Funding Proposal

SAP001: Improving rangeland and ecosystem management practices of smallholder farmers under conditions of climate change in Sesfontein, Fransfontein, and Warmquelle areas of the Republic of Namibia

Namibia | Environmental Investment Fund (EIF) | Decision B.19/12

16 March 2018

GREEN CLIMATE FUND

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Funding Proposal

Version 1.1

The Green Climate Fund (GCF) is seeking high-quality funding proposals.

Accredited entities are expected to develop their funding proposals, in close consultation with the relevant national designated authority, with due consideration of the GCF's Investment Framework and Results Management Framework. The funding proposals should demonstrate how the proposed projects or programmes will perform against the investment criteria and achieve part or all of the strategic impact results.

Project Title:	Improving rangeland and ecosystem management practices of smallholder farmers under conditions of climate change in Sesfontein, Fransfontein, and Warmquelle areas of the Republic of Namibia
Country/Region:	Namibia
Accredited Entity:	Environmental Investment Fund of Namibia
Date of Submission:	20 December 2017

Contents

Note to accredited entities on the use of the funding proposal template

- Sections **A, B, D, E** and **H** of the funding proposal require detailed inputs from the accredited entity. For all other sections, including the Appraisal Summary in section F, accredited entities have discretion in how they wish to present the information. Accredited entities can either directly incorporate information into this proposal, or provide summary information in the proposal with cross-reference to other project documents such as project appraisal document.
- The total number of pages for the funding proposal (excluding annexes) is expected not to exceed 50.

Please submit the completed form to:

fundingproposal@gcfund.org

Please use the following name convention for the file name:
"[FP]-[Agency Short Name]-[Date]-[Serial Number]"

A.1. Brief Project / Programme Information			
A.1.1. Project / programme title		Improving rangeland and ecosystem management practices of smallholder farmers under conditions of climate change in Sesfontein, Fransfontein, and Warmquelle areas of the Republic of Namibia	
A.1.2. Project or programme		Project	
A.1.3. Country (ies) / region		Namibia	
A.1.4. National designated authority (ies)		Ministry of Environment and Tourism	
A.1.5. Accredited entity		Environmental Investment Fund of Namibia	
A.1.5.a. Access modality		☒ Direct ☐ International	
A.1.6. Executing entity / beneficiary		Executing Entity: Ministry of Agriculture, Water and Forestry Direct Beneficiary: 30,366; Indirect Beneficiaries to 14,034; Total Beneficiaries: 44,400, 50 per cent of which will be women	
A.1.7. Project size category (Total investment, million USD)		☒ Micro (≤10) ☐ Medium (50<x≤250)	☐ Small (10<x≤50) ☐ Large (>250)
A.1.8. Mitigation / adaptation focus		☐ Mitigation ☒ Adaptation ☒ Cross-cutting	
A.1.9. Date of submission		20 December 2017	
A.1.10. Project contact details	Contact person, position	Benedict Libanda, Chief executive Officer	
	Organization	Environmental Investment Fund of Namibia	
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	Telephone number	+264 61 431 7700	
	Mailing address	PO Box 28157, Auas Valley, Windhoek, Namibia	

A.1.11. Results areas *(mark all that apply)*

Reduced emissions from:

- ☐ Energy access and power generation
  (E.g. on-grid, micro-grid or off-grid solar, wind, geothermal, etc.)
- ☐ Low emission transport
  (E.g. high-speed rail, rapid bus system, etc.)
- ☐ Buildings, cities and industries and appliances
  (E.g. new and retrofitted energy-efficient buildings, energy-efficient equipment for companies and supply chain management, etc.)
- ☐ Forestry and land use
  (E.g. forest conservation and management, agroforestry, agricultural irrigation, water treatment and management, etc.)

Increased resilience of:

- ☒ Most vulnerable people and communities
  (E.g. mitigation of operational risk associated with climate change – diversification of supply sources and supply chain management, relocation of manufacturing facilities and warehouses, etc.)
- ☒ Health and well-being, and food and water security
  (E.g. climate-resilient crops, efficient irrigation systems, etc.)
- ☐ Infrastructure and built environment
  (E.g. sea walls, resilient road networks, etc.)
- ☐ Ecosystem and ecosystem services
  (E.g. ecosystem conservation and management, ecotourism, etc.)

