAO methodology a structured province/area/value chain specific call will be launched to identify the most

suitable aggregator. The call will also include consultative dialogue with all potential value chain actors at the identified sites.

- ii. *Profile commodity value chain and adopt an upgraded business model:* Separate service providers/consultants with the technical guidance of FAO and close collaboration with the Aggregator will profile selected commodity value chains and facilitate adoption of an upgraded business model by value chain actors. The profiling will start with a VC training using soft methodology provided by FAO, the commissioning of the profiling of status quo and upgraded model. The upgraded model is the one with the innovative *business* relationships and business arenas and which considers new land care and climate smart technologies. In addition, under the guidance and supervision of FAO, the Aggregator and the VC profiling experts will assess and report the farmers' needs within the upgraded business model. The upgraded business model carefully describes the underlying business relationships between each of the value chain actors and explains how the smallholder farmers will access all the services that will make them participate sustainably in the upgraded business model. The collection of diagrams shows examples of typical definition of underlying business relationships that facilitate smallholder farmer's access to critical services. This process will also assist in identifying opportunities for enhancing value addition, skills and knowledge management and sharing.

2.2.1 *Facilitate business alliances/partnerships for communities and individuals in priority VCs and non-agricultural livelihoods:* Using the Farmer field School Approach farmers/producers will be organized into viable and visible business entities for the selected VCs at the selected sites. In total over the 5 countries, the project intends to directly benefit 10 000 households which translates to approximately 50 000 people of 50% will be women (assuming an average 5-member household). Up to 500 farmer field schools (+100 in each country) comprising 20 people will be established. The farmer field schools will aggregate in larger viable producer clusters to satisfy the business arrangements of the upgraded business model. The standard FAO driven farmer field school training approach comprising community mobilization, Trainer of Trainers and facilitators will be applied at each site. The aggregated clusters will be capacitated to form business relationships (MoUs, contracts, etc.) with the aggregator and other value chain players, in order to ensure their members' access to required quantity and quality goods and service. Capacitating/training/supporting value chain actors to enter into business agreements. FAO will continuously monitor and support the upgrading if need be, of the operation of the goods and services delivery arenas (i.e.) the business relationships between farmers and key value chain players

2.2.2 *Assist vulnerable individual, community, and VC actors to access resources/funds:* Basing on participation in the upgraded climate smart value chains, the aggregated farmers will access a startup grant for inputs to be able to participate in production activities. It is envisaged that the 10 000 farmers will access the grant across the 5 countries. FAO will apply the E-Voucher system to roll out matching grant to the farmers profiled and included in the upgraded business model as part of the blended PPP financial agreement. This grant will support the water management and CS Technologies, but other contributors in the PPP Blended financial scheme will finance other needed goods and services. It is envisaged that the upgraded business model will be sufficiently viable to attract other private sector players including financial institutions. The Programme will therefore facilitate structured engagement through meetings of public and private sector players in the preparation and signing of PPP agreement for blended financial support to aggregate farmers and other value chain players. FAO will provide technical assistance to guide development of the blended finance agreement. The matching grant will be preconditioned on use and application of innovative climate smart technologies, approaches and practices.

Output 2.3: Physical, natural and social assets strengthened in response to climate change impacts, including variability Increased

2.2.3 Facilitate rehabilitation, construction and establishment of gender sensitive strategic water management, livelihood and climate smart value chain infrastructure provided through various forms of partnerships

An assessment to specify the business water management, infrastructure and equipment needs for the upgraded business models for each VC site will be commissioned. In line with the upgraded business model, and the assessment of aggregated farmer's needs, the Programme will either provide or identify and upgrade/rehabilitate water management, irrigation, storage, processing and other relevant infrastructure at selected sites. A budget of US\$3 Million will be set aside for the infrastructure needs of the upgraded business models for the 5 sites. Such water management, climate smart equipment and infrastructure needs will include but will not be limited to:

- Solar powered drip irrigation micro irrigation systems
- Construction and rehabilitation of weirs
- Construction and rehabilitation of earth dams
- Solar driven watering holes for grazing lands (and Wildlife zones)-for Zimbabwe, Namibia
- Conservation Agriculture: Jab planters (manual driven)
- Conservation Agriculture: Direct seeders
- Conservation Agriculture: Rippers
- Water efficient drought tolerant crop varieties
- Drought tolerant Cassava varieties for Mozambique
- Adaptable goat breeds and fodder systems
- Improved Indigenous chicken production (incubators and hatchery components)
- Soil erosion community control structures
- Rehabilitation of wetlands
- Rangeland management
- Early warning Automated weather stations
- Fresh produce grading and storage facilities
- Honey filtering machine and accessories
- Sweet potato and cassava processing equipment

It will also cover the cost of community level equipment for agricultural product improvement/refinement (value addition) in communities and commercialization of products

B. Describe how the project /programme would promote new and innovative solutions to climate change adaptation, such as new approaches, technologies and mechanisms.

i. Sustainable use of transboundary water resources and water scarcity management

Addressing the river basins twin problems of water depletion and quality (pollution) is critical to sustaining ecosystem services and goods and to the environmental sustainability of the basins and the livelihoods of the many people who depend on their natural resources. One of the major barriers to tackling these problems is the lack of sectorial and institutionally integrated actions to address them. The project's will catalyze a basin wide approach or an integrated approach to water resource management and pollution control across the Limpopo and Kunene river to facilitate balancing of water uses and sustaining environmental quality throughout the basins. Specifically, the Project will (i) improve integrated water and environment planning and management in the in the river basins (ii) promote institutionally-coordinated and effective local, municipal/provincial, and basin-wide water and environment planning and management, (iii) enhance local capacity in water and environment knowledge management and implementation. The project is intended to demonstrate new technologies and management approaches and to apply the lessons learned throughout the basins.

ii. Climate-informed value chain facilitation, the missing link in sustainable adaptation interventions

The Programme builds/strengthens effectiveness of adaptation interventions through incentivizing and de-risking private sector investment in smallholders and climate smart technologies. Effective climate change adaptation requires effective – and adaptive – governance and institutional structures. The Programme will facilitate creation of farmer service driven agricultural service enterprises that bring appropriate technologies and new approaches. By creating conditions that allow for building the application of new technologies and climate smart practices into staple value chains, it makes investment into building resilience more effective and efficient.

There is no doubt that the return to investment per dollar, on incentivizing and de-risking private sector and farmers to take up new technologies and climate smart approaches to their main livelihood holds one of the promising avenue in sustainably developing adaptive capacity of vulnerable rural farming and agro-pastoral communities. While analyzing national policies provides a critical, overarching understanding of climate change adaptation for agriculture in Southern Africa, any national developments need to be effectively translated into sub-national policies and action plans. The Programme addresses the lack of connection between national policies on climate change adaptation and the local institutional situation on the ground. Innovative governance arrangements, particularly at levels closest to the grassroots, are key to achieving this. The Climate Risk Informed Decision Analysis (CRIDA) approach which will be applied in this project to the two basins, provides an innovative bottom-up approach to assess the farmers vulnerability to climate variability and change. This assessment provides adaptation pathways to address these challenges and ensure robust adaptation solutions aligned with the expected changes. It is important to build adaptive capacity, linked with continued monitoring and evaluation, to cope with current climate as one way of preparing society to better cope with future climate. It also builds the governance capacity of government and other societal actors to develop and implement strategies that address these multiple goals through a learning approach (reflective implementation) and holistic assessment of synergies, trade-offs, and opportunities, as well as coordination of support to those most impacted.

iii. *Paradigm shift: Towards Farmer-managed natural regeneration to build resilience to climate change*

The proposed approach in the Programme represents a major paradigm shift, in which farmers and private sector are incentivized to invest in and adopt better crop and rangeland management practices that brings sustainability to their businesses and their private ventures along climate-informed value chains. The Programme goes beyond simple Farmer-Managed Natural Regeneration (FMNR) to halt and reverse land degradation, soil loss, water loss, veld loss and general biodiversity loss which is core to climate change adaptation and mitigation, by adding a critical dimension of business-or value/profit generation from their ecosystem. FMNR in itself is a quick, affordable and easy-to-replicate way of restoring and improving agricultural, forested and pasture lands (World Agroforestry Centre, 2013). Thus, through removing residual risk and creating necessary enabling environments, the proposal enables private sector particularly farmers by applying FMNR to be at the center of building their own resilience to climate change. The Programme expects to reach more than 10000 farmers as direct recipients of either incentives, knowledge or skills that enable them to participate in value chains more sustainably and apply climate smart approaches.

iv. *Embedding climate change adaptation into the planning and implementation of sustainable agricultural strategies*

A challenge to be addressed by the Programme is that smallholder farmers tend to have a low capacity to adapt to changes in climatic conditions. Programmes that help these farmers adapt to climate change and associated climatic extremes are particularly important. Common adaptation measures include early maturing crops and varieties, drought tolerant crops, diversifying crops, planting different crops or crop varieties, replacing farm activities with non-farm activities, changing planting and harvesting dates, integrated pest management, increasing the use of irrigation, and increasing the use of water and soil conservation techniques. The CRIDA approach that will be adopted will support the identification of effective adaptations strategies for farmers in light of their threatened water and food security under increased climate variability and change. Adoption of Climate smart agriculture and other ecosystem-based adaptation strategies offers a triple-win strategy for smallholder farmers in particular - simultaneously improving productivity for nutritious crops and helping farmers both adapt to climate change and mitigate agriculture's contribution to climate change. CSA embeds the integration of climate

change into the planning and implementation of sustainable agricultural strategies, to enhance the resilience of agricultural systems and livelihoods and reduce the risk of food insecurity in the present, as well as the future (Lipper et al., 2014). More efficient resource use in agricultural production systems offers considerable potential for increasing agricultural incomes and the resilience of rural livelihoods while reducing the intensity of agricultural emissions.

v. Use of Participatory approaches in seasonal and longer-term adaptation planning

The use of a participatory method of seasonal and longer term adaptation planning based on actual downscaled weather forecasts and climate projections is an innovative aspect of the project that will support the conducting of adaptation practices on two time scales, the first being on a seasonal timescale to inform short term adaptation strategies (e.g. crop planting date and variety selection) based on the seasonal weather forecast, the second being on a longer term basis of 5-10 years informed by longer term climate projections. The project will also evaluate the Sub seasonal-to-Seasonal¹² (S2S) framework for making skillful predictions using state-of-the art climate models, on the timescales which are particularly relevant for farmer communities (15-60 days ahead). In addition, the project not only supports adaptation planning aspects but goes further to fund viable, locally appropriate community adaptation investment proposals identified directly through the community adaptation planning process. In most cases in the target countries adaptation investments are often top down with little involvement of the communities in their identification and implementation or in other cases community-based adaptation planning has been supported but funds for implementation of the identified actions has not been available. The project ensures that there is both a bottom up planning approach (e.g. CRIDA) as well as that the planning efforts do not go to waste and are implemented with participation of the communities.

vi. Riding on the technology revolution to make adaptation more effective

The Connected Farmer Platform, which is a mobile software solution, will link thousands of smallholder farmers by enabling access to information, services and markets. Once a farmer is registered on a farmer base, communication can take place via SMS and deliver a range of services that enable access to relevant climate smart information, including weather- and market-related information and good agriculture practice guidelines, access to new markets through linkages with both formal and informal value chains both on the input and off-taking side, and access to financial services focusing on cashless value distribution (vouchers) and e-receipting. In addition, locally appropriate means of communicating climate and weather information through media such as community radio will be explored, including broadcasting of poetry and short drama programmes to create awareness on seasonal weather variability and climate change. The use of ICT for sharing weather and climate information will also be investigated as part of the project including use of mobile phone based technology that will be linked to a stakeholder feedback mechanism to ensure that all information, climate services and advisories generated through the project are relevant to those who receive them. The project foresees also several opportunities to engage directly with the local farmer communities, providing a pathway for bi-directional communication to fine-tune the climate services provided.

vii. Leveraging Strategic partnerships between organizations with complementary comparative advantages

The partnership between the United Nations Educational, Scientific and Cultural Organization, the Food and Agriculture Organization, Food Agriculture and Natural Resources Policy Analysis Network (FANRPAN), SADC Secretariat as well as the relevant government ministries/departments for agriculture and meteorological and hydrological services in the target countries is an innovation. This partnership is expected to be a lesson on the importance of collaboration and coordination of climate change adaptation activities in the region and beyond. The channeling of weather and climate information from regional to national to local level, for tailored location specific agro meteorological advisories feeding into community

¹² <http://s2sprediction.net/>

adaptation planning at seasonal and longer timescales through this partnership will be a model to be scaled up to all countries in Southern Africa and even beyond.

viii. Gender responsive adaptation

Community consultative process identified female-headed households as the most vulnerable members to climate change. Program will therefore mainstream gender into adaptation planning and decision-making. A focus will be on gender issues and plans with stakeholders at the front end of the project cycle, including attention to how gender-specific barriers can be addressed, build wider ownership for project activities and broader replication. For instance, in the formation of the farmer field schools and business clusters around each productive aggregation point or infrastructure, the project will ensure that women comprise at least 50 % of the beneficiaries and constitute majority of leadership positions. As a principle, the project will also ensure that women are included in management structures for the community level productive infrastructure.

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

I). Project presents numerous socio-economic and environmental benefits. Table below makes a critical analysis of socio-economic and environmental impacts without the project (baseline) and with project interventions

II). Ensuring compliance with AF's Environmental and Social Policy

The project does not involve conversion of natural habitats to other uses and will in fact through some activities such as agroforestry, improve and restore degraded lands, improve soil fertility, reduce erosion and soil nutrient depletion and enhance below and above ground carbon storage. Through the climate-smart agriculture approach the project will in fact improve biodiversity in crop and livestock production as a means of improving agro-ecosystem resilience to climate change and weather variability at the same time increasing natural capital and the flow of environmental services.

In addition both UNESCO and FAO incorporate social and environmental risk screening into the identification phase of all projects, conduct social and environmental impact assessments for all medium or high risk projects, ensures disclosure of project activities and their potential risks with affected communities, engages in a process of free, prior and informed consent (FPIC) with relevant stakeholders and target communities and ensures consultation with communities at all phases in the project cycle to minimise environmental and social risks. The project has been classified as having Low environmental and social risks by FAO. The limited adverse impacts that could emanate are mostly through Component 2 of the project which will incorporate on the ground adaptation investments along value chains. This means the project potentially falls within the Category B rating of the Environmental and Social Policy of the Adaptation Fund. However, any potential negative impacts as a result of this project are believed to be small in scale, limited to the project area, reversible and can be either avoided, minimised or addressed through the use of recognized good environmental and social management practices.

Specific expected social, economic environmental impacts of the proposed project under two scenarios a) without the project (baseline) and b) with the project

Intervention/Outcome	(a) Without the project (baseline)		
	Environmental impacts	Social impacts	Economic impacts
1.Demonstration and up-scaling of tangible adaptation options to build climate resilience of ecological landscapes at household, national y and transboundary level	<ul style="list-style-type: none"> -Increase in impacts of direct and indirect climate induced hazards including land degradation (deforestation, siltation) at community, national and catchment /transboundary level -Failure to implement water saving irrigation techniques worsening water scarcity situation and existing environmental problems -Failure to construct ecological and physical infrastructure exacerbating existing pressure on water resources and environmental problems Increased Inefficient resource utilization and high cost of production (fertilizers, agro-chemicals) -Failure to diversify farming systems -Failure to establish range lands and fodder systems 	<ul style="list-style-type: none"> -Implications on ecosystem goods and services -No adaptation awareness Continued gender disparities -Increase in poverty and loss of social fabric -Limited diversity of production Reduced nutrition for vulnerable members of the society, women and children negatively affecting community health and increasing burden on women who are the care givers within rural households Reduced crop yields and increases in pests and diseases of economic importance -Limited diversity of production reducing opportunities to promote involvement of women e.g. apiculture 	<ul style="list-style-type: none"> Increase in loss of ecosystem goods and services Increases in economic losses due to increased land degradation and siltation at catchment level Increasing production costs impact negatively on profitability and returns on investments -Reduced capacity of rural women to pursue and maintain alternative livelihoods as a result of increased labour burden
Transboundary intra-basin joint planning for adaptation and response with respect to water management for positive outcomes	<ul style="list-style-type: none"> -Poor transboundary water corporation -increased conflicts and political instability Reduced upstream water management Reduce quality of water 	<ul style="list-style-type: none"> -Increased conflicts down-stream and up- stream due to uncoordinated management of water resources Reduced gender and basin governance Implications of socio-economic growth _Reduced mutual benefits of sharing water resources -Limited activity and productivity in economic sectors 	<ul style="list-style-type: none"> Limited opportunities for greater resource coordination, management, and policy convergence across sectors High cost of carrying out productive activities High economic impacts of water related hazards
Information sharing for early warning(intra-basin adaptation programming, and business driven agricultural value chain	Lack of integrated database management system on climate data to collate all information stored on institutional climate databases and ensuring the systematic storage of climate data	Limited operational climate database management system and automatic weather stations and associated equipment limits knowledge and information in climate adaptation decision making	Inadequate quality of information used to inform early warning systems to render advice on Weather-related impacts on new infrastructure, as well as mitigation of potential damage to existing infrastructure.
Intervention/Outcome	b) with project adaptation measures		
1.Demonstration and up-scaling of tangible adaptation options for Integrated Water Management to build climate resilience of ecological landscapes at household, national y and transboundary level	<ul style="list-style-type: none"> -Better community cohesion through planning and working together -Benefits demonstrated on the ground environmentally sound approaches and technologies new to the region • Improved soil functions from the integration of minimum tillage practices, crop diversification, organic matter retention, and the use of organic fertilizers and inputs, as well as the household and community structures promoted. • Improved productivity of land based on enhanced land, soil quality, and agricultural practices that are more sustainable and climate resilient. -Off-site benefits including reduce downstream siltation and flooding -Increased groundwater and river water quality -Water serving irrigation techniques (over 90% increases in water use efficiencies) -Reduced evaporation of soil moisture by over 45% through conservation agriculture practices compared to rain fed system and the traditional furrow irrigation practice -Increased ecological works and water conservation works -Reduced plant pathogens 	<ul style="list-style-type: none"> -Gender social inclusion and participation in value chains -Increased water storage capacity and associated irrigation and introduction of climate production practices, production and productivity throughout the year Risk of crop failure reduced -Increased diversity of livelihood activities -Increased nutrition for local community, improving health -Reduced post- harvest losses due to improved processing infrastructure -Increased crop yields Wide range of value-added products for efficient utilization and increased market opportunities -Increased pasture productivity and livestock productivity 	<ul style="list-style-type: none"> -yield stabilization and improved food production by about 40% for over 12 000 households per country -Improvement of child nutrition for over 12 000 households per country -achievement of food and nutrition security -Increase in market access -Increased profit margins as a result of training provided in FFS on climate change adaptation technologies and integrated catchment management -Reduced inputs and thus production costs due to implementation of 3 pillars of CA -Increased farm income -Reduced risk of economic failure due to crop diversification -Increase in gender social inclusiveness in climate change adaptation and responses -Increased income from livestock

	-Diversification of crops		-Knowledge base set up enable robust technologies to be identified and replicated
Transboundary intra-basin joint planning for adaptation and response with respect to water management for positive outcomes	-Enhanced catchment integrity through better protection -Increased planning and coordination in water management Harmonized monitoring and exchange of data -Reduced extend and economic impact of water hazards -Increased ecosystem health of the water body Improved ecological integrity (goods and services)	Additional backward and forward linkages of basin-based economic activities due to increased demand of inputs due to increased agricultural production Major hydropower or geothermal development reducing energy costs Increased access to basic services	increased and regular flow of water for food production at catchment level, national level and community level and at household level -reduced social conflict among stakeholders sharing common resources (water, energy) especially among semi-mobile pastoralists through increased availability of water and fodder and biodiversity through efficient rangeland management
Information sharing for early warning with respect to intra-basin adaptation programming, and business driven agricultural value chain	strengthened early warning and information sharing mechanism for a better informed decision making by government and affected population - More empowerment of women through participatory approaches and implementation of community based early warning systems	Forecasting tools (High resolution models, guidance from regional forecasting centers) – Data analysis, storage, processing and presentation tools (computers, printers, projectors)	-Enhanced capacity of hydro-meteorological services and networks for predicting climate change events and risk factors. -Effective, efficient and targeted delivery of climate and climate change information including early warnings. - Improved and timely preparedness and responses of various stakeholders to forecast climate linked risks and vulnerabilities.

In order to be consistent with the Environmental and Social Policy of the Adaptation Fund the Project will ensure that all project activities:

- Are aligned with local, national and regional policies and programmes
- Comply with national laws and global instruments related to environment and natural resources management, plant and animal genetic resources
- Are in line with standards, policies and laws for the responsible governance of land including the Voluntary Guidelines for the Responsible Governance of Tenure for Land, Fisheries and Forests in the Context of National Food Security and The African Union Framework and Guidelines on Land Policy in Africa.
- Ensure participation of all relevant stakeholders in project activities without discrimination and with aim to ensure fair and equitable access to project benefits including for women and men as well as marginalized groups.
- Aim to ensure that project activities in fact target and support the most vulnerable to become more resilient to climate change including women, women headed households, children and the youth.
- Aim for 50% participation of women in project activities and 50% of project direct beneficiaries to be women, while also targeting specific project activities at women or women's groups (for example the integrated savings and lending).
- Ensure that all crop and livestock varieties supported as part of the project are locally appropriate non-invasive species and are nutrition dense and culturally acceptable.
- Use a climate-smart agriculture approach to maximize on and take advantage of opportunities within identified adaptation and resilience building options that reduce greenhouse gas emissions and improve the efficiency with which natural resources are utilized in agro pastoral communities.

D. Describe or provide an analysis of the cost-effectiveness of the proposed project / programme and explain how the regional approach would support cost-effectiveness.

i) The project proposes interventions that will have positive environmental and social impacts

The cost-effectiveness of the programme is compared with alternatives, which include not intervening and continuing business as usual. Under this 'do nothing' scenario, the agroecosystems and the water resources in the target areas will continue to be managed unsustainably with increasing soil erosion and biodiversity loss, and compromised ecosystem services. The immediate impacts of environmental damage on production are reflected in yields of less than 0.5t/ha/year for the main cereal crop maize, which is inadequate to feed an average family of five. In all the drought years the communities in the target areas have relied on food assistance, using imported food.

The income and food poverty prevalent in the target communities has both short term and long impacts on the individuals. The status of being poor reduces one's social standing and therefore self-worth, which adversely affects their participation in community programmes. The communities in the target areas have always received food assistance during years of drought. The national prevalence of stunting as of April 2020 in the countries were 22.7, 23.5, 27.4, 37.6 and 42.3% for Namibia, Zimbabwe, South Africa, Angola and Mozambique, respectively (SADC, 2020). The impacts of stunting are mostly life-long and result in intergenerational poverty. The community food insecurity and poverty could be addressed by the provision of food assistance and social grants annually, or through building the capacities of the communities so that they protect their environment, produce their own food and generate cash income. The former is not viable as all the target countries, except South Africa, cannot afford the social grants at the moment. The latter, which is proposed by the programme, is cost-effective because it is a sum of cost-effective and efficient components that are applied in the production, processing and marketing of the identified commodities.