A.2. Project / Programme Executive Summary (max 300 words)

1. As sub-Saharan Africa's driest country, Namibia is already subject to persistently high temperatures, droughts and erratic rains interspersed with floods. Climate change impacts are exacerbating these already difficult conditions by increasing aridity and climate variability. While the entire African continent is expected to warm during this century, southern Africa in general (and Namibia in particular) is expected to warm faster than the global average. At the same time, rainfall in Namibia is projected to decrease overall. Furthermore, Namibia is the most at-risk country in southern Africa for physical climate change impacts and risks from increasingly extreme weather. Maximum temperatures have been increasing over the past 40 years, as observed in the increasing frequency of days exceeding 35°C and decreasing frequencies of days with temperatures below 5°C. This suggests an overall warming.

2. Expected impacts – with a high degree of certainty – are for Namibia to become hotter throughout the year with a predicted increase in temperatures of between 1°C and 3.5°C in summer and 1°C to 4°C in winter in the 2046 – 2065 period. By mid-century, the number of days exceeding 34°C is predicted to increase from 67 to 118, and average maximum temperatures will likely increase from 33°C to 34.4°C. Overall, the frequency and intensity of extreme events (e.g. drought and floods) are expected to increase in Namibia. By 2050, average annual temperature is expected to increase by 1.5-2.5° C in the south and by 2.5-3.0° C in the north compared to the 1961-1990 average. Temperature rises will be greater in the summer than in winter, exacerbating stress on natural resources and agricultural output. Recent model outputs obtained by scientists from the US-based National Centre for Atmospheric Research (NCAR) and the National Oceanic and Atmospheric Administration (NOAA) revealed 'very clear and dramatic warming of the Atlantic Ocean into the future, which means more and more drought for southern Africa' (NCAR, 2005). This warming is threatening the livelihood of large percentage of Namibians, one of the most vulnerable countries to the impacts of climate change in Africa (IPCC, 2014). These impacts are significant and include a temperature increase above the mean global value, increasing variability in rainfall, more frequent dry spells and more severe droughts.

4. The project addresses the vulnerability of smallholders farmers from prolonged droughts periods through floodwater harvesting and groundwater recharge; promote a range of climate-resilient technologies for enhanced agricultural and livestock production; improve the dissemination of climate risk information among community, introduction of fuel efficient stoves; improve fodder management practices, support backyard gardening activities, promotion of drought tolerant breeds and small stock farming practices; civil society and government stakeholders through an early warning system; and capture and disseminate lessons learned through programme activities, and to influence policy through advocacy activities. Rangeland management systems will be enhanced. Improved information on climate change risks will be generated and integrated into farmer and pastoralist practices. The project will improve knowledge and understanding of climate change impacts among stakeholders, develop a community-based early warning system to reduce climate risks, and an action research approach linking traditional and scientific knowledge through the use of seasonal forecasts. Green Schemes in the Kunene region will be supported to incorporate sustainable agricultural practices with a strong focus on learning and knowledge management component to capture and disseminate lessons learned. Farmers Associations in the target areas will use the Green Scheme facilities for learning and replication purposes.

5. In order to ensure that there are successful and sustained transformational results, the project will work with different stakeholders on the national, regional and local levels to mainstream disaster management within their current structures and portfolios. Therefore the project will simultaneously establish institutional systems that enable gender and climate-responsive planning and development, ensuring optimization of social, economic and environmental benefits. By investing in particular gender responsive water and irrigation infrastructure and other climate smart initiatives, the project will improve health, food and water security as well as strengthen institutional and regulatory systems for gender and climate- responsive planning and development As a result, the project will directly support 30,366 people (over 50% women and 30% female headed households) to cope with the intensifying challenges of climate change. The project will focus on women and in particular female heads of households to increase their resilience and unleash their untapped potential as key stakeholders and community leaders in their own right. The project will run over five years and consists of three complementary components that will empower smallholder farmers to respond to climate change in terms of awareness, adaptive capacity and climate resilient development. The three components are:

Component 1: Promote cost effective investments in early warning systems that determine climate-driven vulnerabilities and effective adaptation options: This component will address adaptation needs of smallholder farmers through access to accurate and up-to-date information on climate to enhance adaptation responses. Early Warning

system is envisaged by the project to alert the population under threat of an imminent disaster in not yet sufficient lead-time to undertake protective actions.