The proposed use of drip irrigation will result in significant environmental and financial savings. The drip irrigation system is cost-effective (compared to spray, canal) because of the following: results in up to 65%

saving in water, allowing the communities to produce more for the available water; significantly increases efficiency of fertilizer/manure use (up to 40%), thus reducing the cost of these soil amendments; significantly reducing weed pressure (up to 50%), and as a result, the labour for weeding. It is important to note that women do most of the weeding and the drip system will free their time for other household chores. The drip system hardware is more gender friendly than the other systems and allows the full participation of women. Where there is need to power the irrigation systems, solar has been selected as a better option to fossil fuel, with the solar system requiring less capital and maintenance costs compared to fossil fuel powered systems. The equipment and implements proposed for use in the project (jab planters, direct seeders, rippers, solar incubators, solar driven sweet potato and cassava processing plants) all require less capital outlay and have higher output per unit cost, compared to the mechanized systems that could have been used to perform the same tasks. The project is proposing the use of drought tolerant crop (Vitamin A rich sweet potato variety, cassava and other crops) in combination with conservation agriculture practices, which will increase and stabilize yields and production compared to the current production systems. The programme will train farmers in the production on of planting materials (seed/vines) for the proposed crops, thus avoiding the purchase of see/vines.

A total budget of \$350,000 is provided for building/rehabilitating dams, weirs and soil erosion control structures. In addition to the enhanced ecological benefits, the economic benefits of these structures in terms of crop and livestock production in these water stressed systems are immense. The participatory approach adopted by the project will ensure that beneficiaries contribute their labour to the construction of these ecological infrastructures.

The project will, where possible, establish links with existing or build on relevant previous regional and national projects/programmes, reducing the costs of organizing stakeholders and communities for implementation. By using existing structures and staffing in the field already familiar or skilled in the approaches proposed by the programme, start-up will be quick and cost effective. In South Africa, the project will particularly build on projects in Mopani District that were funded by the Adaptation Fund.

ii) The cost-effectiveness of the regional approach

The regional approach to the implementation is in line with SADC guidance on the management of transboundary water resources. The approach is cost-effective at the implementation level as tools, methods and approaches developed at the regional level for both Components 1 and 2 of the programme can be adapted to country sites, thus avoiding duplication of efforts and increasing the cost-effectiveness of the programme. The activities proposed in Component 1 are complementing and strengthening the SARCOF, which is a regional approach to generating and providing climate services. The programme will ride on the SARCOF structures and process to timely avail actionable climate information and data and the community level, thus enhancing the cost-effectiveness of the programme.

The effective participation of institutions/organizations with regional and global mandates (FANRPAN, FAO, SADC and UNESCO, SADC and FANRPAN) will ensure that lessons learned, and good adaptation practices implemented, are documented and replicated in other areas and countries beyond the programme target areas. SADC is particularly mindful of the need to have all its members covered in its programmes and will use its mechanisms to disseminate lessons and good practices to all its 16 members. The 5000 jab planters, 500 direct seeders, 5000 rippers and 200 weather station will be procured at the regional level through competitive bidding. This transparent process is expected to result in the suppliers offering competitive prices for their goods, thus enhancing project cost-effectiveness.

All projects are susceptible to capture by local elites and political interests. A regional approach helps create greater visibility and accountability to the use of funds. More impartial external audits can be used to track use of funds and impact achieved.

In conclusion, the programme proposes the use of appropriate, technically efficient and socially viable interventions that enhances its cost-effectiveness compared to alternatives. It results in quantifiable cost-effective changes as well as unmeasurable benefits such as improved dignity and self-worth.

iii) Ensuring efficiency and effectiveness in facilitating adaptation

The Programme does three important things to raise efficiency and effectiveness in building resilience to climate change in the Southern African Region.

a) Leverages climate finance to build resilience.

Climate change is making the development of smallholder agriculture more expensive especially when the risks associated with financing them are considered. The requested funds will be used to make investment in interventions to build resilience more efficient by lowering the cost of investing. At the *Programme level*, climate-resilient programmes typically have higher upfront design and implementation costs for governments, donors and private investors – for example, the costs of infrastructure, increased upkeep, capacity-building, knowledge generation and the strengthening of institutions, in addition to higher project development costs (downscaled data generation and community-based approaches) and the increased costs in enhancing cross-sectoral and stakeholder collaboration. In order to achieve the adaptation objectives, a significant increase in the amount of capital available for climate smart investments in agriculture will be critical. The Programme proposes new approaches to enable smallholder farmers to become beneficiaries of climate finance in order to reward multiple-benefit activities and help offset the transition costs and risks of changing practices. These include access to climate finance that promotes adaptation initiatives by sharing knowledge activities such as innovative land management approaches, CSA, and post-harvest practices and technologies as defined in the upgraded business model at each site. Directing climate finance to support institutional investments to accelerate adoption of practices for increasing resource-use efficiency represents an important step towards climate-resilient development in agriculture.

b) Incentivizing and de-risking private sector investment in smallholders and climate smart technologies for effective climate change adaptation

Effective climate change adaptation requires effective – and adaptive – governance and institutional structures. The Programme will facilitate creation of farmer service driven agricultural enterprises that bring appropriate technologies and new approaches. By creating conditions that allow for building the application of new technologies and climate smart practices into key value chains in the river basins, makes investment into building resilience more effective and efficient. Through facilitating the reorganization of the national incentive framework for climate smart agriculture, the Programme addresses the lack of connection between national policies on climate change adaptation and the local institutional situation on the ground.

c) Leveraging digital technology platforms to facilitate adaptation

The Connected Farmer Platforms, which are digital mobile software solutions, to link thousands of smallholder farmers by enabling access to information, services and markets. Once a farmer is registered on a farmer base, communication can take place via SMS and deliver a range of services that enable access to relevant climate smart information, including weather- and climate services, as well market-related information and good agriculture practice guidelines developed by the project, access to new markets through linkages with both formal and informal value chains both on the input and off-taking side, and access to financial services focusing on cashless value distribution (vouchers) and e-receipting.

iv) Strengthening regional institutional and operational frameworks for adaptation

The SADC Region aims to adapt to and mitigate the current and potential future impact of an array of climate change induced hazards and risks which reduce resilience and contribute to social and economic vulnerability. The risks and hazards include floods and droughts and transboundary and cross river basin pests and diseases of plants and animals, food hazards and insecurity. Because of transboundary nature of the above challenges, an inefficient coping system in any one member state has a regional dimension, thus the hazards cannot be effectively addressed at individual member states level in the absence of a streamlined regional coordination and linkages to information and knowledge for informed decision making.

Over 70 per cent of the SADC region's freshwater resources are shared between two or more Member States, a situation that has been the basis for the development and adoption of a series of regional instruments to support the joint management and development of shared water courses. The SADC instruments for water cooperation include the Regional Water Policy, adopted in 2005; the Regional Water Strategy adopted in 2006 and Regional Strategic Action Plan on Integrated Water Resources and Development Management which was first approved by SADC Summit in August 1998 to run in five-year phases. This facilitates the need for strengthening the regional approach in dealing with adaptation to climate change in as much as it affects the availability of water as a shared resource. Integrated planning of land, agriculture, forests, fisheries and water at local, watershed and regional scales, to ensure synergies are properly captured is thus important. Some of the reasons why regional institutional frameworks and operational processes for managing resilience to climate change is required, include:

- A regional approach creates opportunity for cross border and transboundary internalization of the international externalities especially of those associated with shared water courses and resources. Since freshwater in rivers is a flow resource, no single country can claim absolute sovereignty over it; different riparian in transboundary basins may have different needs and goals, which have potentials for conflict as well as cooperation. Probable transboundary impacts and conflicting interest can, however, be solved by equity-based cooperation, strong and enforceable legal framework, and joint approaches to planning and management. The UNESCO Programme from Potential Conflict to Cooperation Potential (PCCP) will provide the tools for this project to strengthen the regional and transboundary water management.
- A significant part of weather prediction and forecasting, monitoring and early warning is already done at regional level in the SADC region. There is however a need in strengthening these processes to bring better benefits and services to the communities. The SARCOF is a regional climate outlook prediction and application process adopted by the fourteen countries comprising the Southern African Development Community (SADC) Member States: Angola, Botswana, Democratic Republic of Congo, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe in conjunction with other partners. Currently, there is however a mismatch in temporal and spatial resolution of the climate information currently provided, which are too coarse for local farmer to be useful as a climate service. The Programme will engage in regional capacity building to address this gap and generate high resolution climate services at sub-seasonal-to-seasonal (S2S) timeframes for the pilot basins.
- There are opportunities to facilitate transboundary and cross basin sharing of practices, technologies and joint planning of responses in times of emergencies and disasters. Adaptation measures being applied in this Programme in the five project countries will generate lessons learned, and validation of best practices to be documented and replicated in other areas and countries. UNESCO, FAO, SADC SECRETARIAT and FANRPAN have sufficient experience and systems in place for knowledge management, documentation and dissemination. FAO has both national and field level offices and technical teams in place in all project countries that will provide a critical role in capturing and sharing experiences.
- The regional approach will enhance cost effectiveness of capacity development as well as ensuring a certain level of generic scope of tools and processes developed for future application beyond the target sites and countries. By using existing structures and staffing in the field already familiar or skilled in the farmer field school approach, start-up will be quick and cost effective.
- Provide accountability and resilience to capture: All projects are exposed to capture by local elites and political interests. A regional approach helps create greater visibility and accountability to the use of funds. More impartial external audits can be used to track use of funds and impact achieved.

v) Leveraging the river basin approach to facilitate cross basin and transboundary response

There are incremental benefits in cross-basin and trans-boundary sharing of information on technologies, practices and new approaches. The basins being considered in this project currently experience a myriad of challenges such as population pressure, deforestation, agriculture-related pollution and environmental degradation, over-abstraction of water, overgrazing, flooding, charcoal production, and resource conflicts

that are best addressed through a holistic ecosystem based approach. Some of the benefits of taking the basin approach include:

- Both water basins are vulnerable to climate change effects. Catchment degradation which increases the risk of droughts and floods is the most widely faced challenge, increasing risks for all water users - farmers, energy producers, industry, and pastoral groups. Increase climate variability and change has led to deforestation, desertification and forest/land degradation.
- Climate change is expected to affect all of natural resources to some degree, groundwater included. Not only will changes in climate affect the amount of water falling as precipitation and the amount of evapotranspiration, ultimately affecting the amount of groundwater recharge; but it will also affect the degree to which populations rely on groundwater.
- The changes that are being observed in precipitation and other factors that impact water balance suggest that a dynamic climate risk assessment framework that captures changes in basins is necessary to conceptualize and investigate the projected changes in groundwater. Therefore, the Programme foresees the establishment of a Climate Risk Informed Decision Analysis (CRIDA), to identify current and future water security vulnerabilities, and to provide a pathway for the identification and selection of robust adaptation strategies.
- Green Water Potential¹³: Many of the large river systems of the region are nearing closure or are already closed, meaning that all of the blue water in these systems is largely already allocated (Falkenmark and Rockström, 2005). In the majority of the countries in southern Africa, green water supplies comprise over 80 % of the annual water used in the food sector. The majority of this water is used in the production of rain fed crops. In hyper-arid areas blue water plays more of a role, supplementing the inadequate availability of precipitation. Irrigated agriculture accounts for two-thirds of blue water withdrawals in southern Africa. Future demands will increasingly have to rely on more efficient uses of green water and improved rain fed agriculture. There are inefficiencies in the use of green water that with improved management could help meet future water demands in sub-Saharan River basins (Falkenmark and Rockström, 2005).

E. Describe how the project / programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist. If applicable, please refer to relevant regional plans and strategies where they exist.

Cross-sectoral approaches to policy development are essential. The proposed Programme and its interventions presented in Section A should be in-line with the respective global, regional and national government priorities. This Section presents how the proposed Programme's thematic focal area of (i) transboundary water management, (ii) food and nutrition security, (iii) disaster risk reduction, and (iv) early warning systems offers significant additional adaptation efforts needed to address adaptive capacities for smallholder farmers in water stressed river basins in Southern Africa. The Section addresses the critical interface between climate, agriculture, disaster risk management and livelihoods. Coherent policy development requires strategic, logical assessment of interlinkages, trade-offs and opportunities within and across sectors and over spatial and temporal scales. However, for many countries realizing policy coherence is challenging.

At Global Level

The Sustainable Development Goals, which are the blueprint to achieve a better and more sustainable future for all, are guiding our Programme to address the global challenge of strengthening adaptive capacities related to poverty, inequality, climate, environmental degradation, prosperity, and peace and justice. Specifically, our Programme addresses Goal 13 which is asking us to "take urgent action to combat climate change and its impacts"

¹³ Green water is soil moisture used in rain fed agriculture, while Blue water is the surface and groundwater water extracted from rivers, lakes and aquifers for irrigation.

Regarding the United Nations Framework Convention on Climate Change (UNFCCC), all five focal countries are signatories to the Paris Agreement¹⁴, which encourage all stakeholders to take action toward reducing the impacts of climate change.

The proposed Programme directly supports the Global Framework for Climate Services (GFCS), which seeks to provide a worldwide mechanism for coordinated actions to enhance the quality, quantity and application of climate services. GFCS aligns to our Programme as it is an UN-led initiative spearheaded by WMO to guide the development and application of science-based climate information and services in support of decision-making in climate sensitive sectors; especially its agriculture and food security, water and disaster risk reduction.

Regional level (especially SADC)

At continental level, commitment 6 of the Malabo Declaration seeks to “Enhancing Resilience to Climate Variability” and this requires the existence of government budget-lines on resilience building incentives and instruments for catalyzing adoption of climate-smart approaches along value chains. However, progress is still lagging behind and therefore the proposed Programme is timely.

Relevant to the topic, there is a Water Sector Governance in Africa ([web link](#)) covering key issues related to national level governance, legal frameworks, institutional arrangements and equitable services provision; amongst others.

The Southern African Development Community (SADC) has the following strategies and instruments which support the Programmes work:

- *Transboundary water management*: There are; Regional Water Strategy ([web link](#)); Integrated Water Resources Management Initiative (SADC-WIN) ([web link](#)), and Water and Regional Integration Strategy - The role of water as a driver of regional economic integration in Southern Africa ([web link](#)).
- *Food and nutrition security*: There are Regional Agricultural Policy Country Summary Agricultural Policy (i.e., a review report - [web link](#)); and The Food and Nutrition Security Strategy (FNSS – [web link](#)) which was developed to implement a wide range of SADC policies and programmes which aim to holistically address issues of food and nutrition security from a multi-sectoral perspective. In addition, the SADC has a Regional Vulnerability Assessment & Analysis (RVAA) instrument which add value to our Programme and vice versa. The Programme will also leverage the [Famine Early Warning Systems Network \(FEWS NET\)](#) which is a leading provider of early warning and analysis on food insecurity.
- *Disaster risk reduction*: SADC has an established a Regional Platform for Disaster Risk Reduction responsible for coordinating regional preparedness and response programmes for trans-boundary hazards and disasters. However, its information and knowledge management systems is still weak which also lacks comprehensive and constantly updated risk assessments and analysis.
- *Early warning systems*: The [SADC Climate Services Centre](#) intends to provide operational, regional services for monitoring and predicting extremes in climate condition; but it struggles to develop and disseminate meteorological, environmental and hydro-meteorological information and products. Therefore, the Programme will develop strong linkages with the Climate Services Centre.
- *Climate change adaptation*: there is an SADC level Climate Change Adaptation in SADC: A Strategy for the Water Sector ([web link](#))

As a cross-cutting theme, the Programme will mainstream gender as per [SADC Gender Protocol](#) that seeks to integrate gender equality and equity as a fundamental human right and climate change as per [Climate Change Adaptation \(CCA\) Strategy](#) for the Water Sector whose main goal is to lessen impacts of climate change through adaptive water resources development and management in the Southern African region.

¹⁴ Paris Agreement: https://treaties.un.org/Pages/ViewDetails.aspx?src=IND&mtdsg_no=XXVII-7-d&chapter=27&clang=en.

National Level

National Development Plans

Angola: The Development strategy for 2000 – 2025 aim to (i) To promote employment and enhance human resources; (ii) To construct a more fair and equitable society; (iii) To guarantee the sustainable use of the environment, natural resources and to fight desertification; and (iv) To build up competitiveness and develop the private sector.

Mozambique: The current development plan, the Action Plan for Reducing Poverty 2011-14, aims to reduce the proportion of the population living in poverty from 55 per cent in 2009 to 42 per cent in 2014; to close the country's infrastructure gap; and to promote human and economic well-being through rapid and inclusive growth.

Namibia: The fourth National Development Plan (NDP4), in order to keep our national pride of having a clean environment (as is a right stated in our Constitution) we expect all elements of society, and businesses in particular, to support a precautionary approach (as per the Precautionary Principle) to environmental challenges and alterations of the natural world contributing to climate change, undertake initiatives to promote greater environmental responsibility, and encourage the development and diffusion of environment-friendly technologies.

South Africa: The National Development Plan aims to eliminate poverty and reduce inequality by 2030. Section 5 - Environmental sustainability: An equitable transition to a low-carbon economy, and Section 6 - An integrated and inclusive rural economy are the most relevant to our proposed Programme.

Zimbabwe: The Zimbabwe Country Strategic Plan (2017-2021) supports the Government's social protection strategy, so that vulnerable populations across the country are able to meet their basic needs all year round, and thus minimize the need for humanitarian responses in future. Most relevant are the following specific objectives (i) Smallholder farmers have increased access to well-functioning agricultural markets by 2030; (ii) Food-insecure rural households achieve food security and demonstrate resilience to seasonal shocks and stressors; and (iii) Zimbabwe's social protection system ensures that chronically vulnerable populations across the country are able to meet their basic needs all year round.

National Adaptation Plans

At country level, the Programme will also aim to be aligned with the National Adaptation Plans (NAPs) and other national climate change strategies, policies and frameworks of the target countries. With regard to presence of NAPs at the focal countries, Zimbabwe and Namibia have national climate change (CC) strategies while Angola, Mozambique and South Africa has NAPs.

- *The Angola 2011 National Adaptation Programme of Action* is an instrument aimed at communicating the urgent and immediate adaptation challenges facing the country. The NAP prioritizes the following sectors relevant to our Programme: Farming, livestock, forestry and fisheries sectors; Water sector; and Telecommunications and information technologies sector.
- *The 2007 Mozambique National Adaptation Programme of Action* presents the immediate and urgent needs of the country that have been identified during the participative evaluation process, for the purposes of strengthening national capacity to cope with the adverse effects of climate change. Most relevant specific objectives are to (i) Strengthen the early warning system in the country; (ii) Strengthen the capacities of family farmers to dealing with the adverse effects of climate change; and (iii) Improve the knowledge and strengthen the management of river waters.
- *The 2020-2013 Namibia National Climate Change Strategy and Action Plan* outlines a coherent, transparent, and inclusive framework on climate risk management. Most relevant it presents detailed Namibia's regional profile for all regions in the country, and the projections under climate change for key agriculture sectors. It also underscores (i) need for information packages and targeted awareness-raising and training to decision-makers and practitioners on Climate Change Adaptation, (ii) Information Packages and Targeted Awareness-raising and Training to Decision-makers and Practitioners on Climate Change Adaptation; and National Climate Risk Management Capacity.

- *The 2016 South Africa National Adaptation Strategy* seeks to enhance the momentum increased, in particular, after South Africa issued its National Climate Change Response Policy (NCCRP) White Paper. The NAP promotes the vision of a climate-resilient South Africa. Relevant to our Programme, disaster risk reduction and management; water; agriculture, forestry and fisheries; and climate change adaptation governance are emphasized as the way forward.

Sector Specific Policies and Strategies

The Table below presents other related policies and strategies which are in one way or the other are relevant to the Programme components of (i) Implementing Measures to Reduce Exposure to Climate Related Risks, Hazards and Threats and Enhance People’s Resilience; and (ii) Diversifying, strengthening and increasing adaptive capacities, livelihoods and sources of income for vulnerable people in targeted areas. They are classified per country and per sector. For easier reference, where possible the policy and strategy documents web links are provided.

Country	Key policies relevant to the proposed Programme
Angola	<p><i>Water Management</i></p> <ul style="list-style-type: none"> • Water Resource Management Under Changing Climate in Angola (web link) • Angola Water Partnership (web link) • Water Governance – Influencing Policy in Angola (web link) <p><i>Agriculture and Poverty Reduction</i></p> <ul style="list-style-type: none"> • Agricultural Economy and Policy (web link) • Angola Country Programming Framework: 2013-2017 (web link) • Resettlement Policy Framework: Smallholder Agriculture Development and Commercialization: 2015 (web link) • Strategy to Combat Poverty - Social Reinsertion, Rehabilitation and Reconstruction and Economics Stabilization: 2013 (web link) <p><i>Disaster Risk Management/Reduction</i></p> <ul style="list-style-type: none"> • Sendai Framework for Disaster Risk Reduction 2015 – 2030 (web link) <p><i>Early Warning System</i></p> <ul style="list-style-type: none"> • Did not find <p><i>Climate Change Adaptation</i></p> <ul style="list-style-type: none"> • Climate Change Adaptation in ANGOLA (web link) <p><i>Gender</i></p> <p>Did not find</p>
Mozambique	<p><i>Water Management</i></p> <ul style="list-style-type: none"> • Mozambique Country Water Resources Assistance Strategy (web link) <p><i>Agriculture and Poverty Reduction</i></p> <ul style="list-style-type: none"> • Mozambique Agricultural Development Strategy (web link) • Action Plan for the Reduction of Absolute Poverty (web link) • Poverty Reduction Strategy Paper (web link) <p><i>Disaster Risk Management/Reduction</i></p> <ul style="list-style-type: none"> • National policy on disaster management: 1999 (web link) <p><i>Early Warning System</i></p> <ul style="list-style-type: none"> • Did not find <p><i>Climate Change Adaptation</i></p> <ul style="list-style-type: none"> • National Adaptation Programme of Action (NAPA) (web link) <p><i>Gender</i></p> <p>Beijing+20 Mozambique Report on the Implementation of the Declaration and Platform For Action (web link)</p>
Namibia	<p><i>Water Management</i></p> <ul style="list-style-type: none"> • National Policy on Climate Change (web link) <p><i>Environment</i></p> <ul style="list-style-type: none"> • Environmental Management Act No 7 (web link) • Environmental Law and Policy in Namibia (by Universiteit van Stellenbosch) (web link) • Nature conservation legislations (web link) <p><i>Agriculture and Poverty Reduction</i></p> <ul style="list-style-type: none"> • Namibia Agriculture Policy: 2015 (web link) • Communal Land Reform Act (web link) • Agricultural (Commercial) Land Reform Act, 1995 (web link) • Poverty Reduction Paper (web link) • Livestock improvement act 25 of 1977 (web link) • Drought Policy (web link) <p><i>Disaster Risk Management/Reduction</i></p> <ul style="list-style-type: none"> • National Disaster Risk Management policy (web link) • National Disaster Risk Management Plan: 2011 (web link) <p><i>Early Warning System</i></p> <ul style="list-style-type: none"> • National Early Warning and Food Information System (web link)

	<p><i>Climate Change Adaptation</i></p> <ul style="list-style-type: none"> Namibia Climate Change Strategy (web link) FANRPAN climate-smart agriculture policy brief (web link) <p><i>Gender</i></p> <p>National Gender Policy: 2010/20 (web link)</p>
South Africa	<p><i>Water Management</i></p> <ul style="list-style-type: none"> White Paper on Water Policy (web link) National Water Resource Strategy (web link) <p><i>Agriculture and Poverty Reduction</i></p> <ul style="list-style-type: none"> White paper on Agriculture, 1995 (web link) White Paper on Agricultural Policy, 1998 (web link) Land Redistribution for Agricultural Development (LRAD), 2001 (web link) Comprehensive Rural Development Programme (CRDP) – 2013 (web link) Policy on Agriculture and Sustainable Development (web link) National Agriculture Research and Development Strategy (web link) South African Agricultural Production Strategy (web link) <i>Climate Smart Agriculture Strategic Framework for Agriculture, Forestry and Fisheries, 2018</i> <p><i>Disaster Risk Management/Reduction</i></p> <ul style="list-style-type: none"> Policy framework for disaster risk management in South Africa (web link) <p><i>Early Warning System</i></p> <ul style="list-style-type: none"> Climate Information and Early Warning Systems (web link) National Framework for Climate Services (NFCS) <p><i>Climate Change Adaptation</i></p> <ul style="list-style-type: none"> South Africa climate-smart policy brief (web link) National Climate Change Response Strategy National Adaptation Strategy (NAS) <p><i>Gender</i></p> <ul style="list-style-type: none"> Strategy toward gender mainstreaming in the environment Sector: 2016-2021 (web link) <p>National Gender Policy Framework (web link)</p>
Zimbabwe	<p><i>Water Management</i></p> <ul style="list-style-type: none"> The National Water Policy: The Gaps Between the Policy and its Implementation (web link). <p><i>Agriculture and Poverty Reduction</i></p> <ul style="list-style-type: none"> Zimbabwe Medium Term Plan (MTP) 2011-2015 (web link) The National Agricultural Sector Policy (web link) Comprehensive Agricultural Policy Framework (2012-2032) (web link) Integrating Food, Nutrition and Agricultural Policy in Zimbabwe (web link) The Food and Nutrition Strategy (web link) FANRPAN's Pathways for irrigation development: policies and irrigation performance in Zimbabwe (policy paper) The Conservation Agriculture (CA) Upscaling Framework Document for Zimbabwe (web link) <p><i>Disaster Risk Management/Reduction</i></p> <ul style="list-style-type: none"> Zimbabwe's Preparedness to Manage Meteorological Disasters as Informed by Disaster Risk Management (web link) Zimbabwe National Contingency Plan (web link) <p><i>Early Warning System</i></p> <ul style="list-style-type: none"> Famine Early Warning Systems Network <p><i>Climate Change Adaptation</i></p> <ul style="list-style-type: none"> FANRPANs climate-smart agriculture policy study report (web link) FANRPANs climate-smart agriculture policy brief (web link) <p><i>Gender</i></p> <ul style="list-style-type: none"> The National Gender Policy: 2013-2017 (web link)

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

The proposed interventions will be compliant with all national Environmental Quality and Technical standards as well as Environmental Management protocols as outlined in the Environment Acts specific to each of the riparian country. This includes, particularly those relating to concrete adaptation measures, including water (surface and ground water), wetlands and ecosystem management, soil conservation, integrated watershed management, water quality and quantity, forestry, rangelands, livestock and crop management standards, and also land degradation among others. The standards applicable to the Project include Environmental Impact Assessment (EIA) and Ecosystem Protection Regulations, Catchment and

Sub-catchment statutory requirements, Standards for drilling boreholes, Water Quality regulations, Wetland management guidelines and River Systems. If the complementary adaptation measures that will be designed under Output 2.2 involve activities that necessitate an EIA (e.g. significant earthworks), the project will comply with all relevant national legislation. All construction or earthworks undertaken under project activities will conduct all necessary assessments and obtain all required permits. The project also acknowledges that legislation and regulations may be enacted in the course of project implementation that will update legal requirements involving EIAs and other related measures. All construction or earthworks undertaken under project activities will conduct all necessary assessments and obtain all required permits.

- UNESCO in its role as IE will establish together with FAO as main EE, SADC Secretariat, LIMCOM and PJTC and national Representatives as key stakeholders the **ESP, Gender, and Technical and Regulatory Standards working Group** with clear terms of reference and work plan
- The ESP, Gender, and Technical and Regulatory Standards working Group to be established as a subcommittee under the NIT in each country.
- The National Implementation Teams and government stakeholders, SADC Secretariat, LIMCOM and PJTC will who will form part of the regional PSC will monitor all relevant legislative and regulatory developments in order to ensure that all project activities comply with legislation that is in force.
- In addition, close collaboration will be fostered with the SADC Secretariat, LIMCOM and PJTC for Kunene basin to ensure technical standards for water infrastructure meet the relevant regional and transboundary standards.
- The ESP, Gender, and Technical and Regulatory Standards working Group in each country which will be responsible for ensuring compliance with the AF ESP, Gender and relevant international and national Technical standards, permit systems and regulations will develop an inventory of all the interventions which should comply with which standards, regulations or bylaws
- The inventory will be used as a monitoring tool and for reporting purposes to ensure that all investments especially those related to USPs under output 2.2 on investments on value chain productive infrastructure comply with AF ESP and relevant national and international technical standards
- Additional information on safeguarding activities to comply with relevant legislation and regulations is provided in Sections II.L and III.C.

Concrete Adaptation Interventions	National Regulations and Technical Standards to be complied with				
	ANGOLA	Mozambique	Namibia	Zimbabwe	South Africa
Construction and Rehabilitation of Weirs and Earth dams	Water Law (Law no. 6/02 of 21 June); Decree No. 82/14 of 21 April; Environ. Law (Law No. 5/98 of 5 June); EIA (Decree No. 51/04 of 23 July) Environ. Licensing Regulation	EIA by the Environmental Management Agency (EMA).	Water Resource Management Act 13 of 2013 Water Cooperation Act 12 of 1997	The Zimbabwe National Water Authority (ZINWA) is also mandated by the ZINWA Act of 1998 to ensure dam safety	Water Management Act
Solar powered irrigation drawing water from Boreholes, Weirs and Earth dams	National plan for Energy and Water Sector. Decree that approve the Strategic Plan of New Technologies (88/13 of 14 June, to promote the use the sustainable energy.	Energy Strategy nº 25/2009, New and Renewable Energy Development Policy nº 26/2009 and New and Renewable Energy Strategy nº 43/2011.	Water Resource Management Act 13 of 2013 Water Cooperation Act 12 of 1997	Water Act (Cap. 20:24). An Act to provide for the development and utilization of water resources of Zimbabwe	Renewable Energy Development Policy
Solar driven watering holes for grazing lands (and strategic wildlife zones)	National Biodiversity Strategy and Action Plan (Resolution n.º 42/06 de 26 de July); Strategic Plan of Conservation Areas; Law of Forest and Wildlife (6/17 of 24 January); The Iona / Skeleton Coast Transfrontier Conservation Area. (Resolution 41/06 24 July)	<i>Regulation of Water Licenses and Concessions.</i> Decreto nº 43/2007: Regulamento de Licenças e Concessões de Águas	Water Resource Management Act 13 of 2013 Water Cooperation Act 12 of 1997	Guidance from ZINWA. Compliance with irrigation development master plan Fodder species appropriate Livestock Division under the Department of AGRITEX.	Water Cooperation Act
Value addition and processing equipment for specific Value chains	Export Diversification and Import Substitution (PRODESI- Presidential Decree 169/18) Program to Support agriculture Credit (PAC) (Presidential Decree No. 159/19)	Decreto No. 59/2009 which includes GAP for high value crops (fresh fruits and vegetables as well as field crops	National Policy on Climate Change for Namibia 2011; Agricultural Marketing & Trade Policy & Strategy 2011; National Agricultural Policy (MAWF, 1995) Forest Act 12 of 2001	SAZ guidelines on food safety and phyto-sanitary measures Act Chapter 18:24 in 2004 as a Regulatory Authority	Food Safety Technical standards based on Good Agricultural practice and Phyto-sanitary measures
Conservation Agriculture (CA)	Development Plan of the Agriculture Sector (2018 - 2022).	Operational Plan for Agrarian Development (PODA) 2015-2019 Climate Change Adaptation Action Plan 2015-2020 of Mozambique.	Comprehensive CA Programme for Namibia 2015-2019 Namibia Agricultural Policy (MAWF, 2015) National Policy on Climate Change for Namibia 2011	Zimbabwe biodiversity strategy and action plan	
Water efficient and adaptable livestock breeds and crop varieties	Decree No. 15/18 of 25 January) on animal breeds and crop varieties; Executive Decree 574/17 Executive Decree No. 388/17 Executive Decree No. 387/17 Executive Decree No. 386/17 Decree that approve the Biosafety Regulation (Decree No. 62/11 of 14 April)	Operational Plan for Agrarian Development (PODA) 2015-2019 Decreto n.º 12/2013: Regulamento de Sementes <i>Seed regulation</i>	National Water policy 2003; Water Act 12 of 1997; Water Supply Sanitation Policy 2004 Livestock improvement Amendment Act 25 of 1993; Seed and Seed Act 2017; Plant Breeder & Farmer Right Bill 2006; National Policy on Climate Change for Namibia 2011	Seed sector in Zimbabwe is regulated by The Seed Services Institute (SSI). -Livestock Research under the Department of Research and Specialist Services (DR&SS).	
Enhancement of ecological infrastructure	The national policy of environment is the environmental Law (No. 5/98 of 5 June The Law of Forest and Wildlife (6/17 of 24 January) contain several points that address this issue.	Environmental Strategy for the sustainable development of Mozambique	National Policy on Climate Change for Namibia 2011 Environmental Management Act 2007; National Rangeland Management Policy & Strategy 2012; National Development Forestry Policy 2001 Forest Act 12 of 2001	Seed sector in Zimbabwe is regulated by The Seed Services Institute (SSI).	•
Automated weather stations for early warning	The National Institute of Meteorology and Geophysics (INAMET), (Presidential decree 230/14 of 4 September)	FEWS NET	World Meteorological Organization Standard	There is a preference of Campbell Scientific and Vaisala? models.	
Institutional capacity building and strengthening	National Plan Capacity building under of Ministry of science and technology.	Operational Plan for Agrarian Development (PODA) 2015-2019	Training Policy of Public Service of Namibia 1999; Human Resource Development Policy Framework 2012	Standard training material. Modules	

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

The programme will not duplicate other projects and programmes. It largely seeks to build on and complement existing and past programmes of work being undertaken by government agencies, public entities, NGOs and other relevant stakeholders by bringing a stronger focus on private sector driven sustainable water management and climate-smart agriculture in value chains which are also nutrition sensitive thereby providing the integration that is currently lacking. In South Africa, the programme aims to build on previous investments made by the Adaptation Fund through

The programme will build on the experiences and lessons learned from past and ongoing initiatives and inform ongoing policy and learning processes, both within the Limpopo and Kunene basins as well as beyond. There are many such ongoing environmental and agricultural interventions that will have a complementary effect on the project. In designing the project, these interventions were highlighted in section G of our proposal. These regional and national existing and past projects have been reviewed to eliminate the possibility of duplication but also for purposes of lessons learning and possible up-scaling of successful interventions as part of this proposed project. The regional and national level programmes linking and aligned to this proposed project are outlined below.

Regional Level:

- Global Water Partnership: [The Water, Climate and Development Programme \(WACDEP\)](#) aims to integrate water security and climate resilience in development planning processes, build climate resilience and support countries to adapt to a new climate regime through increased investments in water security.
- Programmes being implemented by the Limpopo Watercourse Commission (LIMCOM) is the basin's embryonic river basin organization (RBO) that evolved out of the SADC structures and mandate.
- Funded by USAID, [the Resilience In The Limpopo Basin \(RESILIM\) Programme](#) which implemented water management, biodiversity, and climate change adaptation interventions.
- FANRPLAN, a partner in the proposed programme, was the lead institution in the [Limpopo Basin Development Challenge \(LBDC\)](#) project scientific and development challenge project that sought to increase the productivity of rain-fed agriculture, increase the resilience of small-scale farmers and reduce the risks associated with an unpredictable climate. A wealth of knowledge was generated in the course of implementing the project that has informed the development of this proposed programme.

National Level:

- In **Mozambique**, in Gaza Province which is affected by flooding disasters year in year out, the programme will leverage CARE, Hydromet, UNDP, IFAD and AfDB projects on enhancing food and nutrition security and climate change resilience.
- In **Namibia**, there will be linkages with and lessons from other national agricultural projects that will enrich the programme. Some of the programmes include: GCF Funded CRAVE, and WFP feasibility studies.
- In **Zimbabwe**, the programme will benefit from the approach by Dabane Trust in Shashe sub catchment and WFP seasonal livelihood Reports and community-based action plans.
- In **Angola**, there are a number of initiatives: PRODESI (Programa de Apoio a Produção Nacional, Diversificação das Exportações e Substituição de Importações) 2018-2022; FRESAN (Fortalecimento da resiliência e da Segurança Alimentar e Nutricional em Angola) (Huíla, Namibe e Cunene) 2018-2022; Direito a Terra (ADPP e CODESPA) 2018-2020; Engajamento das Mulheres nas Organizações Locais e Participação Efectiva em Processos de Governação (ADRA), Ombandja e Cahama (União Europeia), termina em Novembro do corrente; Direito da Mulher a Terra (ADRA), Huíla – Gambos e Humpata 2016-2019; Resiliência à Seca (ADRA), Huíla – Gambos e Humpata; IRCEA (Integração da Resiliência Climática nos Sistemas de Produção Agrícola e Agro-Pastoril através da Gestão da Fertilidade de Solos em Áreas Produtivas e Vulneráveis usando a Abordagem de Escolas de Campo). (FAO) 2017-2021, Huíla, Bié e Huambo.

- In **South Africa**, this proposed programme will assist, contribute and complement existing efforts and plans towards the implementation of most climate related policies, strategies and action plans covering the agriculture, water, health, human settlements, and disaster risk reduction and management sectors, at both national and local government spheres of Government in the country.

These will not pose a risk of duplicating activities, because these complementary interventions are largely not focused at smallholder farmers' priority agriculture value chains and high impact climate-smart and nutrition-sensitive interventions.

Name of project and year	Project focus	Complementarity/ Synergies
Limpopo River basin		
Resilience in the Limpopo Basin (RESILIM) Program (2012-2017)	USAID southern Africa-funded Resilience in the Limpopo Basin (RESILIM) program, which commenced operation in June 2012, has at its core the improvement of the basin's ecosystems and the resilience of livelihoods. The RESILIM strategy integrates water management, biodiversity conservation and adaptations to climate change, with a view to building resilience for the long-term sustainability of the LRB. A desk-top review status quo of the basin – its water users, development prospects, governance and institutions, as well as risks and vulnerabilities using geographical information systems (GIS) formed a spatial picture of climate risk and vulnerability of the area. The expert review of these findings provided critical in-depth insights into this highly vulnerable region, complemented by stakeholder consultation and participatory analysis across the basin. The second component of RESILIM work undertaken by OneWorld has been a communications and training strategy, focused mainly on improving transboundary river management and supporting the development goals of the Limpopo Watercourse Commission (LIMCOM) and Southern Africa Development Community (SADC).	The project largely generates evidence for targeting within the LRB. OneWorld, a core consortium member of the RESILIM Program implementation team, has led the work done in building the evidence base for building resilience in the basin. Through the combined process of R&V mapping and expert consultation, eight case studies (or 'hotspots') emerged as areas of heightened vulnerability. These case studies were used as a means of understanding more localised vulnerabilities across the LRB, as well as ways in which basin-wide resilience could be built through replication and scale.
Challenge Program on Water and Food: Limpopo Basin Development Challenge (LBDC)	The LBDC is a scientific and development challenge that seeks to increase the productivity of rain fed agriculture, increase the resilience of small-scale farmers and reduce the risks associated with an unpredictable climate. The LBDC consists of four technical research projects and one coordination project. The lead institutions and projects are: L1) SEI – Targeting and scaling out; L2) ARC – Small water infrastructure; L3) ICRISAT – Farm systems and risk management; L4) WaterNet – Water governance; and L5) FANRPAN – Learning for innovation and adaptive management. The ultimate goal is to have science-based evidence included in and/or informing basin decision making leading to improved smallholder productivity and reduced risk in rain fed production systems.	The project largely generates evidence for the proposed program. The LBDC research projects were designed to support existing efforts by the four basin countries to improve water management, agricultural productivity and livelihoods in the basin.
WACDEP programme under the Global Water Partnership	WACDEP is an African Ministers' Council on Water (AMCOW) Programme implemented by GWP and Partners in order to realize the climate change related commitments expressed by African Heads of State and Government in the 2008 Sharm el Sheikh Declaration on water and sanitation. The Programme is embedded in the AMCOW Work Plan and is supported by a WACDEP Africa Coordination Unit (CU) based in Pretoria in close coordination with the AMCOW secretariat. The WACDEP aims to promote water security as a key element of sustainable development of countries and regions and to contribute to climate change resilience for economic growth and human security.	WACDEP is aimed at supporting governments and communities in the basin to take measures that are focused in the areas of flood mitigation and risk management as well as aligning crop production systems that can cope with water scarcity.
GRID Arendal: Limpopo River Basin: Atlas of Our Changing Environment.	The project will produce an Atlas of the Limpopo River Basin's Changing Environment, with a particular focus on the impact of drought and floods. Local experts will be trained in the gathering and generation of satellite change pairs, a skill that they will use in preparing similar atlases in future. Databases of maps, graphics and photographs will also be built from materials used in the visualization of the atlas. This Story Map describes the disaster risk profile of the Limpopo River Basin and is a synthesis of material drawn from the forthcoming Limpopo River Basin: Atlas of Our Changing Environment. The Story Map uses text which is enriched by a set of visuals that include maps, graphics, photographs and satellite imagery.	The project generates a lot of baseline information for the proposed Programme. The findings from the Limpopo River Basin atlas are mainly targeted at the Limpopo River Basin Commission, the Southern Africa Development Community, technical arms of the African Union such as the African Ministerial Conference on the Environment and African Ministerial Conference on Water, media groups, and politicians.
Kunene River Basin		
African Centre for Water Research capacity building	GTZ (German Technical Cooperation) is assisting in providing capacity building to further strengthen River Basin Organizations in SADC. Together with its project partners Ramboll Natura (Sweden) and	A main recommendation from this initiative useful for the proposed Programme is that there is need to

of the Permanent Joint Technical Commission (JPTC)	Stockholm International Water Institute (SIWI), the African Centre for Water Research provides training in transboundary water management for the Permanent Joint Technical Commission (JPTC) for the Cunene River, shared between Angola and Namibia. The rehabilitation of the Calueque-Ondangwa-Ondjiva water supply scheme (Cunene River, Angola / Namibia), financed within the Financial Cooperation of SADC and Kreditanstalt für Wiederaufbau (KfW) has been chosen as pilot project in SADC.	provide and further develop water supply infrastructure to serve communities in the basin as well as an input to socio-economic development projects in both countries.
Transboundary Water Management in SADC	<p>The objective of the Transboundary Water Management in SADC Programme is to strengthen human and institutional capacities for sustainable management of water resources according to the Regional Strategic Action Plan (RSAP) at regional and basin levels. The program focuses on Strengthening of SADC Water Division, RBOs and Water Utilities, RBO Exchange Programme; Development of Integrated Water Resources Management (IWRM) Plans, Training in IWRM, Information Management and Policy harmonisation.</p> <p>The international cooperating partners are BMZ - Federal Ministry for Economic Cooperation and UKaid (from the Department for International Development) and AusAID - Australian Agency for International Development. The lead implementing agency and responsible institution for the Programme is the SADC Secretariat in Gaborone, Botswana. The project duration is from 2005 to 2015.</p> <p>This Programme includes LIMCOM - Limpopo Watercourse Commission, ORASECOM - Orange-Senqu River Commission, Kunene PJTC - Kunene Permanent Joint Technical Committee and Rovuma JWC - Rovuma Joint Water Commission.</p>	The Programme provides important lessons and baselines in terms of transboundary and inter-basin collaboration which the proposed Programme will leverage.
UNESCO: Enhancing Climate Services for Improved Water Management	The overall objective of the project is to provide reliable climate services to monitor and forecast droughts and floods at the local level to improve national risk management strategies and to lower the impact of water-related hazards on vulnerable communities through improved communication and outreach in pilot regions of Latin America, the Caribbean and Africa, with particular attention to climate change vulnerabilities.	The project is not targeting specifically the pilot areas of this Programme but can leverage in co-funding for capacity building and the development of (regional) climate services.

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

The Programme applies some cutting-edge approaches deep rooted in inclusive climate smart value chain development applying FAO Soft methodology in facilitating sustainable adaptation in rural communities. It therefore generates a lesson and validates best practices, technologies and approaches in dealing with adaptation in poor rural communities. These will be documented and packaged for replication in other areas and countries.

Under activity 1.4.1, the Programme will facilitate the establishment and operationalization of a Regional Knowledge- Action Policy Platform (KAPP) on Climate Resilience for Southern Africa. The KAPP will be a collaborative network that facilitate highly integrative sustainability in knowledge co creation and application. The KAPP will build on the broad range and diversity of specialist expertise, multidisciplinary backgrounds represented in the large community of policy makers, researchers, private sector players and community development practitioners associated with UNESCO, FAO, SADC SECRETARIAT and FANRPAN and those within the Kunene and Limpopo river basins.

UNESCO, FAO, SADC SECRETARIAT and FANRPAN have significant experience and systems in place for knowledge management, documentation and dissemination across countries. FAO will use its network of Country and regional offices in Africa to disseminate the knowledge and the lessons learnt through the project. The UNESCO will also use its networks and other ongoing projects and leverage its MoU with SADC SECRETARIAT to disseminate lessons and best practices generated through the project. The SADC will leverage the Institutions in the Meteorology Department including the Climate Services Center, the Meteorological Association of Southern Africa (MASA), and Regional Meteorological Training Centers (RMTCs), Regional Instrument Calibration Centre (RICC) to communicate lessons and best practices generated through the Programme. Further, the SARCOF which is the regional climate outlook prediction and application process adopted by and coordinated by the SADC Climate Services Centre (SADC CSC) will be used to disseminate and share lessons and knowledge related to climate and weather. The FANRPAN will leverage its inter-sectorial platform designated as country nodes. Each country node has members comprising stakeholders from government, private sector, farming unions, policy research institutions and non-governmental organizations. The nodes convene in-country stakeholder consultations to define policy agenda, undertake policy research and conduct policy advocacy. FANRPAN builds its foundation on a long-term investment and commitment already made in established knowledge centers such as universities and policy institutes in Africa.

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

Consultations followed and were guided by the international good practice and principles in accordance with Adaptation Fund requirements, harmonized with those of other development partners and reflected a broad range of information and perspectives on climate change vulnerabilities, impacts and adaptation. The following five step approach was used to guide the formulation of this project:

Step 1: Regional stakeholders SADC, provided guidance on the basins to Useful secondary participatory data and resources (i.e. survey results, community plans) from NGOs, researchers, and other stakeholders were made available to avoid duplication of effort.

SADC Secretariat, LIMCOM and PJTC,: A number of meetings were carried out with these stakeholders, some of which were held on the sidelines of the Southern African Regional Climate Outlook Forum (SARCOF). The SADC Climate Services Centre helped in identifying, aligning and framing the priorities with respect to weather and climate information as well as existing programmes and projects. Interviews with the SADC Disaster Risk Reduction Unit responsible for coordinating regional preparedness and response programmes for trans-boundary hazards and disasters gave insights on the challenges and

intervention priorities in terms of regional early warning and response systems. The SADC water division gave inputs on the adaptation priorities especially transboundary and integrated water resources development and management especially in the face of climate change.

Consultation was done with **Climate Resilient Infrastructure Development Facility (CRIDF)**, an institution working in 12 different countries in Southern Africa that share water resources to provide long-term solutions to water issues that affect the lives of the poor in Southern Africa. The meeting provided valuable inputs on water based adaptive solutions that will be part of the upgraded climate smart infrastructure described under Outcome 2 of the intervention framework. Insights were also given on not only building short-term water infrastructure, but on working with organizations to show them how they can better build and manage their own water infrastructure to improve people's lives.

Chemonics International: a consultative meeting was done with Chemonics International which from June 2012 to December 2017 has been implementing the USAID-funded Resilience in the Limpopo Basin Program (RESILIM) in water resources management, biodiversity, and climate change adaptation in the Limpopo basin. One of the major products is an Atlas which shows changes, challenges and opportunities in the basin, and has been used to inform formulation of the intervention framework proposed in this Programme.