Component 2: Reducing climate driven risks in target ecosystem and land through supporting innovative drought adaptation action: The component will identify and support innovative adaptation actions to enhance resilience. It comprises of awareness raising, capacity building, rangeland management, technologies for climate resilient practices at the Green Schemes, and implementation of ecosystem management plans by 10 farmers associations.

Component 3: Knowledge and information support mechanisms: The component will support learning and knowledge management activities with the aim to capture and disseminate lessons learned and to influence policy. The knowledge management system will be institutionalized within the regional administration systems of the Kunene area and the Ministry of Agriculture, Water and Forestry, which will in it provide lessons to guide the other regions.

A.3. Project/Programme Milestone	
Expected approval from accredited entity's Board (if applicable)	03/11/2017
Expected financial close (if applicable)	30/04/2018
Estimated implementation start and end date	Start: 01 /06 /2018 End: 30 /05/ 2023
Project/programme lifespan	5years, 0 months

B.1. Description of Financial Elements of the Project / Programme

6. The project will be financed by GCF grant resources through the Simplified Approval Process modality and will include contributions from the Ministry of Agriculture, Water and Forestry. This is essential because Namibia already spend more than US$70 million per annum on drought and flood relief programmes. Moreover, the Investment and Financial Flow report for Namibia published in 2011 reveals that the incremental cost of crop and livestock production, as a result of climatic change, is estimated to amount to US$3.04 billion (or about N$40 billion) by 2030. Before any consideration of adaptation, conditions expected to prevail by 2080 as a result of climate change may result in losses in the direct economic contribution of primary land uses amounting to N$2.5 billion or some 4% of the Gross National Income (GNI). The losses are clearly highest with the agricultural sector. It is noteworthy that the estimated losses do not include indirect impacts on the economy that resulted from backward and forward linkages. On average tourism, value might decline at 0.4% per annum, and livestock income might decline at 1% per annum over that period. Land use systems will adapt autonomously at the same time, and extraneous economic factors will play an important part. Given autonomous adaptation, losses in production will tend to be reflected in loss of growth that would take place in the absence of climate change. These losses are the highest with the livestock sector with respect to comparable land use.

Table 1: Components and Budget

Component	Amount (for entire project)	Local currency (Namibian Dollars)	C0-financing	GCF funding amount	Currency of disbursement to recipient
Component 1: Promote cost effective investments in early warning systems that determine climate-driven vulnerabilities and effective adaptation options	840,000	10,920,000.00	200,000	640,000	USD
Component 2: Reducing climate driven risks in target ecosystem and land through supporting innovative drought adaptation actions	7,610,652	96,338,472.88	200,000	7,410,651.76	USD
Component 3: Knowledge and information support mechanisms	865,721	9,954,371.57	100,000	765,720.89	USD
Project Management (Including Monitoring)	683,627	6,287,155.55	200,000	483,627.35	USD
Grand total	**10,000,000**	**130,000,000**	**700,000**	**9,300,000**	USD

** Please expand the table if needed. USD1=N$13, at 15 December 2017*

- *A breakdown of cost/budget by expenditure type (project staff and consultants, travel, goods, works, services, etc.) and disbursement schedule in project/programme confirmation (term sheet) as included in section I, Annexes.*

B.2. Project Financing Information

	Financial Instrument	Amount	Currency	Tenor	Pricing
(a) Total project financing	**(a) = (b) + (c)**	USD 10,000,000	Options		
(b) GCF financing to recipient	(i) Senior Loans (ii) Subordinated Loans (iii) Equity (iv) Guarantees (v) Reimbursable grants *	…… …… …… …… ……	Options Options Options Options Options Options	( ) years ( ) years	( ) % ( ) % ( ) % IRR

	(vi) Grants *	USD 9,300,000			
	** Please provide economic and financial justification in section F.1 for the concessionality that GCF is expected to provide, particularly in the case of grants. Please specify difference in tenor and price between GCF financing and that of accredited entities. Please note that the level of concessionality should correspond to the level of the project/programme's expected performance against the investment criteria indicated in section E.*				
	Total requested (i+ii+iii+iv+v+vi)	USD 9,300,000	Options		

(c) Co-financing to recipient	Financial Instrument	Amount	Currency	Name of Institution	Tenor	Pricing	Seniority
	Grant	700,000	USD	Ministry of Agriculture, Water and Forestry	( ) years ( ) years	( ) % ( ) % ( ) % IRR	
	Lead financing institution: Ministry of Agriculture, water and Forestry						
	** A letter of commitment issued by the co-financing institution is provided.*						

(d) Financial terms between GCF and AE (if applicable)	N/A

B.3. Financial Markets Overview (if applicable)

The Government of Namibia is requesting 100% grant resources for the proposed project, the financial market overview is therefore not applicable.