Step 2: This was at the national level in all the five countries and was mainly through one-day workshops with the exception of Mozambique. The main purpose of the workshops was to obtain the inputs and contributions of national level stakeholders in terms of overall design and relevance of interventions. In addition, the consultation was aimed at ensuring and facilitating alignment, alliance and compliance with national and local policies, rules, regulations as well as ongoing programmes and projects in line with the AF's In principle, the selection of stakeholders was guided by the activity of the stakeholders in the climate change, water and agricultural sector. In many cases, government led the identification of key national stakeholders involved in these sectors. Environmental and Social Policy; and to get guidance on the selection of actual target communities and priority value chains to be targeted under the programme (the sites that have been identified are presented in Part 1(Section B IV g). In all the five countries, the consultation proceeded as follows:

- In Namibia, 31 participants with more than 15 of the participants being women attended the consultation workshop. It was opened by the Deputy Minister of Environment and Tourism and attended by two representatives for the Governors offices for Oshana and Omusati regions. The FAO Representative for Namibia and UNESCO Regional representative also gave opening Remarks. A detailed presentation of the project idea was done, and participants deliberated and discussed the intervention framework. They were then split into two groups with Group 1 focusing on alignment of proposal to policies and ongoing projects; while group 2 focused on selecting the sites within the Kunene province.
- In Angola, the consultation followed the same approach with 20 participants attending of which 5 participants were women. The Governor of Kunene Province opened the meeting and expressed enthusiasm over the proposal. In the same fashion, a detailed presentation of the project idea was done, and participants deliberated and discussed the intervention framework. They were then split into two groups with Group 1 focusing on alignment of proposal to policies and ongoing projects; while group 2 focused on selecting the sites within the Kunene province.
- In Zimbabwe, 26 participants with 14 of the participants being women attended the consultation workshop. It was opened by the UNESCO Regional Director, senior officials from the Government of Zimbabwe particularly from the Ministry of Lands, Agriculture, Water, Culture and Rural Resettlement. A detailed presentation of the project idea was done, and participants deliberated and discussed the intervention framework. They were then split into two groups with Group 1 focusing on alignment of proposal to policies and ongoing projects; while group 2 focused on selecting the sites within the Limpopo province.

- In South Africa, consultation 33 participants with 12 of the participants being women attended the consultation workshop. Participants came from Government, Government Parastatals, Farmer organizations and Research Institution. Senior officials from the Department of Agriculture Forestry opened the proceedings. A detailed presentation of the project idea was done, and participants deliberated and discussed the intervention framework. They were then split into two groups with Group 1 focusing on alignment of proposal to policies and ongoing projects; while group 2 focused on selecting the sites within the Limpopo province.
- In Mozambique, the consultation proceeded by way of meetings with key stakeholders. The stakeholders that were met over the two days include, Government of Mozambique officials, FAO Field Level officials, UNDP officials, Save the Children officials, and Care International officials. In each of the meetings, an overview presentation of the project idea was done to give a full picture of the intervention framework. Each of the stakeholders met were also asked to give their view in terms of policy and Programme alignment as well as on the selection of sites within the Limpopo province.

Step 3: Provincial and district level stakeholders were informed of the proposed programme objectives and they provided guidance on the target sites. The criteria for selecting the sites were the need for adaptation interventions, complementarity with ongoing initiatives, building on previous Adaptation Fund supported initiatives and potential for success

Step 4: This was one of the most important and intensive part of the consultation process where target direct and indirect beneficiaries at site level/on the ground within the selected geographical areas provided their views on impacts of climate change on their livelihoods and proposed solutions for adaptation. Community level consultations with in all five countries were held between 23 October and 21 November 2019 at the proposed adaptation sites using Community Based Rapid Vulnerability Assessment and Adaptation approaches. The consultations were gender inclusive with over 50% women attending at each site. Consultations kick started in South Africa with training of country focal points in conducting Community Vulnerability Assessments and Adaptation Planning (CVAPP) followed by a field exercise in the Limpopo province culminating in rolling out of CVAPP in the five riparian countries at site level. The process exclusively captured community perspectives regarding their natural environment, ecosystem services locations as well as assessing the effect of drivers of change on ecological conditions hence service provision and adaptation responses. Twenty rapid scoping appraisals were undertaken at site level (4 sites per country) with key informants comprising village heads/local leaders combining both males and females and the elderly men and women. These interviews were focused on developing an understanding of local challenges, existing adaptation practices to historical and current climate variabilities, the long-term climate change, including extreme events impacts and to gain local perspectives on possible and suitable future interventions that will improve local adaptive capacity. The discussions with women's groups, as well as the elderly and the disabled have ensured that the interventions designed under the proposed project are gender sensitive and take the concerns of the most vulnerable into consideration.

These consultations provided more insights about the target sites as well as expert opinion on the availability, use, management, distribution and historical trends in critical ecosystem services or both. Highlights were made on some of the actual and potential adaptation responses to the decline and in the delivery of local ecosystem provisioning ecosystem services and effect of climate and other drivers on ecological conditions as well as agricultural innovations for increasing productivity. This approach was critical for the project especially for understanding the impacts and tradeoffs as a result of climate induced and or anthropogenic changes in the spatial, temporal and seasonal changes in the delivery of local ecosystem services and the adaptive capacity of the local communities to climate-induced changes in the delivery of local ecosystem services. A validation workshop was then held at the end of November 2019 with relevant government departments/institutions, CBOs and NGOs associated with the project; to make stakeholders aware of the climate resilient proposal; the community vulnerability assessment outputs including climate adaptation responses from the 5 countries (site level); and to get their inputs and map out concrete adaptation activities.

Community level consultations mainly informed the development of interventions that are presented in this proposal. The community consultations increased participatory decision-making processes in climate adaptation planning by bringing diverse stakeholders into a common process. It expanded the inclusion of often marginalized populations (mainly rural communities) and particularly women, youth, persons with disabilities, the elderly, and ethnic minorities with other stakeholders, such as traditional leaders, local NGOs and CBOs, government line ministries. The primary purpose of these consultations was to work with the beneficiaries to identify and co-design suitable adaptation responses, pathways and interventions that are informed by their respective local context (including indigenous knowledge and citizen science) to build resilience and reduce poverty associated with climate induced hazards, needs and priorities. Importantly, local government's representative also attended the consultations and gained greater credibility with their own constituencies. In addition, these consultative processes also relied on annual government vulnerability assessments undertaken by multi-sectorial and multi-institutional teams, including assessment of the impacts of climate change on food security, nutrition and poverty amongst others. Interviews also formed part of the consultation process and were held with key strategic stakeholders as well as potential partners in 2018 and 2019. In addition, country level consultations and engagement were undertaken with national Governments level stakeholders, sector representatives and local experts (in the adaptation and other related fields), while ensuring the presence of community representatives from the proposed project sites. This was followed by community level consultations on site.

Step 5: A validation workshop was then held in Johannesburg from 27 to 29 November 2019 to present findings to program stakeholders with participants from government departments and civil society organizations operating in the target communities. The NGO Network for Adaption Fund was represented at this workshop represented by Ms Elin Lorimer. Recommendations pointed to the need to unify interventions at catchment/transboundary level at for sustainable and impactful outcomes. This kind of analyses and methodological mixes were critical for facilitating participatory planning and decision making at local level with the aid of spatially explicit information, which ultimately informed program's concrete adaptation activities honed on basin wide approaches for sustainable resilience. Table X below provides details on the dates when the consultation were held at the sites including the number of participants.....

Dates of the community consultations

Country	Date of the community consultations, 2019	Total number of community Level Participants
South Africa	23 to 24 October	92
Namibia	2 to 6 November	191
Zimbabwe	6 to 9 November	72
Angola	14 to 16 November	266
Mozambique	12 to 15 November	71

Further to this, follow-up consultative activities will be undertaken during the inception phase of this proposed project, to strengthen community ownership of the interventions. Further consultations will be done at community level during socio-economic and environmental baseline studies at the inception phase.

Regular Government Vulnerability and food security Assessments

Since its establishment in 2005, the Southern African Development Community (SADC) Regional Vulnerability Assessment and Analysis (RVAA) Programme has facilitated the strengthening of a regional vulnerability assessment and analysis (VAA) system. The Governments involved in the proposal, with the support of World Food Programme (WFP), FAO and other stakeholders, each year between May and June

National Vulnerability Assessment Committees (NVACs) carry out national vulnerability assessments under the guidance of the Regional Vulnerability Assessment Committee (RVAC). The RVAC system is acknowledged as the main system to track, report, respond to food insecurity and vulnerability in the region, and as such has been used as the major entry point for identifying the most vulnerable sites in all the countries. The design of the proposed Programme was informed by the 2015, 2016, 2017 and 2018 vulnerability assessments.

Catalytic value and potential of the intervention framework: Further to these meetings, the FAO value chain soft methodology proposed in the intervention framework has been presented to a number of actors is already demonstrating how different stakeholders would leverage the Adaptation Fund funding to upscale sustainable adaptation activities in the region as below:

- **International Fund for Agricultural Development (IFAD):** Meetings were held with the IFAD and the organization has expressed willingness to avail additional grant funding to upscale the aspect of development of climate smart inclusive value chains particularly in South Africa. FAO is already working to develop a proposal on Rural Income Certainty and Climate Smart Value chains that applies the FAO value chain soft methodology proposed in the intervention framework to access the IFAD Grant. This demonstrates how AF funding can be used to catalyze additional funding from other actors in blended finance models in the upgraded business model.
- **AfDB and Land bank of South Africa:** Meetings were held with two key financial institutions to explore areas of collaboration especially in the development of the upgraded business model for the climate smart inclusive value chains. The African Development Bank has since expressed interest in potentially collaborating, or up scaling this transformative initiative building on the potential successes they see in the proposed intervention model (as outlined under Outputs 2.2 and 2.3). There is registered interest in up scaling to other commodities and other countries the upgraded inclusive climate smart value chain business model basing on the FAO value chain Soft methodology proposed in the intervention framework. The same interest has been expressed by the Land bank of South Africa in terms of blending the financial model of the upgraded business model.
- **Water Research Commission (South Africa):** Consultation meetings with the Water Research Commission in South Africa have shown that the WRC is willing to collaborate in implementation particularly on aspects to do with Water Energy Nexus. They are prepared to put in financial resources to complement and co-fund some to the proposed activities especially from a research perspective to ensure that issues of water, energy and food nexus are dealt with, recognizing and emphasizing the transboundary nature of water resources within the SADC region.

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

COMPONENT I: *Implementing Measures to Reduce Exposure to Climate Related Risks, Hazards and Threats and Enhance People's Resilience.*

Baseline scenario (without AF funds)

The information and surveillance systems in SADC member states vary and are constrained by variability in quality of information gathered, limited surveillance and inadequate sharing of information. Further, to minimize their impacts, the hazards must be contained at infancy stage but some SADC member states lack well-coordinated and efficient monitoring and early warning systems (MEWS) which poses a challenge to developing a regional MEWS as it draws from nationally generated information and data. Also, the limited resources including timely access to finances constrain regular surveillance activities and efforts to rapidly mitigate hazard outbreaks. Another reality within the region is that there are inadequate/or

no policy measures /instruments by governments and authorities to support/incentivize actors along value chains to take up climate smart technologies and approaches.

Appropriate packaging and timely dissemination of weather information is necessary in early warning and response to disasters. The SADC (2016) review highlights that there is a lack of communication of the likelihood of the occurrence of emergencies in languages that the ordinary people understand. Ethno-meteorological knowledge systems in SADC generally are not incorporated into the interpretation and dissemination of weather information. For example, during the response to the 2015/16 drought, while the transport plan and the associated policy measures developed by the SADC Logistics cell facilitated the moving of the large volumes of food aid required to feed the large numbers of people affected by the El Niño drought phenomenon, the SADC, 2016 review established that their effectiveness was affected by poor flows of information between national authorities responsible for importing food and port authorities and transport operators especially with respect to quantities of food that needed to be transported. The review particularly highlights that in future SADC Secretariat and its Member States need to improve on their handling and processing of data relating to potentially affected people, and countries should consider adopting a common reporting system based on the mobile vulnerability assessment system that is used under the IPC assessment approach.

While there are a number of ongoing initiatives focused on provision of weather information to inform small holder farming activities in the River Basins, there are still large gaps in the collection, analysis and dissemination of climate and weather information especially in remote pastoral and agro-pastoral communities where this information is needed most. These gaps include short-term sub seasonal to seasonal information to inform agricultural and livelihood activities as well as longer term climate scenarios to inform long term adaptation planning. Weather and climate information, especially seasonal, often arrives too late in the communities to inform planning or is not adequately disseminated to the majority of farmers.

While the SADC Secretariat coordinates the regional and national climate-outlook forums the extent to which this information is used in institutional decision making is limited, while the limited availability of high resolution down-scaled climate scenarios as well as lack of understanding by decision makers of their use in planning also poses a challenge. The weather and climate information generated and disseminated is often generalized climate information that is not tailored to any specifics of the weather and climate usable by farmers in specific climatic conditions including River basins and other agricultural landscapes. In addition, climate information users and decision makers are often part of a one way information flow from the Regional and national meteorological and hydrological services agencies, and thus in many cases the information received is not relevant to the user and there is no means of channeling feedback on the needs of the user or the relevance and impact of the information received. The NMHSs of the target countries, and the river basin institutions currently receive little feedback in a systematic manner from climate information users, which means that there is no efficient process in place for continuous improvement of the services provided.

Additionally (with AF funds)

The programme will support harmonization of monitoring and early warning systems (MEWS) and mechanisms for priority climate induced transboundary risks and other hazards. This will be done through supporting development, updating and strengthening of long-term harmonized MEWS information/tools for decision making, data collection tools and response protocols for the region's needs-based content/approach for short term and climate induced hazards and disasters, and will be based on a tailored version of the African Flood and Drought Monitor. The programme will provide technical support and contribute to regional livestock data/information collection, disease surveillance, strengthen cross border and cross basin disease surveillance using EMPRES-i EMA. Incentives will be providing for members states to domesticate and uptake data collection tools and response protocols for the region's climate induced hazards and disasters.

The Programme will directly support the SADC Secretariat to improve capacity to generate regular tailored sub seasonal-to-seasonal forecasts and longer-term climate scenarios; downscale high resolution climate scenarios to specific locations in the target countries; map climate change “hotspots”; and establish climate baselines and trends. The project will support generation of high resolution seasonal, monthly and decadal forecasts with an advance period (lead time) of at least 1 month for all SADC countries. The project will further facilitate capacity building of both the SADC Climate Services Center and the SARCOF process and the National Meteorological and Hydrological Services of the target countries in data management and data exchange; communicating uncertainty; and a standard procedure and format for downscaling and communication of the results to decision makers and stakeholders will be put in place in the three target countries.

At the sites in the two river basins Kunene and Limpopo, all seasonal, monthly and decadal forecasts and products will be further downscaled to the target communities at 1km resolution with a focus on farmers, agro-pastoralists and pastoralists. Future climate scenarios and short-term forecasts will be complemented by analysis of past trends thus giving a wholesome picture of the changes in climate in the target communities. The project will put in place a systematic feedback mechanism on the relevance, timeliness and effectiveness of the climate services received and what can be done to improve it. This will facilitate a process of continuous improvement of weather and climate information products to aid climate informed decision making and improved resilience to climate change in the target countries. The project will also build the capacity of Agro meteorologists at SADC and River basin institutions and promote the tailoring of climate information for agricultural advisory rather than having broad climate advisories that are not tailored to any specific sector.

COMPONENT II: *Diversifying, strengthening and increasing adaptive capacities, livelihoods and sources of income for vulnerable people in targeted areas*

Baseline scenario (without AF funds)

Several initiatives have been implemented to assist communities to adapt to climate change in SADC rural communities, however, the method and approach to facilitating adaptation has some gaps in terms of embedding the technologies and approaches in economically viable value chains. Most of the current approaches have not adequately upgraded the underlying business relationships between various actors in the communities and allowed formation of formal business relationships to bring sustainability to adaptation measures. The result has been that such value chains are just attractive to poor communities for as long as the project is there, but not to private sector players who under normal circumstances would get attracted by sustainable profits. Most of SADC rural communities including the three river basins targeted in the programme, crop and/or livestock farming contributes most to household food security and is the principal source of subsistence livelihoods. In this environment, rain fed farming is a high-risk enterprise but also a way of life. People are committed to making the best of the scarce resources at their disposal.

Due to a ‘non business approach to adaptation’, agricultural productivity remains low and the production environments are normally characterized by soil moisture stress and poor soil fertility in many areas in SADC and the farmers do not see the incentive to take up new technologies and approaches and new climate smart ways of doing things. There are large yield gaps between the average farmer and the best farmer, and returns to land, labour and capital are low. Droughts tend to reduce production below the already marginal levels, so that subsistence farming itself is threatened. These conditions occur where the local economy is least diversified and where virtually everyone depends either directly or indirectly on agriculture.

The more frequent exposure to drought events causes agricultural production to be out of equilibrium with the seasonal conditions, representing an inability on the part of most smallholders to adjust land use to climate variability. Thus, managing for drought is about managing for the risks associated with agriculture,

and managing for climate variability must become the norm rather than the exception. Farmers must either increase agricultural productivity or develop alternative sources of income if their livelihoods are to be sustained.

Although livelihoods are complemented in some instances by the collection of firewood, the production and sale of charcoal (especially near major urban centres), the gathering, consumption and sale of natural food and medicinal plants, the hunting of wild animals, as well as artisanal inland fisheries in rivers and lakes, these activities are often carried out unsustainably. Some of these activities also provide or contribute usually modest cash incomes and associated livelihoods. Natural foods, medicines and cash incomes may become the principal sources of livelihoods for subsistence farmers during times of resource scarcity and hardship. For those too poor to farm, however, these supplementary livelihoods may be the only means of survival.

Climate change is therefore making the development of smallholder agriculture more expensive especially when the risks associated with financing them are considered. There are also challenges of weak institutional framework/arrangements for farmers to participate viably in priority value chains and low application of climate smart technologies by smallholders along value chains. There is limited or no private sector/farmer driven technologies along value chains which results in many project driven interventions disappearing fast as soon as the project is concluded.

Additionally (with AF funds):

The Programme will facilitate diversification of livelihoods and sources of income and strengthening of adaptive capacities for vulnerable people in targeted areas. The highlight of the Programme in the specific sites is value chain facilitation, which is regarded as a major missing link to facilitate uptake of climate smart technologies along value chains. The promotion of value chain facilitation services will enable marginalized groups, specifically (smallholder farmers, small and medium enterprises) to meet the conditions required to access the wide range of facilities available at national provincial and district levels. Value chain facilitation focuses on i) linkages: promoting business relationship between value chain players, specifically smallholder farmers and small and medium agribusiness enterprises and other value chain players, in commercially viable way, ii) Strengthening the capacity of value chain players to meet required standards and to fulfil their contractual obligations, and , iii) working with enablers to render the business environment more conducive for smallholder farmers and small and medium agribusiness enterprises.

To strengthen targeted individual and community livelihood strategies in relation to climate change impacts, including variability, the Programme will identify priority value chains and non-agricultural sources of income opportunities for upgrading into inclusive climate smart and business driven activities at specific sites in the three basins. Profiles will be developed for each selected priority value chain or commodity, then upgrading plans/proposals will be developed. The Programme will facilitate formation of business alliances/partnerships for communities and individuals in priority VCs and non-agricultural livelihoods between farmers in viable producer clusters and visible business entities facilitating meetings and capacitating/capacitating/training/supporting value chain actors to enter into business agreements (MOUs, contracts, and offtake agreements etc.).

Farmer groups and value chain actors who are part of the upgraded climate smart value chain will access grants and will be assisted to access resources/funds from other sources in blended finance arrangements based on the agreed upgraded business model. In addition, *targeted population groups participating in adaptation and risk reduction awareness activities will also be assisted to access specific concrete adaptive physical, natural and social assets in response to climate change impacts in line with the upgraded business model.* The Programme will facilitate rehabilitation, construction and establishment of strategic livelihood and climate smart value chain infrastructure provided through various forms of partnerships. At each site, irrigation, storage, processing and other relevant infrastructure needs will be

identified in a participatory manner and then established, upgraded or rehabilitated depending on the findings of the VC profiling exercise. Further to facilitating access to tangible adaptive infrastructure, the Programme will use AF funds to support platforms for joint planning, implementation, coordination to build adaptive capacities and resilience to climate change. Such Platforms include the KAPP outlined in Component I, conducting inter basin exchange visits and study tours and support to activities of inter basin and transboundary joint planning, implementation, coordination committees. The Programme will also support evidence-based climate information to feed into policy dialogues in the region through documentation and reporting of good practices, lessons learned and success stories, particularly on proactive flood and drought risk management strategies. This will include setting up of community sites for demonstrating adaptive crop pathways and practices for communities at high risk of climate change related impacts, which will be framed around the farmer and agro pastoral field schools

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

This project will facilitate long term action by supporting the entrenchment of inclusive climate smart value chains and climate informed decision making in INDCs and National adaptation plans. The Programme will lay the foundation for the widespread scaling up of inclusive climate smart value chain driven adaptation in SADC region, Africa and globally through application of comparative advantage in regional and global presence by UNESCO, FAO, SADC Secretariat and FANRPAN. An important requirement for interventions to be locally owned and hence sustainable is the extent to which local indigenous knowledge and expertise are entrenched. This programme through the platforms for co-creation of knowledge with local and indigenous communities and fostering ownership and in project planning, implementation and monitoring facilitates ownership of interventions by local communities, which will be achieved in close coordination with UNESCO's Local and Indigenous Knowledge Section (LINKS). This is further enhanced by the embedding of ecosystem-based adaptation interventions in farmer and agro pastoral field schools, communities of practice/knowledge action networks and learning sites at different levels, which will be formed and operationalised by the programme.

The Programme also entrenches the interventions within existing regional, Basin level, national and private sector institutions. At the regional level, the CSC, MASA, RMTCS, RICC and the SARCOF process will be key in ensuring sustainability of measures to reduce exposure to climate related risks, hazards and threats and enhance people's resilience. At the River Basin level, the Permanent River basin Commissions i.e. LIMCOM for Limpopo, and Permanent Joint Technical Commission (PJTC) for Kunene will be the main institutions through which implementation will take place. At the national level, the Ministries of Agriculture and Ministries of Environment, NMHS and NACOFs will be engaged and capacitated in various activities through the programme.

The private sector actors who will form part of the upgraded business models at the selected VC sites in each river basin will also form an important part of the framework that will ensure sustainability of the interventions well after the end of the programme. Private sector players including financial service players and IT service providers are expected to see and recognize the business within the value chains in the upgraded business model, and thus will be incentivized to continue doing business with the smallholders. The incentives and subsidies to be rolled out through the programme remove residual risk for private sector to invest in climate smart agriculture, agricultural landscape management and other new technologies and approaches that build resilience. Naturally private sector is expected to flow in to invest in a more sustainable production system.

Long terms sustainability is further ensured by focusing on existing extension staff, field workers and community focal points and building their capacity in climate change adaptation. This is enhanced by making of use of institutions that are already in that field of specialization so that when the project comes to an end, activities continue. In addition, by taking advantage of FAOs global modalities for knowledge

dissemination in agriculture, food and nutritional security the reach and spread of program outcomes will be enhanced.

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

Environmental and social impacts and risks relevant to the project were identified through stakeholder consultations, during the interventions validation workshop, community consultations with potential beneficiaries, and the use of a screening checklist in table below. Risks are summarized below.