C.1. Strategic Context

7. About Namibia: About Namibia: Namibia is located in southern Africa, and is bordered by the Atlantic Ocean in the west, Angola to the North, Botswana to the east and South Africa to the south. The country gained independence from South Africa in 1990 and has since adopted a stable parliamentary democracy classified by the World Bank as an upper-middle income country. Yet, Namibia faces certain unique challenges due to, amongst other things, its increasingly harsh climate, a defragmented society owed to its recent apartheid history and a consequently severe inequality gap. Situated between the Kalahari and Namib Deserts, Namibia is the most arid country in sub- Saharan Africa. The western half of the country is home to the Namib Desert, which stretches the entire length of Namibia's Atlantic 1570 km-long coastline and ranges in width between 100 and many hundred kilometers. The Kalahari Desert, which Namibia shares with South Africa and Botswana, encompasses the eastern third of the country.

Figure 1: Namibia's position within southern Africa

7. Namibia's most important economic sectors are agriculture, fisheries, mining and tourism. The country's economy is therefore highly dependent upon natural resources. The economy is currently diversifying into natural resource processing, and the tourism sector is growing as well, although tourism in Namibia is also closely linked to natural resources. About 630,094 Namibians make up the labour force, with 27.4% employed in the agriculture sector where more women are subsistence farmers than men. For many households, improving agriculture is secondary in importance to gaining wage-earning jobs. Given increasing human populations and degrading soil health and increasing populations, agricultural productivity using conventional methods is no longer sufficient to ensure household food security, let alone to generate cash income. Instead, households increasingly rely on cash income from non- agricultural sources to supplement food production. Thus, off- farm employment and income generation are central components of agricultural and rural development in Namibia. The official unemployment rate in Namibia was 27.4% in 2012.

8. Namibia's Climate: Namibia is the driest country in Sub-Saharan Africa. The median annual rainfall ranges from less than 50 mm to 250 mm in Namibia's hyper-arid southwest and coastline, and peak at 350 to 550 mm in the sub-humid northeast. Overall, about 22% of the country is classified as hyper-arid, 70% as arid, and less than 8% as dry sub-humid (Mendelsohn, Jarvis, Roberts, & Robertson, 2002). Over most of the country, potential evaporation is at least five times greater than average rainfall (GRN, 2014). The climate is characterized by high variability in the form of persistent droughts, unpredictable and variable rainfall patterns, variability in temperatures and scarcity of water (GRN, 2011). Lack of water is regarded as a key limitation to Namibia's development. Perennial rivers only occur on the country´s borders. Of the total rainfall, 83% evaporates shortly after precipitation and 17% is available as surface runoff of which 1% recharges groundwater sources and 14% is lost through evapo-transpiration (2,600 mm to 3,700 mm per year). Hence, only 2% (i.e. 5 mm) remains to be harnessed in surface storage facilities (FAO). Namibia is one of the world's most vulnerable countries with regard to climate change due to its extreme aridity and dependence on primary industry,

combined with a limited adaptive capacity (Brown, 2009). Approximately 70% of Namibia's population lives in rural areas. Farming is the dominant land use in Namibia, but it is characterized by low production and high risk due to arid conditions, infertile soils and generally poor land use practices.

9. Average maximum temperatures vary between 30°C and 40°C, while minimum temperatures vary between 20°C and below 10°C. Namibia also uses underground water resources, with active and fossil aquifers being exploited. Only about 1% of rainfall replenishes the groundwater aquifers that many Namibians depend on, and 2% runs off into surface water resources, which have extremely high rates of evaporation. Water is mostly extracted through boreholes, and in communal areas, through hand-dug wells. About 70% of Namibia's vegetation is classified as savannah and the country is endowed with unique biodiversity. Abundant state and private conservation areas enable wildlife to prosper, with 13.8% of Namibia's land area under conservation status. Non- timber forest products and other so-called "veld" products are widely used to supplement diets and livelihoods. Community-based conservation is a key management strategy, and 26 conservancies and 10 community- forests are situated in the regions that this project targets.

10. Empirical work (Midgley et al 2005; Barnes et al 2010 and Turpie et al 2010) predicts severe impact of climate change in Namibia. Looking at a range of 70 years up to 2080 and utilising the IPCC AR4 models, the results show a consistent trend to higher temperatures, with an increase in annual mean temperature between 3°C and 4°C expected by 2080. Regarding precipitation, the picture is less certain with the averages for 21 IPCC AR4 models showing decreases in mean annual rainfall between 5% and 20% by 2080. The most significant declines can be expected in the south and centre of the country. This is consistent with the continent-wide finding that it is the south-western arid zone of southern Africa that will be likely to suffer high declines in rainfall compared to the wetter parts, to the east of Namibia.

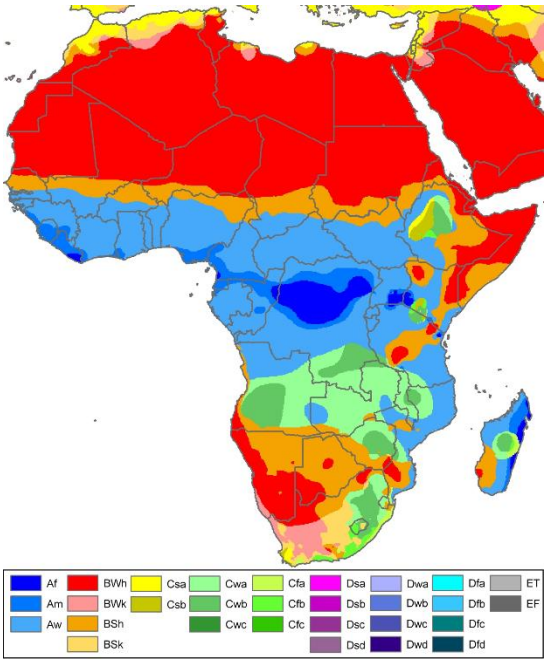


Figure 2: Köppen-Geiger Climate Classification for Africa

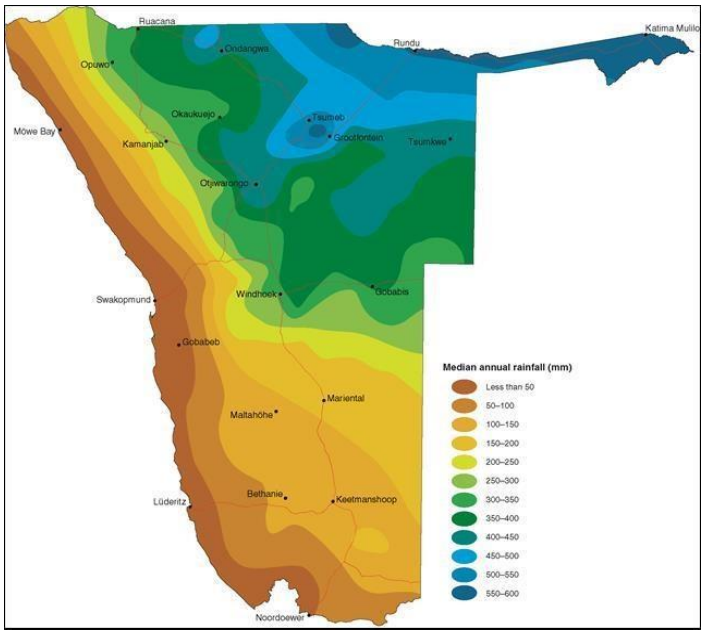


Figure 3: Median annual rainfall in Namibia (Mendelsohn et al., 2009)

11. The dominant feature of the predicted changes, particularly as regards precipitation, is an increase in variability. From Figure 2 it can be seen that Namibia is classified as being in Group B, which contains dry, arid and semi-arid climates, which are characterized by the actual precipitation being less than a threshold value set equal to the potential evapotranspiration. The effects of higher temperature will result in higher evaporation, and this, combined with expected lower rainfall, would cause significant reductions in rangeland carrying capacity. In the analysis on impacts on ecosystems and biodiversity, the research also points to a reduction in ground cover and reduced net primary productivity throughout much of the country by 2080.