Checklist of environmental and social principles	No further assessment required	Potential impacts and risks – further assessment and management required for compliance
<i>Compliance with the Law</i>	x	X ¹⁵ .
<i>Access and Equity</i>	X	
<i>Marginalized and Vulnerable Groups</i>	X	
<i>Human Rights</i>	x	
<i>Gender Equity and Women's Empowerment</i>		X ¹⁶
<i>Core Labour Rights</i>	x	
<i>Indigenous Peoples</i>		
<i>Involuntary Resettlement</i>	x	
<i>Protection of Natural Habitats</i>		
<i>Conservation of Biological Diversity</i>		
<i>Climate Change</i>	x	
<i>Pollution Prevention and Resource Efficiency</i>	x	
<i>Public Health</i>	x	
<i>Physical and Cultural Heritage</i>	x	
<i>Lands and Soil Conservation</i>		

¹⁵ Intervention framework proposed by communities will need to be compliant with the law in each of the countries. Further, relevant national, regional and district authorities have been and will continue to be consulted throughout project implementation to ensure compliance with all relevant laws and technical standards

¹⁶ The consultative exercise provided basis for identification of interventions that ensure gender equity and women's empowerment. Additionally, through targeted consultations with women, upgraded business model design and implementation will ensure that gender considerations are integrated in each activity. This project will promote women leadership in public spaces and decision-making power for climate change adaptation and food security and nutrition. Participation of women will be encouraged in the field schools, and the programme will draw on UNESCOs and FAOs experience of promoting the role of women and gender equality within the field school setting.

The project is classified as “B” in accordance with the Adaptation Fund guidance on impact classification due to the presence unidentified sub-projects (USPs) in Output 2.2 which includes design and upgrading of agricultural value chains and their roll out involving facilitation of rehabilitation, construction, and establishment of strategic livelihood and climate-smart infrastructure linked to value chains and other key livelihoods provided through various forms of partnerships.

Project activities with potential (limited) adverse impact are small-scale, community-based, and localized. They will be co-managed with local communities where possible. Communities will have a stake in avoiding negative environmental and social impacts. Cascading and/or cumulative negative impacts are highly unlikely. Proposed project activities requiring additional environmental screening, assessment, and/or permitting represent a minor part of the project, and no-impact measures and measures with co-benefits for the environment (e.g. slope tree planting for slope stabilization) will be prioritized.

Monitoring for unexpected environmental or social impacts is included under project M&E activities (see Section III.C) and will be reported on annually.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Describe the arrangements for project / programme management at the regional and national level, including coordination arrangements within countries and among them. Describe how the potential to partner with national institutions, and when possible, national implementing entities (NIEs), has been considered, and included in the management arrangements.

The Programme will be implemented by UNESCO and executed by FAO and FANRPAN, in close collaboration with SADC Secretariat, all relevant National Ministries/Departments of Agriculture, Environment, and Climate change in target countries as well as of permanent commissions for the two river basins namely LIMCOM for Limpopo, and Permanent Joint Technical Commission (PJTC) for Kunene. Figure X? below shows how partners will be organized to deliver the Programme.

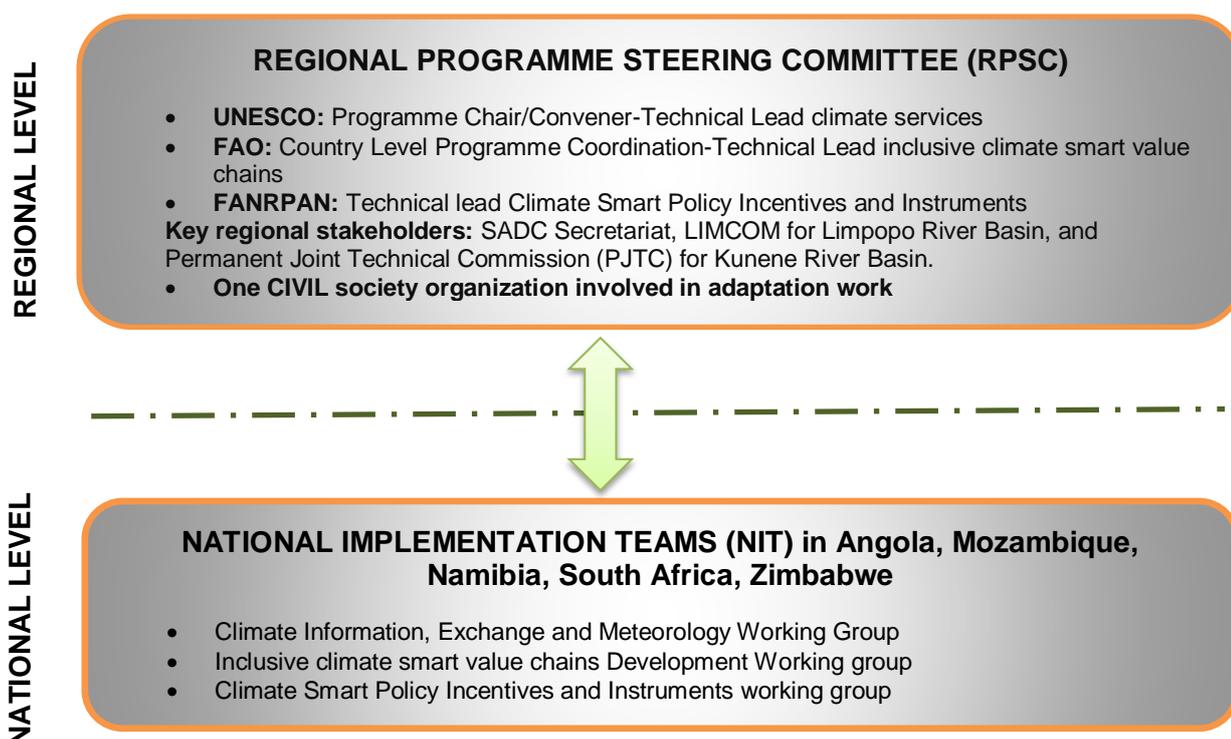


Figure 8: Partners that will be involved in the implementation and delivery of the proposed Programme.

Roles of the different Programme partners will be as follows:

UNESCO: will assume the role of Programme implementer and provide fiduciary and Programme management oversight and chair the Regional Programme Steering Committee. In addition, UNESCO and FAO will support SADC Secretariat to deliver climate services the promotion of utilization of climate information in decision making in collaboration with relevant national institutions.

- **FAO:** In addition, backstopping is all components of the Programme, FAO will be responsible for the day-to-day coordination of activities at country level through the network of country offices. FAO will lead development of inclusive climate smart value chain and natural resource aspects and also facilitate formation of business driven partnerships and rural service enterprises that spearhead introduction of new climate smart technologies and practices along the selected smallholder priority value chains at specific sites in the three river basins. UNESCO will also support FAO in relevant aspects in the development of inclusive climate smart value chains
- **FANRPAN** will lead with the support of FAO and UNESCO in the review, development, improvement and application of incentives and instruments for catalyzing adoption of climate smart approaches along value chains.

Regional Programme Steering Committee (RPSC): UNESCO with the support of the executing entities will set up the Regional Programme Steering Committee (Regional PSC) whose role will be to provide direction in implementation of all the project components and activities. The Regional PSC will provide fiduciary oversight and also oversee project implementation through existing structures to monitor performance, provide technical oversight, advice on strategic challenges, and ensure systems exist to mitigate risks and disseminate best practice. The Regional PSC will also be responsible for the day-to-day coordination of the project and for promoting and facilitating stakeholder engagement at regional level.

National Implementing Team (NIT): In each Project country, a National Implementing Team coordinated by government line ministry responsible for the main activity, with technical assistance from FAO, and the Adaptation Fund National Implementing Teams in each country will be established which will be responsible for the facilitating stakeholder engagement at national, basin and local community level. In each country, the actual composition of the NIT will be different and will at best be structured to conform to already existing institutional arrangements as opposed to formation of new structures. Based on the consultation exercise, the table provides a list of organizations from which the NIT in each country will be established. The roles of the actors and stakeholders at country level will be aligned to their mandates, and will be further identified, defined and refined during the inception meeting in each country. The national level stakeholders and institutions with potential roles in the NIT identified during consultation are presented in table below

National level stakeholders and institutions with potential roles in the NIT identified during consultation.

Angola	Mozambique	Namibia	South Africa	Zimbabwe
<ul style="list-style-type: none"> • Department of Environment of Cunene province • Department of Agriculture of Cunene province • Department of Environment of Huila province • Department of Agriculture of Huila province • Agriculture Development Institute (IDA) • National Institute of Meteorology (INAMET) • National Institute of Hydric Resources (INRH) • Forest Development Institute (IDF) • Artisanal Fishers Institute (IPA) • ADPP (NGO) • CODESPA (NGO) • UNDP • ADRA (NGO) • Civil Protection Department • World Vision (NGO) • Polytechnic Institute of Cunene • Polytechnic Institute of Huila • Department of Climate Change (GABIC) • Irrigated perimeters Development Society (SOPIR) <p>Private sector players active in the value chains</p> <ul style="list-style-type: none"> • ANO Association • Farmers associations 	<ul style="list-style-type: none"> • National Directorate of Agriculture and Silviculture (DINAS) - Crop and Early Warning Unit (DCAP) • National Directorate for Agricultural Extension (DNEA) • National Directorate for Veterinary Services • National Institute of Meteorology (INAM) • National Directorate of Environmental (DINAB) • National Water Directorate • Regional Water Authorities (ARA Sul) • Lower Limpopo Irrigation State-owned Company • National Institute of Cashew • African Development Bank • IFAD • WFP • Save the Children • The world Bank • National Institute for Disaster Management (INGC) <p>Private sector players active in the value chains</p> <ul style="list-style-type: none"> • Farmers associations • Microfinance institutions • Input providers • agro dealers • Processing Associations • Private industries 	<ul style="list-style-type: none"> • Desert Research Foundation of Namibia (DRFN)-National Implementing Entity • Ministry of Agriculture, Water and Forestry • Ministry of Environment and Tourism • Ministry of Industrialization, Trade and SME Development • Ministry of Fisheries and Marine Resources • Ministry of Urban and Rural Development • Ministry of Poverty Eradication and Social Welfare • Namibia Meteorological Services • University of Namibia • Namibia University of Science and Technology • National Commission on Research Science and Technology • Kunene Permanent Joint Technical Committee • National Climate Change Committee • Development partners including various NGOs <p>Private sector players active in the value chains</p> <ul style="list-style-type: none"> • Namibia National Farmers Union • Local Farmers' Associations and Cooperatives • Agro-Marketing and Trade Agency • AgriBusDev • Local millers and food processors • National Water Utility company (NAMWater) • Agricultural and Commercial Banks 	<ul style="list-style-type: none"> • South African National Biodiversity Institute (SANBI)- National Implementing Entity • Limpopo Department of Agriculture and Rural Development (LDARD), • Department of Agriculture Forestry and Fisheries (DAFF), • Department of Environmental Affairs (DEA), • Department of Small Business development • Department of Trade and Industry • Traditional authorities • Great North Farmers' Union (NAFU) • The African farmers' association of South Africa Organization (AFASA), • South African Weather Service (SAWS), • Water Research Commission (WRC), • Agricultural Research Council (ARC), • Council for Scientific and Industrial Research (CSIR), • University of Venda, • University of Limpopo. • Limpopo Economic Development Agency • Small Enterprise Development Agency • Industrial Development Cooperation • Research councils • Commodity organizations • Global GAP • Various NGOs <p>Private sector players active in the value chains</p> <ul style="list-style-type: none"> • Mining houses (Waterberg Red Meat) • Commodity groups • ZZZ • Country Bird • Progress Milling • Enterprise • Tropical and sub-tropical industries • Tiger Brand • McCain 	<ul style="list-style-type: none"> • Agritex- technical support • GMB- Market • Department of Livestock and Veterinary Services • ZINWA- water provision • Umzingwane Catchment Council • Department of Climate Change • Department of Water • Department of Agriculture • Rural District Councils • EMA- Sustainable Agriculture. • Forestry Commission • Agric Marketing Authority • Arda- Irrigation Schemes • Meteorological Services Department • ZimParks • WFP • WWF • UNDP <p>Private sector players active in the value chains</p> <ul style="list-style-type: none"> • Chinhoyi University of Technology • Waternet • Chibuku, Ingwebu- Market for Small Grain • Abattoirs • Millers • Restaurants • Market Linkages Association (Zimbabwe) • University of Zimbabwe • Dabane Trust

This core team of the NIT will be comprised of Representatives from National Implementing Entities (where they exist), Executing Entity Team Leaders/Programme Focal point persons/Project officers at national level and will rope in focal point persons from LIMCOM, and Permanent Joint Technical Commission (PJTC) and will be reporting to the RPSC. Under the NIT there will be three main working groups to achieve the objectives of the Programme namely:

- **Climate Information, Exchange and Meteorology Services Working Group** responsible for national and subnational implementation of all activities related to climate services the promotion of utilization of climate information as well as inter-basin and transboundary sharing of information, opportunities, best practices, strategies and technologies as well as platforms for joint planning/implementation/coordination
- **Inclusive Climate Smart Value Chain Development Working Group** responsible for implementation of inclusive climate smart value chain and natural resource aspects and also facilitate formation of business driven partnerships and rural service enterprises that spearhead introduction of new climate smart technologies and practices along the selected smallholder priority value chains
- **Climate Smart Policy Incentives and Instruments working group** responsible for implementation of the process to review, develop, improvement and application of incentives and instruments for catalyzing adoption of climate smart approaches along value chains at national level.
- **ESP, Gender, and Technical and Regulatory Standards working Group** Responsible for ensuring compliance with the AF ESP, Gender and relevant international and national Technical standards, permit systems and regulations. The working group will be responsible for overseeing the implementation of the ESMP and Gender Action plan.

FAO, and FANRPAN shall have contractual engagements with the Implementing Entity and will account to the Implementing Entity. Team Leaders/Programme Focal point persons/Project officers will be appointed by the respective executing Entities to oversee coordination, management, implementation, monitoring and reporting of Programme activities in collaboration with accredited National Implementing Entities in the project countries and in the River basins. In the Basin countries project countries, the lead Institutions shall be the permanent commissions and National Meteorological Institutions working with the NIEs depending on the work package.

FAO will apply the e-voucher system manage the grant component for the farmers participating in the upgraded business model at the selected sites in the two river basins. The electronic voucher implemented successfully by FAO in Zambia, Mozambique, Swaziland and other countries will not only make farmer's production decisions more flexible, but it will also improve their knowledge of electronic money systems. Furthermore, it helps to reduce smallholder's lack of familiarity with technology. Functioning on a mobile phone network, the e-voucher initiative is an update on previous paper voucher systems. The digital nature of the e-voucher platform makes the process more secure and expedites trade through automatic payments to suppliers upon successful e-voucher redemption, keeping with the rising trend of mobile phone banking throughout Africa. The application will be based on established FAO rules and regulations. The grants will be disbursed through a combination of mechanisms; 1) direct grants of smaller amounts as a one off disbursement to farmer producer groups and clusters; 2) Letters of Agreements (LOAs) with community based organisations and formally registered farmer groups/associations which constitutes a legal protocol with established disbursements schedule and reporting mechanisms; 3) direct procurement as per FAOs procurement regulations for hard ware in relation to investments, for example building materials, equipment, farm inputs etc.

The community grant mechanisms will be under the overall responsibility of the National Implementation Team who will technically and administratively manage the grants through the FAO Country Offices in each country. A technical review committee will be established at regional level comprising members from the RPSC. The committee will provide technical review of proposals and recommend actions to be financed.

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

As implementing entity, UNESCO will assume the role of fund manager for this project, basically ensuring value for investment by AF. Letters of Agreement and other appropriate agreements will be signed with each of the executing agencies and implementing partners. In the case of FAO, a UN to UN agreement will be signed. These agreements will follow the standard UNESCO format, and include provisions on financial management, accountability, procurement, minimizing risk of corruption and reporting deadlines and templates. Executing agents and implementing partners will submit six monthly reports to UNESCO, including certified financial statements on programme expenditure.

If from the reports, it emerges that there some issues posing as potential risks to the successful implementation of activities, these will be brought to the RPSC which is chaired by UNESCO. Within UNESCO, the UNESCO Project Management Board, consisting of the Directors of the main Departments within UNESCO, which meets quarterly, will also provide oversight of the project and advice on any management measures needed to address emerging risks.

The Programme shall be subject exclusively to the internal and external auditing procedures laid down in the Financial Regulations, Rules and directives of UNESCO. The internal audit regime in UNESCO operates as an integral part of the Organization's system of internal controls, following best practices, and under policies established by senior management. The internal audit strategy of UNESCO is comprehensive embodying financial, compliance, performance and value for money features and provides assurance that operations in the field and at headquarters are managed in an economical, efficient and effective manner.

Project Risk Management Table

Risk	Level of risk	Risk mitigation measure
Different pace of project implementation for each country and river basins may delay overall project implementation and affect regional activities.	Low	Regional Inception, Annual Planning and Biennial Review as well as reflective and experiential learning meetings will facilitate synchronization of pace of implementation of activities. UNESCO and its executing entities will establish appropriate project management and coordination structures at both regional, national and at basin level to monitor, report on and discuss progress on a regular basis and take corrective action where needed to ensure that the project moves at the required pace in all 5 countries.
Uneven speed of implementation and expenditure rate among the three main partners may hamper overall project performance	Medium	The project design ensures a joint management set-up where the three partners will jointly steer and manage the intervention through the RPSC. Through these mechanisms it will be possible to spot at an early stage any potential delays among any of the partners, and thus enable early corrective action.
Non formalized relationships between executing and implementing bodies	Low	Standard and well proven formats will be used for fund disbursement between UNESCO, FAO and FANRPAN including formats and standards for reporting and financial accounting.
National, subnational governments and river basin level institutions might have alternative implementation frameworks approaches.	Low	The Programme will espouse a Multi-stakeholder participatory approach which will be coupled with systematic lobbying and advocacy to ensure that all stakeholders including national, subnational governments and river basin level institutions work in a harmonized and coordinated manner.
Political uncertainties affect project implementation (Elections in South Africa, Namibia and Angola)	Low	The project target areas are relatively stable politically and all effort will be made to ensure that project activities are conducted with participation of all relevant stakeholders including government departments and local structures so as to aid conflict resolution should any arise.
Occurrence of a major natural disaster in the project areas.	Medium	Since the project focus directly lay in supporting climate resilience, its interventions are not likely to be side-lined at times of extreme climate events. In fact, such events may boost the interest and buy-in for the project. The project will aim to ensure that development initiatives prioritized under the project run side by side any potential emergency work that could result from occurrence of a major natural disaster (as per FAOs twin track approach to resilience).

Intercommunity differences regarding adaptation planning priorities in each community.	Low	The use of community-based approaches to adaptation planning will aim to ultimately ensure that all views are heard and included in the adaptation planning process as well as prioritized based on agreement of the community as a whole.
Governments continue to prioritise emergency initiatives over development initiatives.	Low	A key part of the project will be advocacy related to the need to enhance investments in resilience building in the river basins as a more efficient and cost-effective means of enhancing adaptation to climate change and promoting food security rather than short term measures.
Limited coordination with other ongoing adaptation initiatives in the target countries.	Low	A thorough review of ongoing initiatives has already been conducted and partners will be continually consulted to ensure that there is alignment with these and other initiatives in the target countries.

Financial Risk Management Table

Risk	Level of risk	Risk mitigation measure
Instability in currencies, market prices and availability of project inputs.	Medium	All funds will be maintained in USD to reduce the impact of price and currency fluctuations. Procurements plans to be developed in line with the project work plan so as to ensure timely availability of inputs.
General financial risks	Low	Financial Regulations, Rules and directives of UNESCO will be utilized throughout project implementation so as to minimize financial risks. This includes internal and external auditing procedures laid down in these regulations.
Delays in financial disbursements	Low	Executing agencies and implementing partners will be engaged using Letters of Agreement and agreements which can be utilized to quickly disburse funds for project activities while at the same time ensuring provisions on financial management, procurement, minimizing risk of corruption.
Misuse of community financial grants at local levels (Elite Capture).	Medium	FAO will apply the e-voucher system manage the grant component for the farmers participating in the upgraded business model at the selected sites in the three river basins. The digital nature of the e-voucher platform makes the process more secure and expedites trade through automatic payments to suppliers upon successful e-voucher redemption. The application will be based on established FAO rules and regulations. Direct financing to communities always implies a certain level of risks. However, the hands-on support process imbedded in the project where FAO together with the key ministries will heavily support communities throughout design and implementation of community investment projects, will minimize such risks.

Project monitoring and evaluation will incorporate monitoring and reporting on these risks and any others that may emerge during project implementation. Critical issues and changes to the risk level will be reported in a timely manner so that mitigation action can be taken before risks spiral.

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

The project has been screened for environmental and social risks as per the Environmental and Social Policy of the Adaptation Fund and was found to have no or limited significant adverse environmental or social impacts expected. Limited adverse impacts that could emanate are mostly through Component 2 of the project which involved adaptation climate smart investments, along upgraded value chains, implying the project potentially falls within the Category B rating of the Environmental and Social Policy of the Adaptation Fund. However, any potential negative impacts as a result of this project are believed to be small in scale, limited to the project area, reversible and can be either avoided, minimized or addressed using recognized good environmental and social management practices.

The project’s categorization and compliance with the ESP has been outlined in Part II, Section L. In line with AF guidelines, the table below outlines the approach in addressing those risks identified that require mitigation.

Principle	Residual Risk	Mitigation Measures	Responsibility	Monitoring Indicator	Budget
Compliance with the Law	Adaptation measures implemented under the project may require permits, and compliance with national technical standards and as such present a risk of non-compliance with local legislation if not properly monitored	The USPs that are identified in project Outputs 2.2 will be Screened at various levels including at the Community and local Government levels. Strict adherence to the technical national and subnational technical standards and bylaws including key procedures such as EIAs, permits, and codes where applicable (see section F for the relevant technical standards that could be applicable for each country). Activities with a medium or high risk will not be considered for inclusion in the project.	UNESCO, FAO, LIMCOM, PJTC	At the minimum, All the community level value chain infrastructure and assets meet the relevant regulations and standards	No additional Budget
Gender Equity And Women's Empowerment	Women's status and representation may limit their meaningful participation in project activities	To ensure compliance with AF's Environmental and Social Policy as well as the Gender policy, the project will ensure that women and men Participate fully and Equitably in project activities. In addition to the consultations done already, women will be consulted in on-site, during the in-depth value chain analysis at community level under activity 2.2.1 and 2.2.2 and other activities which require any form of participation of the community. An Initial Gender Assessment and Gender Action Plan has been developed to ensure that women and men are meaningfully engaged in project activities and Realize an equitable share of project benefits. Specific project indicators will ensure that results-based management will cover meaningful participation of both women and men.	UNESCO, FAO, FANRPAN	Indicators are provided under the Gender Assessment and Action Plan	No additional Budget

Overview of the Approach to Environmental and Social Management

UNESCO has applied four key mechanisms to comply with the AF ESP:

1. Program-Level Quality Assurance: As elaborated in Part II, Section L. UNESCO's as accredited applicant with oversight responsibilities and core policy to lead in application of environmental, gender and social principles.
2. Project-Level Quality Assurance: As elaborated in Part II, Section L. Screening, by FAO and FANRPAN, and the LIMCOM and PJTC and other partners in the two river basins, at the sites in each of the 5 countries of proposed project scope and activities for potential harmful impacts and risks.
3. Screening of impacts and possible risks of proposed project in relation to the 15 core principles of ESP: Categorization of the project as "B."
4. Development and application of ESMP: As per guidelines of the Adaptation Fund as described in the proceeding section whose implementation will be driven by a **ESP, Gender, and Technical and Regulatory Standards working Groups** which is part of the implementation arrangements

The following table represents the approach to environment and social risk management that UNESCO will undertake as the IE.