12. The estimated changes in grass biomass ranging from around −10% in the Woodland of the northeast, around −5% in the Savanna and around −10% in the southern Karoo areas. The estimated that primary productivity overall might have no change in the Woodland and might drop by some 5% in the Savanna and Karoo biomes. Reduced carrying capacity and shifts in land suitability mean that large stock numbers will be particularly hard hit by climate change. The analysis indicates that, nationwide, numbers of cattle in fenced ranches can be expected to decrease to as low as 40% of the current levels by 2080. Numbers of communal livestock (small-scale and cattle post systems) can be expected to decrease to as low as 70% of the current numbers by 2080. This is particularly calamitous for open grazing communal areas such the ones in Kunene region. Observational data for Namibia's projections in rainfall are consistent with the contemporary understanding of how climate change will affect the southern African region and are captured in regional climate models, especially in that:

a) Increases in temperatures, heat waves and thermal heating, coupled with increases in regional atmospheric dryness, especially during mid to late summer, will increase over much of the country.
b) Winter rainfall is likely to be reduced in the southern and especially southwestern parts of the continent, and by implication, southern Namibia (DRFN, 2009; MET, 2011).
c) In addition, both the rainfall and temperature in Namibia are very sensitive to the El- Niño Southern Oscillation (ENSO) effect, showing periods of much below rainfall averages (ibid).
d) The Inter-Governmental Panel on Climate Change (IPCC) Fifth Assessment Report suggests that by 2050, temperatures over southern Africa will be 2-4 0C higher compared to the 1961-90 baselines (IPCC, 2001).

13. In Namibia, climate change affects both livestock and crop production under rain-fed conditions. Both crop and livestock play an important role in the livelihoods of local and indigenous agro pastoral communities. These have been declining by about 33% on average every year in the last few farming seasons (Namibia Early Warning and Food Information Unit (NEWFIU), 2015). This has been evident especially in the 2011/2012, 2012/2013 and 2013/2014 farming seasons; such declines are mainly attributed to high ambient temperatures and below normal rain throughout the country (MET, 3rd National Communication to the UNFCCC, 2015). The year 2014 recorded the worst drought situation in 30 years and the GDP contribution from agriculture recorded significant negative changes with livestock farming recording the highest decline of 37.6%. As a direct result of these climate induced vulnerabilities, household food security and nutrition situations are compromised compelling households to supplement food deficiencies with government drought relief. Drought relief while desirable as a relief measure in the short term is neither a neither sustainable option nor a long-term adaptation option. Furthermore, relief measures are likely to cause maladaptation as farmers will lose skills to make their living and compromises the ability for proactive adaptation planning. As climate change is induced by the accumulation of carbon dioxide in the atmosphere in combination with natural variability in Namibia, this promotes ideal conditions for the growth of woody trees and shrubs, which negatively impact the productivity of the drylands (MET, Third national communication to the UNFCCC, 2015). As a result, those impacted by climate change in Namibia are unable to cope with existing conditions while trying to respond to the climatic changes.

14. Namibian Economy and Climate Change: Namibian economy is heavily dependent on minerals and agricultural produces, implying the vulnerability not only to the fluctuation of world economic trend but also to the climate change. The domestic economy in 2016 slowed down to 2.3% compared to 5.3% in 2015, and one of the contributing factors is the slip-down of agricultural sector, which showed double-digit contraction of 10.3% followed by fishing and fish processing on board with 2.8%. Contraction in the agriculture sector is owed to a decline in livestock sector, and it recorded a 14.0% decline in real value added compared to a positive growth of 13.9% in 2015 (Namibia Statistics Agency, 2015: p.12). As is well known, the decline in livestock farming was due to severe drought, which hit the country in 2015. Earlier in 2013, another drought significantly hit Namibia affecting the animals including 331,000 people (EM-DAT: The Emergency Events Database (www.emdat.be, Last accessed date: 20-06-2017). As a result, GDP contribution by the livestock sector plunged to a record-breaking 25.5%.