Overview of the Environmental and Social Management Plan (including Gender Assessments and Action plans)

Step taken	Description	Responsible Party	Timeframe
Project team awareness and training on compliance with ESP and gender Policy, monitoring process and related issues	UNESCO, as the Implementing Entity, will provide an introduction and training to all project partners, staff, and experts at project inception in order to ensure that all principal project partners have the required knowledge and awareness level regarding their responsibilities with regards to the provision of the Environmental and Social Policy of the AF as well as the promotion of human rights, including specifically the grievance handling mechanism of the AF. The ESP of the AF will be used as the primary guidance to ensure compliance. The introduction and training on the relevant concept and tools for compliance will be used for the for all of the participants.	Core project team and partners, NITs and the ESP, ender, and technical and regulatory Standards working Group	At Inception Phase
Awareness and training for key project stakeholders, in particular: a) government partners, and b) pilot communities and associated project staff and consultants, with particular reference to vulnerable groups and indigenous peoples.	The project will identify vulnerabilities in pilot communities during the project inception phase and will monitor the impact of the project during the entire implementation period. As part of participatory processes, community dialogues, training and close collaboration with national and local authorities will enable participation of vulnerable and marginalized groups and successful identification, management and mitigation of risks .	Core project team and partners, NITs and the ESP, ender, and technical and regulatory Standards working Group	At Inception and on commencement of community level engagements
Re-assessment of impacts and risks on two levels: 1) The project as a whole; and 2) The USPs defined after the indepth local VC analysis and detailed sustainable local VC upgrading process	For each of the sites in the five countries, the comprehensive risk screening and mitigation plan will be re-visited, following further detailing of the work plans (i.e. project locations, target groups, specific activities related to effective community response to early warnings, and project interventions to be defined in greater detail during the detailed value chain planning process.	Local communities at the sites in each country, Core project team and partners, NITs and the ESP, ender, and technical and regulatory Standards working Group	At Inception and on commencement of community level engagements
Updated reporting on compliance with ESP and gender guidelines and update of the monitoring system	As part of the compliance approach, ESMP and progress monitoring, the status and issues arisen will be reported at the end of the Inception Phase. The Inception Phase will re-visit and improve on any inadequacies in the proposed environment and social risk monitoring or mitigation.	Core project team and partners, NITs and the ESP, ender, and technical and regulatory Standards working Group	At end of Inception Phase
Validation of the monitoring and evaluation approach, and reporting with clear and verifiable indicators and means of verification	The project team will build on the proposed M&E approach and, when required, can update the approach in accordance with the latest AF guidelines.	Core project team and partners, NITs and the ESP, ender, and technical and regulatory Standards working Group	In the Inception Report
Periodic progress reporting as prescribed in the project management plan	Periodic progress reporting as prescribed in the project management plan, and as per AF guidelines. UNESCO, as the Implementing Entity, will prepare the final environmental and social assessment reporting for the AF and in a suitable format for people, communities, and other stakeholders involved in the project. A special section of the progress reports will be dedicated to stakeholders and vulnerable groups in each pilot area, including monitoring data on women's participation.	Core project team and partners, NITs and the ESP, ender, and technical and regulatory Standards working Group	Throughout project life and concurrent with scheduled M&E activities
Gender issues assessment and assurance of positive impacts and compliance	The Terms of Reference for a gender specialist engaged for the project will be prepared during the inception phase and the involvement of that specialist in M&E planning and monitoring will be ensured. The project manager will refer to the gender action plan for monitoring projects results in this area and supporting the meaningful participation of women in project activities	Core project team and partners, NITs and the ESP, ender, and technical and regulatory Standards working Group	Ongoing
Project M&E activities, including systematic progress monitoring,	M&E for the ESMP is further described in the text in the proceeding section	UNESCO and Project partners	Ongoing

collection of stakeholder feedback, and reviews			
Regional Programme Steering Committee (RPSC) assessment of compliance	The role of the PSC is addressed in the table below on roles and responsibilities for ESMP implementation and monitoring.	Invited by UNESCO to assess and provide feedback	Concurrent PSC meetings And when as required
Awareness and activation of grievance mechanism	The grievance mechanism is further described in the text following this table.	UNESCO and the country project staff and experts	When needed

ESMP Monitoring

UNESCO will apply a systematic process of progress monitoring and collection of stakeholder feedback and reviews. As the IE, UNESCO will establish a project M&E and reporting mechanism through which it will monitor and report on the following: 1) project progress and results (on the basis of verifiable indicators and means of verification) and 2) impact assessment and compliance with ESP Principles. This will be done throughout project implementation. As the project will focus on the implementation of activities in pilot communities, monitoring and reporting processes will place particular emphasis on the local level and will include the following:

For the project as a whole and for each of the sites identified in the five countries, the UNESCO and the PMU will undertake the following steps:

1. Semi-annual work plan preparation and approval assessed by means of checklist on potential negative impacts and risks and for each of the fifteen Environmental and Social Core Principles.
2. Upon completion of semi-annual work plans, country teams will be specifically requested to report any issues pertaining to adverse environmental and social impacts, and/or mitigation actions implemented or considered.
3. An annual summary statement / communique will be prepared on the basis of which further public consultations and associated activities can take place.
4. For each site, a small representative committee of local and national stakeholders will be involved. This committee will approve/endorse:
 - a. the overall outcome of the environmental and social impact assessments, and
 - b. Possible mitigation actions for unforeseen adverse impacts.

As the project will focus implementation at the sites, consultation and mobilization of project support and understanding by local stakeholders and their representatives and other agricultural value chain actors is essential. If necessary, a grievance mechanism can be utilized.

5. National partners, in their supporting roles for project implementation will be involved in and support steps 1-4. This process will be overseen by UNESCO as IE, with support of FAO as main EE and reported on at semi-annual project meetings. The ultimate responsibility for implementation of the M&E mechanism rests with the IE.

If, against expectations, project implementation generates negative environmental or social impact, it will be addressed through the M&E mechanism and reflected in periodic project reporting. Annual reporting on the project will include a section detailing the status of the ongoing environmental and social impacts and risks, as well as a consideration of gender issues. Reports will include, where necessary, a description of any corrective actions taken during the reporting period. The mid-term review and terminal evaluation reports will also include a detailed evaluation of the project's performance with respect to gender and environmental and social risks mitigation.

Overview of responsibilities for ESMP implementation and monitoring different project stakeholders

Entity/Stakeholder	Role in delivering the
Implementing Agency(UNESCO)	Ensure that the project complies at all times with AF ESP Principles. Oversee risk mitigation measures.

Executing Agencies (FAO and FANRPAN)	Monitor ESMP implementation and ensure that the project adheres to all national and international legal and regulatory frameworks. Disseminate information on the ESMP and grievance mechanism to all stakeholders and participating communities. Assess the effectiveness of ESMP risk mitigation measures on an ongoing basis and adjust them as necessary.
ESP, Gender, and Technical and Regulatory Standards working Groups	Responsible for ensuring compliance with the AF ESP, Gender and relevant international and national Technical standards, permit systems and regulations. The working group will be responsible for overseeing the implementation of the ESMP and Gender Action plan.
Regional Project Steering Committee	Review ESMP compliance during regularly scheduled meetings (and more frequently if indicated) and make recommendations as needed.
Project Manager	Oversee the ESMP implementation and the gender action plan.
Implementing Partners(SAD Secretariat, LIMCOM, PJTC, Local Leadership, Value chain Players, Community Leaders)	Oversee compliance with all national and international legal and regulatory frameworks that are applicable to their associated project activities. Notify the project manager and the executing agency in the event that activities may result in unexpected environmental and/or social risks. Monitor the effectiveness of risk mitigation activities and document lessons learned.
Gender Expert	Carry out necessary assessments, develop and implement the gender action plan for the project in line with AF Gender Policy

Grievance Mechanism

All direct beneficiaries of the project and other related stakeholders will be informed about the grievance mechanism and the complaint-handling mechanism of the project. The IE with project partners will produce public information materials (leaflets and brochures) that explain the project, complete with detailed contact information of persons in charge (name, position, address, phone, email), and including access to information regarding the ad hoc complaint handling mechanism for the AF. These public information materials will be distributed during community consultations planned in the in-depth VC analysis and detailed planning process and general awareness-raising activities.

As part of the project's ESMP as well as progress and results monitoring, stakeholder feedback and reviews will be collected systematically. Focus will be placed on the results evaluation of tangible measures and activities at the sites identified in the five countries.

As part of the monitoring and evaluation process, a grievances modality will be set up - both for the project as a whole (as part of the project's website and information portal), and as part of the specific evaluation and progress data collection (M&E) in the pilot areas. This approach will allow concerned stakeholders to raise issues (anonymously if they wish), to the project management implementers at all levels of implementation.

The grievance mechanism process to be implemented in the project will be composed of five steps:

1. Receipt and registration
2. Acknowledgement
3. Screening
4. Investigation
5. Response

In the event that the response leads to successful resolution of the grievance, the process will be closed out and the entire process will be documented. In the event that the response is not satisfactory to the affected parties, there will be an appeals process.

Overall, the grievance mechanism process will support receiving, evaluating, and addressing project-related grievances from local communities and other stakeholders. It will be possible to express grievances via submission on the website or by phone. Receipt of the grievance will always be acknowledged, recorded and subsequently investigated in a timely manner. Where relevant, resolved grievances will be included among the Frequently Asked Questions on the project website in order to prevent any future misunderstandings.

Gender considerations in design, implementation and evaluation of programme

Gender considerations have been factored from stakeholder consultation process, identification of adaptation solutions and in the implementation of the programme. The community consultations were undertaken using focus group discussions where, separately, men and women groups were facilitated to better understand and articulate their specific climate change concerns and resilience needs. Using the FAO tools for gender mainstreaming, the consultations considered the priorities, opportunities, needs, constraints and knowledge of both women and men.

After the communities had identified their prioritized adaptation solutions, the Technical Validation Workshop that was held in Dec 2019 in Johannesburg and attended by representatives of government departments and civil society organizations operating in the target communities, screened the community priorities for technical and social relevance, including gender sensitivity. Interventions that increased the participation of women were prioritized. Crops and livestock types that are predominantly managed by women (sweet potatoes, horticultural crops, and indigenous small livestock) were prioritized, as well as implements that were friendly to women (drip irrigation, jab planters). The programme thus has a compendium of interventions that has activities and outputs that address gender inequalities and aim to ensure equal benefits for women and men.

To ensure gender considerations are factored during implementation, a gender action plan has been developed for programme which will include the following:

- Recruitment of UNESCO Gender expert to work in close collaboration with FAO regional Gender focal point person;
- Basing on the programme results framework, and building on the compendium of interventions that has activities and outputs that address gender inequalities and aim to ensure equal benefits for women and men, carry out necessary assessments during inception phase and the in-depth VC profiling process, develop and commence implementation of the gender monitoring framework for the project in line with AF Gender Policy
- Develop the detailed gender monitoring framework for the project in line with AF Gender Policy with specific outlay of indicators and monitoring mechanisms

The UNESCO Gender Expert will work closely with, the FAO Gender Officer at the regional level will ensure all activities and interventions comply with FAO, Adaptation Fund and national government gender guidelines and will provide expert support during project implementation. The programme Monitoring, Evaluation, Accountability and Learning Officer will ensure gender mainstreaming, including the use of gender-disaggregated indicators.

Justification for Unidentified Sub-Projects (USPs) in the proposal

As noted in Section II.L, Output 2.2 involve the identification, design and implementation of USPs. An assessment to specify the business water management, infrastructure and equipment needs for the upgraded business models for each VC site will be commissioned. In line with the upgraded business model, and the assessment of aggregated farmer's needs, the Programme will either provide or identify and upgrade/rehabilitate water management, irrigation, storage, processing and other relevant infrastructure at selected sites. Such water management, climate smart equipment and infrastructure needs will include but will not be limited to solar powered drip irrigation micro irrigation systems; construction and rehabilitation of weirs, construction and rehabilitation of earth dams, solar driven watering holes for grazing lands (and Wildlife zones)-for Zimbabwe, Namibia, Soil erosion community

control structures, Rehabilitation of wetlands, Rangeland management, Early warning Automated weather stations, Fresh produce grading and storage facilities, Honey filtering machine and accessories, Sweet potato and cassava processing equipment and others that will be identified during the community level in-depth VC needs profiling.

The projects in question are classified as USPs for the following reason:

Effective risk identification in line with the Adaptation Fund ESP is not possible for the adaptation infrastructure and assets to be provided for the value chains at the sites in each country because the specific environment and social setting of the activity is not presently known. The specific environment can only be known after deeper value chain analysis and detailed value chain planning specific for each site, although the consultative exercise has given the scope of the nature of investments that are anticipated

Once the USPs under Output 2 have been identified and clearly defined for each site, they will be screened for compliance with the principles of the AF ESP to ensure that any potential unwanted impacts of these activities are anticipated, avoided, reduced, or mitigated. Activities will be rated by risk category (low, medium, high), which will determine what further action is required, and high-risk USPs will not be developed or implemented. Potential risks, whether social or environmental, will also be assessed at the community and value chain level. Any identified risks will be subject to monitoring and follow-up to ensure that planned mitigation measures are implemented and effective. All USPs that require further assessment, permitting, etc., will be closely supervised to ensure that they obtain the necessary approvals. Relevant legislation and regulations that pertain to potential USPs are listed in Section II.L.

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

Monitoring and evaluation of the project will be integrated within the existing M&E systems of UNESCO, FAO and FANRPAN. The RPSC will provide oversight to the detailed M&E framework to be developed jointly by UNESCO, FAO and FANRPAN. The M&E framework will describe objectives, performance indicators and the methodologies for data collection. During the inception phase, relevant stakeholders shall be engaged to review and validate the M&E framework. The main monitoring and evaluation processes will include:

- i) Work Planning: Work plans shall be reviewed annually in annual programme reflective and planning meetings in order to redefine activity implementation and targets based on performance. Starting with the year 1, (Inception and planning meeting) project work plans will guide implementation throughout the project cycle.
- ii) Harmonized baseline surveys: to be conducted at the inception phase in order to establish the baseline values of indicators upon which the project performance will be measured. The surveys will also gather information that will guide implementation of the three project components.
- iii) Continuous Monitoring and technical backstopping: to be carried out by project technical teams throughout the project cycle to track progress of activities and delivery of outputs. Joint monitoring missions will be carried out by project coordination committees at regional, national and river basin levels. The mission teams will comprise of representatives from Adaptation Fund, implementing partners, host governments and communities.
- iv) Monitoring short-term outcome results: to be conducted mid and end-of-season to assess the extent to which farmers utilize climate smart technologies and climate information and comply to agreed-upon seasonal work plans and activities. In addition, this will include close monitoring of the business agreements between value chain actors in the upgraded business model. Participatory experiments through FS will determine the immediate outcome results. Monitoring will be undertaken by local extension officials and meteorological officers.

- v) Mid-term review and final project evaluations; to be conducted to critically assess effectiveness, relevance, efficiency, sustainability and/or impacts. Findings and recommendations of the mid-term review shall inform the remaining period of project implementation.

Reporting schedule

The project aims to produce the following reports:

Inception phase report: detailing what has been put in place (in terms of institutional arrangements, staff recruitment, assignment/deployment and other arrangements); overall direction of the programme, annual work plans, problems/constraints encountered, and adjustments needed in specific cases, etc.

Periodical Progress Reports: The progress report for on the project implementation shall be submitted to the donor either on bi-annual or annual bases, as shall be agreed upon. All reports will be prepared based on the reporting formats which will be developed during the inception phase. In general, it is expected that the bi-annual report shall include the following a) planned vs. achieved in terms of implementing planned activities; b) main constraints encountered, solutions sought and recommendations for the next mid-term activities. c) Reference should be made against achieving the expected outputs in each of the bi-annual reports. d) Fundamental changes which may affect project performance should be detailed.

Adaptation Fund monitoring and reporting guidelines, schedules and templates shall be adhered to (e.g. Project Performance Report (PPR), results tracking and reporting on Core Indicators).

Special Technical Reports: UNESCO in collaboration with FAO will ensure that special reports such as technical reports, publications, press releases and updates, policy briefs, relevant to the project are communicated to the donor and the Steering Committee, and the NPAC as and when they are issued.

Project Completion Report: towards the end of the programme duration, a final report will be prepared and submitted to the AF. Main contents of programme completion report shall include:

- A full description of programme components activities carried out with an explanation for the variances with the original plans, and a description of accomplishments and failures;
- Description of the process of implementation modalities and the degree to which actual implementation met the original plans in the programme document;
- Programme performance detailing the degree to which planned activities led to the accomplishments of expected outputs and the project outcome. In the case of variations, a full account of the circumstances which prevented progress or delivery of services and the measures taken by stakeholders to address the bottlenecks should be reported;
- The extent to which proposed mitigation measures have been effective in managing risks;
- A statement of final programme costs by budget lines, compared to the original financial plans;
- The most significant positive and negative lessons learned from the success or failure of the programme;
- Maintenance and sustainability plan put in place.

Project Monitoring and Evaluation Work Plan and Budget

Activity	Responsible parties	Budget (USD)	Time frame												Notes
			Year 1				Year 2				Year 3				
			Quarters				Quarters				Quarters				
			1	2	3	4	1	2	3	4	1	2	3	4	
Baseline and end line data collection	FAO and FANRPAN (M&E) (70%FAO and 30% FANRPAN)	50000													Baseline and end line surveys in target sites with data collection based on FAO VC profiling and community assessment tools
Continuous Technical backstopping and monitoring component 1 and 2.	National Focal points and Regional M & E officer (50% UNESCO and 50% FAO)	120000													Under the supervision of the Regional M and E officer
Routine project implementation monitoring component 1 and 2.	National focal points (FAO)	85000													Regular monitoring of value chain and community investments
Final project evaluation outcome 1 and 2	UNESCO	70 000													UNESCO in support of FAO office of evaluation
FAO Project Reporting	FAO-OED	20000													
Regional historical baseline, with statistics and trends and climate change hotspots applying EODS and other data systems	FAO	50000													This will be done jointly with other components immediately after project inception
Quarterly joint monitoring missions	UNESCO (50% FAO (50%))	40000													This will be done once per quarter
Monitoring Short term –outcome results	UNESCO (50% FAO (50%))	40000													This will be done annually at end of year 1 and year 2.
Mid Term evaluation	External M&E	40000													This work will be done by a hired External M&E consultant
TOTAL budget allocation to M&E activities		515 000.00													

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

Programme Impact indicators

Results	indicators	Baseline	Milestones	End of project target	Means of Verification	Responsible parties	Risks and assumptions
Improve adaptive capacities and resilience to climate variability and change of rural crop/livestock farmers, agro pastoralists and pastoralists in water stressed river basins (Kunene and Limpopo) in Southern Africa'	Number of beneficiaries received support for increased adaptive capacity to mitigate and respond to effects of climate change.	TBD	(Plus/Minus) 500 farmer /agro pastoral/pastoral field schools adding up to viable commodity producer clusters in an upgraded business model in the 5 countries	50,000 beneficiaries 50% women through direct participation households in upgraded business models(10000 households - average household size of 5)	Project implementation, training reports	FAO/VC aggregators/ACSEs/VC driver, Basin commissions and Local governments	Marginal dropout rates among targeted groups. Election related uncertainties in region (Zimbabwe 2018, South Africa 2019, Namibia, Mozambique)
			10000 farmer field schools' households merging into producer clusters by year 2	10 000 households targeting 50% females participating in farmer/agro pastoral field schools i)direct beneficiaries of startup input grant for application of climate smart technologies, approaches and practices, ii) accessing upgraded climate smart infrastructure and equipment iii) receiving tailored climate and weather, marketing, and technical information	E voucher system reports and SMS tally records	SADC SECRETARIAT/UNESCO /FAO	No major disputes and conflicts within target communities. Competing/contradicting development or emergency actions by other partners or actors. Community buy-in for collective action and communal investment projects.
			Learning and demonstration sites established by year 2	Additional 300 000 (50% women) indirect beneficiaries through receiving climate and weather information, learning through demonstration sites and being reached through Programme awareness activities	Farmer field school graduation and attendance registers	SADC SECRETARIAT/FAO/UNESCO/FANRPAN/NMHSs	Availability of productive resources e.g. land, vegetation, labor etc.
	Percentage of targeted population with sustained climate-resilient alternative livelihoods.	E voucher system for management of farmer start up grants established in year 1	60% of direct target population with climate resilience livelihoods	Baseline survey, End line survey, Beneficiary focus group discussions, Project monitoring reports, farmer and Agro pastoral member records, Investment project progress reports	FAO/River basin Commissions/Local governments FFS facilitators	Disconnect between weather prediction and actual occurrence on the ground creating dis-trust in advisory services, in the short term. Frequent turnover/movement of extension staff	

	Change in quality of climate related advisory to target population by the extension service.		Technical staff with enhanced skills to support community level adaptation strategies by end of year 2. Total 120 capacitated in Downscaling techniques, 120 capacitate, approaches and practices ed in harmonized early warning, 250 capacitated in LEGS and 250 capacitated in GEMP	Minimum 40% increase in satisfaction rates among direct and indirect beneficiaries with climate advisory services prior to the last extreme weather event.	Spatial distribution maps. Weather bulletins Radio advisories Training reports End line survey	FAO/Local governments level SADC SECRETARIAT/UNESCO FAO / farmer field school stakeholders Extension services	Illiteracy levels may restrict audience of some climate advisory products.
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Component I: Outcome indicators

Outcome	Indicators	Baseline	Milestones	Target	Means of Verification	Responsible parties	Assumptions
Measures to reduce exposure to climate related risks, hazards and threats and enhance people's resilience, implemented	Harmonized monitoring and early warning systems developed, including hazard and disasters response strategies for the region	TBD	Harmonized tools developed by end of year 1	Harmonized Monitoring and Early warning and response mechanisms in place at SADC regional level and downscaled and domesticated to at least 5 SADC countries	Institutional Annual Reports; Programme reports,	SADC SECRETARIAT, UNESCO, NMHSs,	Adoption of harmonized tools into the national and regional climate change adaptation strategies could be influenced by political interests
	Percentage change in national budgets allocated to climate adaptation activities	TBD	10% increase by end of year 2	15% increase	National Budgets figures	FANRPAN, FAO	
	Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis (climate services)	TBD	Capacity development in downscaling techniques and packaging of climate and weather information availed to 100% of target technical officers by year 1	SADC SECRETARIAT and all NMHSs in targeted countries applying downscaling techniques	SARCOF and NARCOF process reports, Programme M&E Reports	SADC SECRETARIAT, UNESCO, FAO, NHMSs	Governments allocate funds according to nationally determined priorities and emergencies
	Percentage of households using tailored seasonal climate forecasts to plan their activities or enterprises	TBD	Up to 50% of upgraded model farmers by end of	100% of upgraded model farmers. Disaggregated by gender	Programme Reports	FAO, UNESCO, SADC SECRETARIAT, NMHSs	Involvement of Government into project planning and execution will

			year 2. Disaggregated by gender				ensure quick buy-in of project lessons and good practices
	Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased	TBD	Capacity development in strategies to respond availed to 50% of targeted by second year. Disaggregated by gender	Capacity development in strategies to respond availed to 100% of targeted by end of Programme. Disaggregated by gender	Program Reports	FAO, UNESCO, SADC SECRETARIAT, NMHSs	

Component I-Output indicators

Output	Indicators	Baseline	Milestones	Target	Means of Verification	Responsible parties	Assumptions
Output 1.1: Risk vulnerability assessments conducted and updated at regional	No. of river basins and countries that conduct and update risk and vulnerability assessments (by sector and scale)	TBD	At least 2 river basins and 3 countries conduct assessments by end of year 2	All targeted basins conduct and update risk and vulnerability assessments	Programme documents, SARCOF and NRCOF processes reports	UNESCO, SADC SECRETARIAT, FAO	There is country basin level buy in to domesticate harmonized early warning tools developed a
	No. of early warning systems (by scale) and no. of beneficiaries covered	SARCOF, FEWSNET, SAVAC	Capacity building in; a) data collection using agreed tools and b) data analysis and decision making and arriving at Early Warning products by end of year 2	SADC regional Harmonized monitoring and early warning tools for climate induced transboundary risks and other hazards	Programme documents, SARCOF and NRCOF processes reports	UNESCO, SADC SECRETARIAT, FAO	There is country level buy in to domesticate harmonized early warning tools
Output 1.2: Targeted population groups covered by adequate risks reduction systems	Percentage of target population covered by adequate risk-reduction systems	0	50% of targeted beneficiaries (with 50% women) apply new improved climate smart technologies by end of year 2. disaggregated by gender	100% of targeted beneficiaries disaggregated by gender apply new climate smart technologies by end of project	Programme documents, Upgraded Business model performance reports	FAO, UNESCO Basin commissions, Aggregators/VC driver	Private sector players take up the opportunity to do business with smallholder farmers
Output 1.3: Strengthened capacity of national and regional centers and networks to respond rapidly to extreme weather	No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender)	0	At least 400 technical officers trained by year 2	At least 750 technical officials trained by end of project.	Programme Documents, training Reports	FAO, UNESCO, Basin commissions, SADC SECRETARIAT,	Institutions are willing to take up new approaches and technologies
	No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	0	At least 3 Regional institutions, and at least 10 national and basin level institutions by year 2	at least 10 Regional institutions and at least 20 national and basin level institutions by end of project	Programme documents and reports	UNESCO, FAO, Basin commissions, SADC SECRETARIAT, FANRPAN	Governments are willing to take up recommendations to reorganize climate
Output 1.4: Improved integration of climate resilience strategies into country development plans	No. of countries with new policy measures/regulations introduced or adjusted to	0	At least 5 Countries by year 2	At least 10 SADC countries by end of project	Programme reports, National level Policy and legislation	FANRPAN, UNESCO, FAO	

address climate change risks (by sector)							smart technology incentive framework
No. of targeted countries development strategies with incorporated climate change priorities enforced	0	at least 2 countries by end of year 2	At least 5 countries by end of project	Programme reports, National level Policy and legislation	FANRPAN, UNESCO	FAO,	

Component II: Outcome indicators

Outcome	Indicators	Baseline	Milestones	Target	Means of Verification	Responsible parties	Assumptions
Outcome 1: Diversified, strengthened and increased adaptive capacities, livelihoods and sources of income for vulnerable people in targeted areas	Percentage change in crop/livestock yields among targeted households	TBD	10% increase by end of year 2	30% increase in crop/livestock yields	Household Surveys.	National focal points.	The 5 countries with project sites implement the project at the same pace.
					FS assessment data.	M and E focal points	
	Percentage change in productivity of land, crop and livestock resources among targeted communities.	TBD	20% increase in produce by end of year 2.	At least 50% increase	Household Surveys.	National focal points.	The sub-national government /institutions do not prioritize alternative implementation frameworks. Political uncertainties in the region do not affect implementation of project
					FS assessment data.	M and E focal points	
		TBD	15% by end of YR 2	At least 30% adoption.	Household surveys.	National focal points.	
					Project reports.	M and E focal points	
Percentage change in household incomes disaggregated by gender of household heads	TBD	20% increase by end of year 2. Disaggregated by gender	At least by 50%. Disaggregated by gender	Household surveys.	M and E focal points.		
Physical infrastructure improved /rehabilitated to withstand climate change and variability induced stress	TBD	Upgraded model farmer infrastructure needs assessment done by year 1 and 50% of upgraded model farmers accessing physical infrastructure by year 2	100% of Upgraded model farmers accessing physical infrastructure	Household surveys, M&E reports, end line report	National focal points, M&E Focal points		

	Percent of targeted population aware of predicted adverse impacts of climate change and of appropriate responses	TBD	50% of upgraded model farmers by end of year 2. Disaggregated by gender	100% of Upgraded model farmers . Disaggregated by gender	Household surveys, M&E reports, end line report	National focal points, M&E Focal points	
	Percentage of households and communities having more secure access to livelihood assets	TBD	Sustainable upgraded business model arrangements established for all sites by end of year 2	60 % of direct target communities with secure access to livelihood assets	Household surveys, M&E reports, end line report	National focal points, M&E Focal points	
	Percentage of households adopting new or scaling up existing climate adaptation practices (including indigenous knowledge)	TBD	15% by end of YR 2, Disaggregated by gender	At least 30% adoption. Disaggregated by gender	Household surveys. Project reports.	National focal points. M and E focal points	

Component II: Output Indicators

Output	Indicators	Baseline	Milestones	Target	Means of Verification	Responsible parties	Assumptions
Output 2.1: Targeted population groups participating in adaptation and risk reduction awareness activities	Number of news outlets in the local press and media have covered the topic	0	At least one article or story per year per River basin/project site	at least 9 stories/articles for all river basins by end of project	Local newspapers/radio stations. Programme Reports	FAO, FANRPAN, SADC SECRETARIAT, River basin commissions	Local news houses find the story newsworthy

Output 2.2: Physical, natural and social assets strengthened in response to climate change impacts, including variability Increased	No. and type of development and private sector services modified to respond to new conditions resulting from climate variability and change (by sector and scale)	0	At least two private sector players engaged for two business models at each site by end of year one	at least 5 private sector players engaged as value chain driver for the 5 countries project sites	Programme Reports, FFS Reports	FAO, FANRPAN, SADC SECRETARIAT, River basin commissions	Private sector players see the business opportunity in engaging through the upgraded business model
	No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by sector and scale)	0		At least 200 middle sized infrastructure. rehabilitated/constructed by end of project	Programme Reports, FFS Reports	FAO, FANRPAN, SADC SECRETARIAT, River basin commissions	Communities see the value in the climate smart infrastructure
Output 2.3: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies	0		At least 200 middle sized infrastructures rehabilitated/constructed by end of project	Programme Reports, FFS Reports	FAO, FANRPAN, SADC SECRETARIAT, River basin commissions	Communities see the value in the climate smart infrastructure

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

Project Objective(s) ¹⁷	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Reduce exposure to climate related risks, hazards and threats enhanced people's resilience	1. Harmonized monitoring and early warning systems developed, including hazard and disasters response strategies for the region	Outcome 1: Reduced exposure to climate-related hazards and threats	AF Outcome Indicator 1: Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis	\$1 615 000
	2. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis (climate services)	Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	AF Outcome Indicator 2.1. Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased	\$765000

¹⁷ The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology, but the overall principle should still apply

	3. Percentage change in national budgets allocated to climate adaptation activities	Outcome 7: Improved policies and regulations that promote and enforce resilience measures	AF Outcome Indicator 7. Climate change priorities are integrated into national development strategy	<u>\$500 000</u>	
Diversify and, strengthen and increase adaptive capacities, livelihoods and sources of income for vulnerable people in targeted areas	4. Percent of targeted population aware of predicted adverse impacts of climate change and of appropriate responses	Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	AF Outcome Indicator 3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	<u>\$350 000</u>	
	5. Percentage change in household incomes disaggregated by gender of household heads		AF Outcome Indicator 3.2. Percentage of targeted population applying appropriate adaptation responses		
	6. Percentage change in productivity of land, crop and livestock resources among targeted communities.	Outcome 4: Increased adaptive capacity within relevant development sector services and infrastructure assets	AF Outcome Indicator 4.1. Responsiveness of development sector services to evolving needs from changing and variable climate	<u>\$8 865 000</u>	
	7. Physical infrastructure improved /rehabilitated to withstand climate change and variability induced stress		AF Outcome Indicator 4.2. Physical infrastructure improved to withstand climate change and variability-induced stress		
	8. Percentage of households and communities having more secure access to livelihood assets		AF Outcome Indicator 6.1 Percentage of households and communities having more secure access to livelihood assets		
	9. Percentage change in crop/livestock yields among targeted households	Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas			
	10. Percentage of households adopting new or scaling up existing climate adaptation practices (including indigenous knowledge)		AF Outcome Indicator 6.2. Percentage of targeted population with sustained climate-resilient alternative livelihoods		
Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator		Grant Amount (USD)
Output 1.1: Risk vulnerability assessments conducted and updated at regional	1. No. of early warning systems (by scale) and no. of beneficiaries covered	Output 1.1: Risk and vulnerability assessments conducted and updated	AF Output Indicator 1.1. No. of projects/programmes that conduct and update risk and vulnerability assessments (by sector and scale)		<u>\$250 000</u>
Output 1.2: Targeted population groups covered by adequate risks reduction systems	2. Percentage of target population covered by adequate risk-reduction systems	Output 1.2: Targeted population groups covered by adequate risk reduction systems	AF Output Indicator 1.2.1. Percentage of target population covered by adequate risk-reduction systems	<u>\$1 670 000</u>	
Output 1.3: Strengthened capacity of national and regional centers and networks to respond rapidly to extreme weather	3. No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender)	Output 2: Strengthened capacity of national and sub-national centres and	AF Output Indicator 2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender)	<u>\$460 000</u>	

	4. No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	networks to respond rapidly to extreme weather events	AF Output Indicator 2.1.2 No. of targeted institutions with increased capacity to minimize exposure to climate variability risks (by type, sector and scale)	
Output 1.4: Improved integration of climate resilience strategies into country development plans	5. No. of countries with new policy measures/regulations introduced or adjusted to address climate change risks (by sector)	Output 7: Improved integration of climate-resilience strategies into country development plans	AF Output Indicator 7.1. No. of policies introduced or adjusted to address climate change risks (by sector)	\$500 000
	6. No. of targeted countries development strategies with incorporated climate change priorities enforced		AF Output Indicator 7.2. No. of targeted development strategies with incorporated climate change priorities enforced	
Output 2.1: Targeted population groups participating in adaptation and risk reduction awareness activities	7. Number of news outlets in the local press and media have covered the topic	Output 3: Targeted population groups participating in adaptation and risk reduction awareness activities	AF Output Indicator 3.1 No. of news outlets in the local press and media that have covered the topic	\$350 000
Output 2.2: Physical, natural and social assets strengthened in response to climate change impacts, including variability Increased	8. No. and type of development and private sector services modified to respond to new conditions resulting from climate variability and change (by sector and scale)	Output 4: Vulnerable development sector services and infrastructure assets strengthened in response to climate change impacts, including variability	AF Output Indicator 4.1.1. No. and type of development sector services modified to respond to new conditions resulting from climate variability and change (by sector and scale)	\$2 220 000
			AF Output Indicator 4.1.2. No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by sector and scale)	\$5 270 000
Output 2.3: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	10. No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies	Output 6: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	AF Output Indicator 6.1.1. No. and type of adaptation assets (tangible and intangible) created or strengthened in support of individual or community livelihood strategies	

Adaptation Fund Core indicators for the programme

Three Adaption Fund Core Indicators will be monitored for the programme as per the table below.

Adaptation Fund Core Indicator	Indicative Project Targets	Comments
Number of beneficiaries	<ul style="list-style-type: none"> 50,000 (50% women) beneficiaries through direct participation households in upgraded business models(10000 households - average household size of 5) 10 000 households targeting 50% females participating in farmer/agro pastoral field schools i)direct beneficiaries of start-up input grant for application of climate smart technologies, approaches and practices, ii) accessing upgraded climate smart infrastructure and equipment iii) receiving tailored climate and weather, marketing, and technical information 	This will be the main core indicator used for monitoring and reporting on the project.

	<ul style="list-style-type: none"> • Additional 300 000(50% women) indirect beneficiaries through receiving climate and weather information, learning through demonstration sites and being reached through Programme awareness activities • At least 750 technical officials trained and capacitated by end of project. 		
Assets produced, developed, improved or strengthened	• Solar powered drip irrigation micro irrigation systems	100 units	Assets will include improvements and enhanced quality of land, water and natural resources, application of climate adaptation technologies/practices. It will also include strengthened capacity on agricultural climate change adaptation among public and private agricultural extension institutions and their staff and development institutions and partners supported in the target communities.
	• Construction and rehabilitation of weirs	40 units (2 per site)	
	• Construction and rehabilitation of earth dams	40 units (2 per site)	
	• Solar driven watering holes for grazing lands (and Wildlife zones)-for Zimbabwe, Namibia	8 units (2 per site)	
	• Conservation Agriculture: Jab planters (manual driven)	5000 units 1 per each household	
	• Conservation Agriculture: Direct seeders	500 units—group based	
	• Conservation Agriculture: Rippers	5000 units—group based	
	• Water efficient drought tolerant crop varieties		
	• Vitamin A enriched sweet potato varieties (Orange Fleshed)		
	• Drought tolerant Cassava varieties for Mozambique	5000 households	
	•		
	• Adaptable goat breeds and fodder systems-Breeding stock (2 goats x 1000 households) and passed on— Namibia and Zimbabwe	1000 units	
	• Improved Indigenous chicken production (incubators and hatchery components)—50 eggs per household/I hatchery per Group	100 groups (each of +-25 farmers)	
	• Sweet potato vines and fertilizer inputs x 0.05ha	1000 households	
	• Processing value addition infrastructure		
	• Fresh produce grading and storage facilities	5000households per site	
	• Honey filtering machine and accessories	1 per site	
	• Sweet potato processing equipment	1 per site	
	• Cassava processing equipment	2 for Mozambique	
	• Enhanced Ecological Infrastructure		
	• Soil erosion community control structures	USD50,000 per country	
	• Rehabilitation of wetlands	USD20, 000 per country	
	• Rangeland management	USD 100,000 ALL countries	
	• Early warning Automated weather stations	10 units per site (200 Units total)	
	• Solar powered drip irrigation micro irrigation systems	100 units	
	• Construction and rehabilitation of weirs	40 units (2 per site)	
	• Construction and rehabilitation of earth dams	40 units (2 per site)	
•			
• at least 5 private sector players engaged as value chain driver for the 5 countries project sites			
• 60% of direct target population with climate resilience livelihoods			
• at least 10 Regional institutions and at least 20 national and basin level institutions with increased capacity to minimise exposure to climate variability (by type, sector and scale) by end of project			

	<ul style="list-style-type: none"> At least 10 SADC countries with new policy measures/regulations introduced or adjusted to address climate change risks (by sector) by end of project At least 5 countries with development strategies incorporating climate change priorities enforced by end of project Harmonized Monitoring and Early warning and response mechanisms in place at SADC regional level and downscaled and domesticated to at least 5 SADC countries SADC secretariat and all NMHSs in targeted countries applying downscaling techniques All targeted basins conduct and update risk and vulnerability assessments yearly by end of project SADC regional harmonized monitoring and early warning tools for climate induced transboundary risks and other hazards 100% of targeted beneficiaries apply new climate smart technologies by end of project 100% of Upgraded model farmers accessing physical infrastructure 100% of Upgraded model farmers 60 % of direct target communities with secure access to livelihood assets 		
Increased income, or avoided decrease in income	<ul style="list-style-type: none"> At least a 40% increase in number, types and levels of income among target population. 30% increase in crop/ livestock yields At least 50% increase in productivity of crop/ livestock in upgraded business models 		The project baseline will provide information on income sources and levels against which this will be measured.

Direct Costs (Component 1 & 2) Detailed Budget

Outcome 1: Measures to reduce exposure to climate related risks, hazards and threats and enhance people's resilience, implemented.

Outputs	Description/Sub Activities	Budget Notes / Activities	Year 1	Year 2	Year 3	Total	Explanation
Output 1.1: Risk vulnerability assessments conducted and updated at regional and national levels	1.1.1 Generation of regular seasonal climate assessments, forecasting and projections by SADC Climate Service Centre through SACCOF and NACCOFS downscaled to the farming communities in the region supported	Establish Regional historical baseline, with statistics and trends and climate change hotspots applying EODS and other data systems.	\$ 15 000,00			\$ 15 000,00	40 days data acquisition and consultancy for data processing and validation workshop.
		Strengthening of downscaling techniques and communication of uncertainties for 60 participants.	\$ 35 000,00			\$ 35 000,00	Training material costs, Travel & staff time for training event, trainer's fees, participants travel and accommodation, training venue, stationary. Workshop Participants will be drawn from all basin institutions and regional weather institutions who participate in the SACCOF
		Strategy and sustainability plan and yearly Support to the Regional SARCOF process under SADC CSC.	\$ 40 000,00	\$ 30 000,00	\$ 30 000,00	\$ 100 000,00	Support to yearly regional seasonal climate forecasting process under the SADC Climate Service Centre Southern African Regional Climate Outlook Forum (SARCOF). 60 days Consultancy for developing a strategy and sustainability plan for the SARCOF
		Post SACCOF national capacity building on high resolution forecast downscaling techniques and communication of uncertainties (5 Countries).		\$ 75 000,00			\$ 75 000,00

		Subtotal				\$ 225 000,00		
	1.1.2 Capacities in climate vulnerability risk profiling for key crop and livestock production systems and value chains built	Undertake climate vulnerability risk profiling and Develop localized/value chain specific climate risk/hazard response models/protocols for crop and livestock production systems and value chains at specific project sites	\$ 25 000,00	\$ 25 000,00		\$ 50 000,00	Climate Risk Profiling and Local climate risk response modelling consultants and half day reporting and validation events at each project site. Communication materials (brochures, publications on risks, responses, policy briefs).	
		Subtotal				\$ 50 000,00		
Output 1.2: Targeted population groups covered by adequate risks reduction systems	1.2.1 Inventory of new/improved value chain specific climate smart technologies, approaches and practices	For each of the project sites conduct a profiling exercise of geo and value chain specific climate smart technologies (solar powered water infrastructure, community level initiatives, bush to feed etc.)	\$ 75 000,00			\$ 75 000,00	Regional Climate smart technology/approaches profiling experts/consultants drawing specific examples from sites in the selected project river basins. Develop ToRs, develop technology qualification criteria, develop profiling criteria, two day regional reporting and validation event, publication of inventory	
		Subtotal				\$ 75 000,00		
	1.2.2 Build capacity of Agromet divisions for participating in the Southern African region	Capacity for agro-met divisions at national level (5 countries) and at SADC CSC strengthened		\$ 100 000,00	\$ 100 000,00	\$ 65 000,00	\$ 265 000,00	200 automatic Weather Stations, other relevant equipment and software for the Agromet divisions of participating countries and refresher training courses for Agro meteorologists at SADC CSC and National meteorological institutions
		Build the Earth Observation Data systems GIS-climate capability of regional centers and networks through infrastructure upgrade		\$ 100 000,00			\$ 100 000,00	Purchase of GIS Upgrading equipment for regional climate
		Subtotal					\$ 365 000,00	
	1.2.3 Facilitating harmonization of early warning and surveillance systems and mechanisms for priority climate induced transboundary risks and other hazards	Establishment of tailored high-resolution Monitoring and Early Warning Systems in the two pilot basins		\$ 40 000,00	\$ 40 000,00	\$ 40 000,00	\$ 120 000,00	Development of an adequate high-resolution Monitor as a platform to provide climate services with adequate spatial and temporal resolution, in line with the requirements of the farmer communities in the pilot basins
Provide technical support and contribute to regional livestock data/information collection, disease surveillance.			\$ 20 000,00	\$ 20 000,00	\$ 20 000,00	\$ 60 000,00	Ongoing Technical assistance to SADC Regional Livestock institutions and national level institutions. Provide appropriate diagnostic support, monitoring and control of transboundary animal diseases (such as FMD, peste de petits ruminants and contagious bovine pleuropneumonia) and zoonoses (such as anthrax, rabies, brucellosis etc.) in as far as they are enhanced by droughts and floods	
Strengthen cross boarder and cross basin disease surveillance (possibly using similar platform as EMPRES-i EMA),			\$ 30 000,00	\$ 30 000,00	\$ 30 000,00	\$ 90 000,00	Provide resources for cross border and cross basin joint planning in order to improve the sharing of disease information and technical capacity development on surveillance of major transboundary animal diseases, zoonoses and other emerging diseases at national and regional levels	

		Support development/updating/strengthening of long-term harmonized EWS information/tools for decision making, data collection tools and response protocols for the region's needs-based content/approach for short and climate induced hazards and disasters.	\$ 60 000,00			\$ 000,00	60	Consultant/experts to develop products and a regional reporting and validation including the following: (a) a regional risk register – database with profiles of hazards and risks; (b) a regional food balance sheet; (c) a plant and animal pests and diseases status-data; (d) a meteorological data; (d) conflict monitoring mechanisms; (e) alert and escalation system; (f) response protocols and procedures for dealing with different disasters, and (i) built in systems of tracking and monitoring variables as per Malabo declaration
		Three-day Regional training in; a) data collection using agreed tools and b) data analysis and decision making and arriving at Early Warning products.	\$ 75 000,00			\$ 000,00	75	Training of weather experts and regional stakeholders on harmonized tools. Training material costs, Travel & staff time for training event, trainer's fees, participants travel and accommodation, training venue, stationary.
		Support national training in; a) data collection using agreed tools and b) data analysis and decision-making.	\$ 160 000,00			\$ 000,00	160	Support to country level training for weather experts 16 countries. Training material costs, Travel & staff time for training event, trainer's fees, participants travel and accommodation, training venue, stationary.
		Provide incentive for members states to domesticate and uptake data collection tools and response protocols for the region's climate induced hazards and disasters.	\$ 50 000,00	\$ 30 000,00	\$ 20 000,00	\$ 000,00	100	Incentive for each country to domesticate the regional tools. This will be a grant for member states that express bring proposals to domesticate the regional tools. It will cost of implementing the regional tools
		Subtotal				\$ 000,00	665	
Output 1.3: Strengthened capacity of national and regional centers and networks to respond rapidly to extreme weather	1.3.1 S Agro-climatic advisory and feedback mechanism/systems in the region strengthened	Database for intermediaries and farmer users established	\$ 20 000,00			\$ 000,00	20	Participation in project baseline surveys by climate scientists
		Seasonal agriculture planners regularly produced through national participatory planning workshops	\$ 20 000,00	\$ 20 000,00	\$ 20 000,00	\$ 000,00	60	Cost of project staff travel, subsistence, venue and workshop logistics (one workshop per season for 3 seasons for 5 countries)
		Existing feedback mechanisms reviewed	\$ 20 000,00			\$ 000,00	20	Procurement of consultancy services to review existing feedback mechanisms
		Develop and apply a cost-effective communication and feedback channel anchored on the Connected Farmer Platform	\$ 50 000,00	\$ 15 000,00	\$ 35 000,00	\$ 000,00	100	Consultancy services to develop a draft prototype communication strategy and conducting validation workshops
		Continuous assessment, impact enhancement, learning, monitoring and evaluation	\$ 10 000,00	\$ 10 000,00	\$ 10 000,00	\$ 000,00	30	Costs of monitoring and evaluation visits by SADC CSC and FAO experts. Two monitoring visits involving meteorological staff per season per country for 3 seasons
		Subtotal				\$ 000,00	230	

Output 1.4: Improved integration of climate resilience strategies into country development plans	1.4.1 Incentives and instruments for catalyzing adoption of climate smart approaches along value chains developed, improved and applied	Review of the policy instruments or basket of incentives for inclusive climate smart value chains available at national, provincial and regional levels in each country.	\$ 60 000,00	\$ 40 000,00	\$ 25 000,00	\$ 125 000,00	Cost of national consultants to perform reviews and validation events in each country	
		Facilitating definition and introduction of missing incentives and ensuring that the basket incentives is gender and youth sensitive.	\$ 60 000,00	\$ 40 000,00	\$ 25 000,00	\$ 125 000,00	Cost of national consultants/expertise to facilitate design and mainstreaming of new or proposed policy incentives in each country, including the validation events	
		Grants for governments to improve the menu of policy tools available for inclusive climate smart VC development	\$ 50 000,00	\$ 50 000,00	\$ 50 000,00	\$ 150 000,00	Cost of expertise/consultants to develop recommendations, costs of lobbying, advocacy and communication materials	
		Developing recommendations for upgrading the procedures for the delivery of existing and new incentives			\$ 50 000,00	\$ 50 000,00	Cost of expertise/consultants to develop recommendations, costs of lobbying, advocacy and communication materials	
		Capacity building and support for VC actors to access climate smart incentives and other climate financing resources			\$ 50 000,00	\$ 50 000,00	Capacity building material costs, Travel & staff time for training event, trainers' fees, participants travel and accommodation, training venue, stationary. Training to be rolled out to 500 value chain players at all project sites in the specified basins	
		Subtotal				\$ 500 000,00		
	1.4.2 Develop capacities for targeted value chain specific actors to apply a range of new technologies/approaches/initiatives, climate smart tools	Training on Livestock Emergency Guidelines and Standards (LEGS) for agricultural extension workers		\$ 50 000,00		\$ 50 000,00	50	Training material, Training material costs, Travel & staff time for training event, trainer's fees, participants travel and accommodation, training venue, stationary. Training to be rolled out to 250 livestock extension officers and veterinary officials in the relevant specified basins
		Training on Good Emergency Management Practice (GEMP) for Animal health/veterinary officials		\$ 50 000,00		\$ 50 000,00	50	Training material, Training material costs, Travel & staff time for training event, trainer's fees, participants travel and accommodation, training venue, stationary. Training to be rolled out to 250 livestock extension officers and veterinary officials in the relevant specified basins
		Tailor-made Agro-pastoral trainings on Community-based Rangeland Condition Monitoring for early warning		\$ 50 000,00	\$ 50 000,00	\$ 100 000,00	100	Training material, Training material costs, Travel & staff time for training event, trainer's fees, participants travel and accommodation, training venue, stationary. Training will be rolled out using farmer field school approach to 500 farmers
		Subtotal				\$ 200 000,00	200	
1.4.3 Establish and operationalize a Regional Knowledge Policy Action Platform on	Design and validate the Knowledge Action Platform on Climate Resilience for Southern Africa (Regional KAPP)	\$ 15 000,00			\$ 15 000,00	15	Cost of design of ToRs, operational system, modalities and sustainability plan Cost of meetings for key KAPP stakeholders for year one(approximately two meetings)	

	Climate Resilience for Southern Africa	Operationalize the KAPP		\$ 5 000,00	\$ 5 000,00	\$ 10 000,00	Cost of meetings for the KAPP for year two and three
Subtotal						\$ 25 000,00	
Subtotal Component I						\$ 2 335 000,00	
Outcome 2: Diversified, strengthened and increased adaptive capacities, livelihoods and sources of income for vulnerable people in targeted areas							
Output 2.1: Targeted population groups participating in adaptation and risk reduction awareness activities	2.1.1 Support platforms for joint planning, implementation, coordination to build adaptive capacities and resilience to climate change	Promote inter-basin and transboundary learning, sharing and planning	\$ 75 000,00	\$ 75 000,00	\$ 75 000,00	\$ 225 000,00	Cost of inter-basin exchange visits and learning journeys: 3 in each year for 50 farmers from each basin. Design plan for exchange, with beneficiary selection criteria, areas to be visited and content
		Support evidence-based adaptation information in the region through demonstration, documentation and reporting of good practices, lessons learned and success stories	\$ 25 000,00	\$ 30 000,00	\$ 40 000,00	\$ 95 000,00	Costs of documentation, brochures, posters and setting up community sites for demonstrating adaptive crop pathways and practices in year 1, documentation and reporting of good practices, lessons learned and success stories in years 2 and 3
		Support to activities of inter-basin and transboundary joint planning, implementation, coordination committees initiatives	\$ 10 000,00	\$ 10 000,00	\$ 10 000,00	\$ 30 000,00	Costs of intra-basin cross border joint planning and coordination of water, and natural resources management activities (planning, coordinating, communication, monitoring)
		Subtotal				\$ 350 000,00	
Output 2.2: Targeted individual and community livelihood strategies strengthened in relation to climate change impacts, including variability	a) Identify priority value chains and non-agricultural sources of income opportunities for upgrading into inclusive climate smart and business driven activities	Identification and selection of key value chains and non-agricultural opportunities in each basin	\$ 50 000,00			\$ 50 000,00	Cost of consultative community level dialogue and application of FAO methodology to determine the value chains and activities with greatest economic, social and environmental value to the community
		Identify aggregators (Private Buyer) for the identified commodities in the project sites	\$ 50 000,00			\$ 50 000,00	Cost of technical expertise to manage call process. This will involve the launch of a process to select aggregators/Private Buyer at all sites through design of a call (terms of reference), its advertisement, adjudication and awarding to the successful aggregators. The call will define parameters such as number of famers, type location, goods and services, alliances and competencies that the project will be expecting from the aggregator/buyer.
	Subtotal				\$ 100 000,00		
	b) Develop profiles and upgrading plans/proposals for	Multi-stakeholder capacity development on the new VC soft methodology development approach for each site	\$ 125 000,00			\$ 125 000,00	Five three-day learning sessions for all potential business partners for the selected potential VCs in each basin. Travel & staff time for event, VC expert fees, participants travel and accommodation, venue, stationary. Approximately 100 participants per site

i) priority value chains and ii) non-agricultural livelihoods and income sources	Modern GIS referenced Profiling and registration of farmers (and their farms) to participate in the upgraded business model (all farm and farmer characteristics-economic, geographic, agro ecological etc.)	\$ 500 000,00			\$ 500 000,00	This will be part of the Terms of Reference of the Aggregator/Buyer and will be clearly defined as part of the Good and services to be provided. The Aggregator will however agree and comply with FAO on the specific methodology, and templates to be used so that the project maintains a standard and uniform farm, farmer profiling, and registration process across all the projects sites in the basins. target is 8000 farmers for all the sites
	Establish Digital system for managing start up inputs, extension, marketing and climate information	\$ 100 000,00			\$ 100 000,00	
	Detailed Profiling of commodity value chain for the priority commodities jointly identified by the communities and the business partners starting out from VC soft methodology sessions, followed by status quo then lastly the upgraded climate smart business model with clear definition of all underlying business relationships	\$ 200 000,00			\$ 200 000,00	Separate service providers/consultants with the technical guidance of FAO and close collaboration with the Aggregator will profile selected commodity value chains. Terms of reference and continuous technical guidance throughout the commodity profiling process will be developed. The profiling will start with a VC training using soft methodology provided by FAO, the commissioning of the profiling of status quo and upgraded model. The upgraded model is the one with the innovative business relationships and business arenas and which takes into account new climate smart technologies.
	Subtotal				\$ 925 000,00	
c) Facilitate business alliances/partnerships for communities and individuals in priority VCs and non-agricultural livelihoods	Assess farmers' needs within the upgraded business model	\$ 25 000,00			\$ 25 000,00	Under the guidance and supervision of FAO, the Aggregator and the VC profiling consultants will assess and report the farmers' needs within the upgraded business model.
	Support the setting-up of farmer organization (producer level)-Youth farmer Field and Adult farmer field Schools	\$ 150 000,00			\$ 150 000,00	Using the Registers created, a service provider (aggregator, consultant, NGO) will facilitate the setting-up or restructuring of farmer organizations (producer level) into viable identified business clusters, according to the adopted business model. These will be comprised of one or more Farmer Field Schools
	Facilitate farmer organizations to develop business relationship	\$ 150 000,00			\$ 150 000,00	Through structured FFS approach, capacitate farmer organizations(clusters) and support them to meet and form business relationships---through MoUs, Contracts, Offtake agreements etc.---- with the aggregator and other value chain players, and to ensure their members' access to required quantity and quality goods and service
	Assist vulnerable individual, community, and VC actors to access resources/funds -through a 30% de-risking matching grant for farmers needs	\$ 1 895 000,00			\$ 1 895 000,00	Matching grant of 30% to be included in the blended PPP smallholder farmer-financing scheme. Farmers cannot access the grant if they are not part of no aggregation agreement, which compels them to apply specific climate smart technologies.

		Subtotal							\$ 2 220 000,00	
	a) Facilitate rehabilitation, construction and establishment of strategic livelihood and climate smart value chain infrastructure provided through various forms of partnerships	Specify the business infrastructure and equipment needs for the upgraded business models	\$ 50 000,00						\$ 50 000,00	40 consultancy days, plus travel costs across basins for profiling and specifying the upgraded climate smart infrastructure, including processing needs, and opportunities for value addition and product improvement for the value chains at the sites in the basins.
		Provide funding for establishment of strategic climate smart value chain infrastructure	\$ 5 500 000,00						\$ 5 500 000,00	100% grant for communal infrastructure as defined in the upgraded business model with priority infrastructure including 1) solar powered deep borehole smart irrigation schemes, 2) water storage infrastructure 3) Livestock Dips, water troughs and other handling infrastructure 4) climate smart processing and storage infrastructure 5) minimal rehabilitation works on medium scale infrastructure
		Subtotal							\$ 5 550 000,00	
	Subtotal component II								\$ 9 145 000,00	
	Grant Total Direct costs								\$ 11 480 000,00	

Detailed Execution Budget Cost Breakdown

Outcome No	Accounts Description	Description of activity	Number	Unit	Qty/Y r1	Qty/Y r2	Qty/Y r3	Total Qty	Cost /Unit	Cost Yr1	Cost Yr2	Cost Yr3	Total cost
FAO	Staff P5	Part time Senior Programme Manager/Director	1	month	3	3	3	9	18,000.00	54,000.00	54,000.00	54,000.00	162,000.00
FAO	Staff P3	Regional Programme Technical Focal point	1	month	12	12	12	36	9,800.00	117,600.00	117,600.00	117,600.00	352,800.00
FAO	Staff P2	National Project officers	5	month	7	7	7	21	4,400.00	30,800.00	30,800.00	30,800.00	462,000.00
FAO	Staff	Part time Regional Finance and administration Support	1	month	6	6	6	18	2,000.00	12,000.00	12,000.00	12,000.00	36,000.00
FAO	Travel	Travel to Project Sites	1	Lumpsum	1	1	1	3	10,000.00	10,000.00	10,000.00	10,000.00	30,000.00
FAO	Expendable Equipment	Office Furniture	1	Lumpsum	1	0	0	1	3,000.00	3,000.00	-	-	3,000.00
FAO	Non Expandable Equipment	Office IT Equipment(computers and accessories)	1	Lumpsum	1	0	0	1	4,400.00	4,400.00	-	-	4,400.00
FAO	General Oprating expenses	Internet, Airtime, Stationary	1	Lumpsum	1	1	1	3	1,500.00	1,500.00	1,500.00	1,500.00	4,500.00

FAO	General Operating expenses	Communication and Visibility	1	Lumpsum	1	1	1	3	1,300.00	1,300.00	1,300.00	1,300.00	3,900.00
FAO	Technical support services	Reporting Cost	1	Lumpsum	1	1	1	3	5,300.00	5,300.00	5,300.00	5,300.00	15,900.00
FAO	General Operating expenses	Rent, Security	1	Lumpsum	1	1	1	3	15,000.00	15,000.00	15,000.00	15,000.00	45,000.00
FAO Secondments to SADC CSC	Staff	Part time Director	1	month	2	2	2	6	6,500.00	13,000.00	13,000.00	13,000.00	39,000.00
FAO Secondments to SADC CSC	Staff	Part time Agrometereologist	1	month	6	6	3	15	3,000.00	18,000.00	18,000.00	9,000.00	45,000.00
FAO Secondments to SADC CSC	Staff	part time Downscaling assistant	1	month	6	6	6	18	1,500.00	9,000.00	9,000.00	9,000.00	27,000.00
FAO Secondments to SADC CSC	Staff	part time Admin and Finance	1	month	3	3	3	9	1,200.00	3,600.00	3,600.00	3,600.00	10,800.00
FAO Secondments to SADC CSC	GoE	Office Consumables and bank chagres	3	Lumpsum	1	1	1	3	1,200.00	1,200.00	1,200.00	1,200.00	10,800.00
FANRPAN	Staff	Part time Director	1	month	2	2	0	4	5,000.00	10,000.00	10,000.00	-	20,000.00
FANRPAN	Staff	Part Time Policy officer	1	month	5	5	5	15	2,700.00	13,500.00	13,500.00	13,500.00	40,500.00
FANRPAN	Staff	Part time Admin and Finance	1	month	2	2	2	6	1,100.00	2,200.00	2,200.00	2,200.00	6,600.00
FANRPAN	GoE	Office Consumables and bank chagres	3	Lumpsum	1	1	1	3	1,200.00	1,200.00	1,200.00	1,200.00	10,800.00
	Total execution costs									326,600.00	319,200.00	300,200.00	1,330,000.00

Detailed Implementing Entity Fee Budget Breakdown

Activity	UNESCO Fee	Description
Oversight and management of project development and project implementation	485 000.00	Project coordination: project planning, day to day project management and implementation, Final project Evaluation
Financial management, including accounting, fiduciary standard monitoring, financial audits	460 000.00	Financial management practices complying with AF requirements ensuring financial reporting, efficient procurement processes. Estimation of bank costs for transfer operations and other transaction costs
Project staff functions	245 000.00	Technical support in risk management
Total	1 190 000.00	

Overall Project summary budget

Budget Breakdowns by component			
Budget Element	Unit	Allocation	Percentage
Component 1	UNESCO / FAO/ FANRPAN	2 335 000,00	16.7%
Component 2	FAO/ UNESCO	9 145 000,00	65.3%
	Sub-total Direct Costs	11 480 000.00	82%
Execution costs	UNESCO/FAO//FANRPAN	1 330 000	9.5%
IE Fee	UNESCO	1 190 000	8.5%
	Sub-total In-direct Costs	2 520 000.00	18%
	Grand TOTAL	14 000 000.00	100%

G. Include a disbursement schedule with time-bound milestones

	Upon Agreement & signature	One year after project commencement and on submission/acceptance of 1 st year report	At end of 2 nd year and on submission/acceptance of 2 nd year report	At end of 3 rd year and on submission/acceptance of 3 rd year report	Total
Scheduled Date	2020/10/01	2021/12/01	2022/12/01	2023/12/01	Total
Direct costs	4 ,592 ,000	4,592 ,000	2, 296,000		11 ,480,000
Executions costs (%)	532, 000	532 ,000	266 ,000	0	1, 330,000
IE Fee (%)	0	396 ,666	396 ,666	396, 668	1, 190, 000
Total Disbursements	5,124,000	5,520,666	2,958,666	396,668	14 ,000 ,000

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

A. Record of endorsement on behalf of the government¹⁸ *Provide the name and position of the government official and indicate date of endorsement for each country participating in the proposed project / programme. Add more lines as necessary. The endorsement letters should be attached as an annex to the project/programme proposal. Please attach the endorsement letters with this template; add as many participating governments if a regional project/programme:*

Angola: Carla Silva Pompilio Balca, National Focal Point	Date: 31/07/2020
Namibia: Teofilus Nghitila, Acting Permanent Secretary	Date: 06 /05/2020
Mozambique: Emilia Dique Fumo, Permanent Secretary	Date: 11/06/2020
South Africa: Ms Nozipho Ncaba, Director General	Date: 13/052/2020
Zimbabwe: Mr Washington Zhakata, Director, Climate Change Department, UNFCC/Adaptation Fund/GCF Focal Point	Date: 06/05/2020

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.



REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT, FORESTRY AND TOURISM

Tel: (00 264) 61 284 2111
Fax: (00 264) 61 232 057

Cnr Robert Mugabe &
Dr Kenneth Kaunda Street
Private Bag 13306
Windhoek
Namibia

Enquiries: Mr. P. Muteyauli
E-mail: petrus.muteyauli@met.gov.na

6 May 2020

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

Subject: Endorsement for the FAO / UNESCO regional project proposal to the Adaptation Fund titled “Strengthening Adaptive Capacities for Smallholder Farmers in Water Stressed River Basins in Southern Africa”.

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

Accordingly, I am pleased to endorse the above project concept proposal with support from the Adaptation Fund. If approved, the project will be implemented by the FAO and UNESCO.

Yours sincerely,


Teofilus Nghitila
Executive Director



“Stop the poaching of our rhinos”

All official correspondence must be addressed to the Executive Director

All communications should be addressed: "The Secretary for Environment, Climate, Tourism and Hospitality Industry."

P Bag 7750 Causeway,
Harare
Telephone: 7988113
Fax: 798713

Year Ref:
Our Ref:



MINISTRY OF ENVIRONMENT,
CLIMATE, TOURISM AND
HOSPITALITY INDUSTRY
11th Floor,
Napani Building
Car 88 Secretariat Avenue
Harare

06 May 2020

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: secretariat@adaptation-fund.org

Fax: 202 522 3240/5

Endorsement of the Strengthening Adaptive Capacities for Smallholder Farmers in Water Stressed River Basins in Southern Africa, Project.

Following the adaptation by the Climate Fund Secretariat in an email dated 7 February 2019 to the National Designated Authority in Zimbabwe, articulating that at the moment regional projects (multi country projects) submitted either by Regional Implementing Entities (RIE) or Multilateral Implementing Entities (MIE) fall outside the country cap.

In my capacity as the Designated Authority for the Adaptation Fund in Zimbabwe I therefore confirm that the above national project concept is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the country.

Accordingly, I am pleased to endorse the above project with support from the Adaptation Fund. If approved, the project will be implemented by UNESCO Regional Office for Southern Africa and executed by the Ministry of Land, Agriculture, Water and Rural Resettlement.



W. Zhakata

**Director, Climate Change Management Department
UNFCCC/GCF Focal Point
Ministry of Environment, Climate, Tourism and Hospitality Industry**



**environment, forestry
& fisheries**

Department
Environment, Forestry and Fisheries
REPUBLIC OF SOUTH AFRICA

Private Bag 2417, Pretoria, 0001, Environment House, 473 Steve Biko Road, Pretoria, 0002 Tel: +27 12 399 9200, Fax: +27 84 625 1542

Ref: EDMS 150308

Enquiries: Shahkira Parker

Tel: 012 399 9240 Email: sparker@environment.gov.za

The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat

Email: Secretariat@Adaptation-Fund.org

Fax: 202 522 3240/5

Dear Sir/Madam

ENDORSEMENT FOR THE PROPOSAL OF THE PROJECT TITLED "STRENGTHENING ADAPTIVE CAPACITIES FOR SMALLHOLDER FARMERS IN WATER STRESSED RIVER BASINS IN SOUTHERN AFRICA"

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

Accordingly, I am pleased to endorse the above project/programme proposal with support from the Adaptation Fund. If approved, the project/programme will be implemented by Food and Agricultural Organization (FAO) and United Nations Educational, Scientific and Cultural Organization (UNESCO).

Yours sincerely

Ms Nosipho Ngcabe
DIRECTOR-GENERAL

DATE: 13 May 2020



Batho pele - putting people first



ADAPTATION FUND

Letter of Endorsement by the Government of Mozambique

11 June 2020

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

Subject: Endorsement for Strengthening Adaptive Capacities for Smallholder Farmers in Water Stressed River Basins in Southern Africa Countries

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

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented and executed by UNESCO, FAO.

Sincerely,

Emilia Dique Fumo

Permanent Secretary
Ministry of Land and Environment



REPÚBLICA DE ANGOLA

MINISTÉRIO DA CULTURA, TURISMO E AMBIENTE
Direcção Nacional do Ambiente e Acção Climática

Luanda, 31st of July 2020

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

Subject: Endorsement for Strengthening Adaptive Capacities for Smallholder
Farmers in Water Stressed River Basins in Southern Africa

Dear Sir or Madam,

In my capacity as Designated Authority for the Adaptation Fund in Angola, I confirm that the above regional project/programme proposal is in accordance with the government's priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the Republic of Angola.

Accordingly, I am pleased to endorse the above project/programme proposal with support from the Adaptation Fund. If approved, the project/programme will be implemented by the Food and Agriculture Organization and executed by the Ministry of Culture, Tourism and Environment of the Republic of Angola.



Cecilia Silva Porellio Galça
National Focal Point

Complexo Administrativo Clássico de Talatona
Município de Talatona, Luanda
República de Angola

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

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans of Angola, South Africa, Namibia, Mozambique and Zimbabwe, and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.

Name: Professor Hubert Gijzen
 Regional Director and Representative
 UNESCO Regional Office for Southern Africa
 (Implementing Entity Coordinator)



Digitally signed
 by HGijzen
 Date:
 2020.08.06
 15:27:44 +02'00'

Date : 06 August 2020

Tel : + 263 4 776 775/9 : **Email:** h.gijzen@unesco.org,

Project Contact Person

Name : Dr Koen Verbist
 Programme Specialist
 UNESCO Regional Office for Southern Africa
 Tel: +263 4 776 775/9
 Email: k.verbist@unesco.org,

ANNEX 1. IMAGES FROM THE COMMUNITY CONSULTATIVE PROCESS FROM SITE ACROSS THE 5 RIPARIAN COUNTRIES



Consultations in Okanguati, Namibia



Community leader (Okanguati) narrating the historic memory of the past droughts



Consultations in Matala, Huila, Angola



Consultations in Gaza, Mozambique
South Africa

Mwenezi District consultations, Zimbabwe

Vembe Province consultations,

1. Some outputs from the consultations



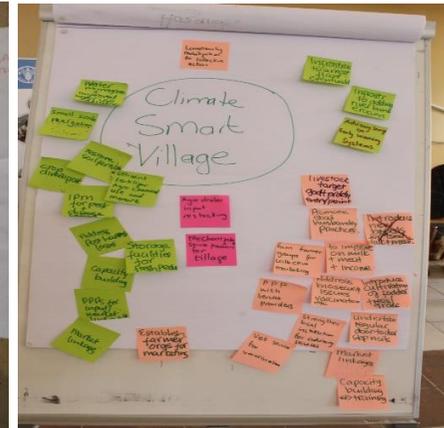
Community hazard map
village model



Vulnerability Assessment (VA)



Some feed-back from VAs



Climate smart

2. Impact of climate change on livelihoods



Implications of heat wave on poultry and livestock productivity
drought



Unavailability of domestic water



Crop failure under

Country	Area	Consultation Dates	Attendance registers		Presentations	Endorsement letter
Angola	Cunene Matala Huila	14 Nov 22 Nov	 Adobe Acrobat Document	 Adobe Acrobat Document	 Adobe Acrobat Document	 Adobe Acrobat Document
Mozambique	Buela Madlatimbuti	23 Nov 24 Nov	 Adobe Acrobat Document	 Adobe Acrobat Document	 Adobe Acrobat Document	 Adobe Acrobat Document
Namibia	Okanguati Ruacana	4 Nov 5 Nov	 Adobe Acrobat Document	 Adobe Acrobat Document	 Adobe Acrobat Document	 Adobe Acrobat Document
South Africa	Mopani Vhembe	23 - 24 Oct 11 Nov	 Adobe Acrobat Document  Adobe Acrobat Document	 Adobe Acrobat Document  Adobe Acrobat Document	 Adobe Acrobat Document	 Adobe Acrobat Document
Zimbabwe	Beit bridge Masvingo	8 Nov 7 Nov	 Adobe Acrobat Document	 Adobe Acrobat Document	 Adobe Acrobat Document	 Adobe Acrobat Document
Validation Workshop	Johannesburg	28 - 29 Nov	 Adobe Acrobat Document		 Adobe Acrobat Document	 Adobe Acrobat Document