15. There has been a decreasing trend in national cereal production from both the commercial and communal sectors (fig. 4). This has drastically impacted the local household and national food security situation, especially subsistence farmers through direct and indirect factors. Previous studies, by researchers such as Reid and others, INC, SNC and the recently completed V&A (of 2015) further confirm the direct links of crop failures with climate change impacts. There is a lack of market information for other crops in Namibia, hence the policy focus uses the available ones wherein in the modelling, the market information were aggregated to demonstrate potential composite benefits. It is expected that the other crops for diversification market prices will also be within a range of composite modelling. The project will support the other crops, which is a drought-tolerant crops and early maturing variety. Namibia's pressing development challenges such as persistent high poverty levels (impacting 28% of the population); social - income disparities (10% of the population

owns 70% of the total nation's wealth), environmental degradation (estimated to likely cost GDP losses of about 6% by 2020)[i] and high unemployment rates (41%)[ii]; are worsened by crop failures and decreasing outputs due to reduced rainfall and increasing temperatures and extreme drought conditions (fig 4)[iii], which are attributable to a greater degree to climate variability and change vis anthropogenic factors.

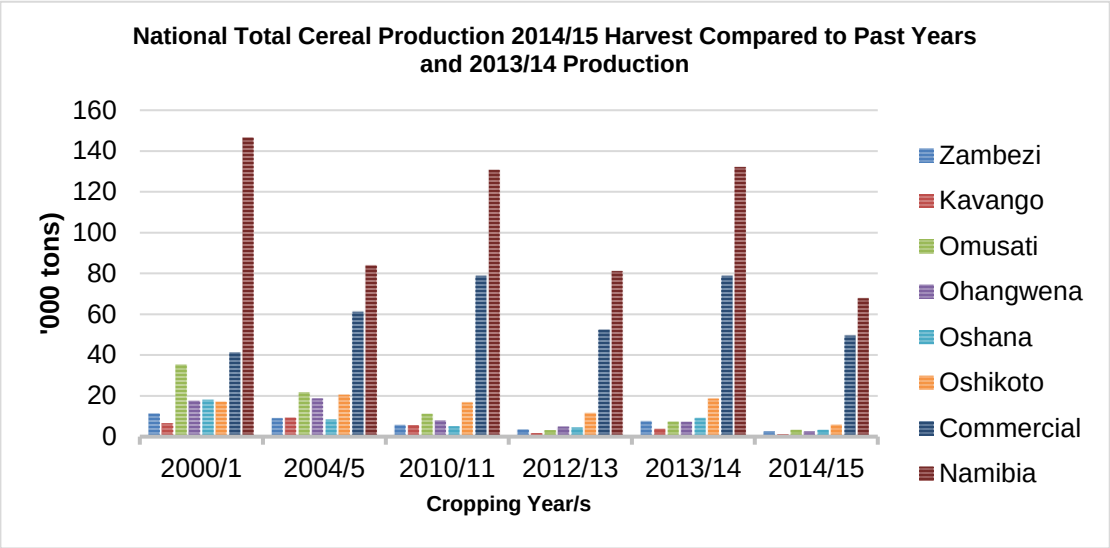


Figure 4. National Total and Regional Cereal Production 2014/15

16. As indicated in the above table, the effects of drought on agricultural output had a major bearing on the economy and to a large extent the episodes are attributed to a changing climate. Agricultural production was most severely and negatively affected, which again adversely impacted Namibian food security and the income level of farmers as well. Climate change is expected to have caused the drought so far and for the next decades the impact will continue certainly in this country. A need assessment report expresses worries when it says that "(these) constraints will have to be considered and addressed, when designing relevant programmes, in order to build back better the agriculture sector" (Kamupingene et al., 2016, p.3). Climate change will continue to pose one of the biggest threats to agriculture due to warmer temperatures, reduced precipitation, frequent flash floods in some areas, loss of essential insects, and soil degradation. After the 2014/2015-rainfall season when a severe drought hit the country, the cereal harvest massively reduced to the level of 46% below average (NEWFIU, 2015). The number of food insecure people in rural Namibia was 729 thousand in 2016, which is 57% of total rural population, and 596 thousand people had to receive interim food assistance between May

17. Given Namibia's already high levels of food insecurity and associated vulnerabilities, the projected climate change impacts, such as increased drought, higher temperatures and increasingly unpredictable rainfall, will have a significant and detrimental impact on food security, vulnerability, poverty and economic development. In particular, current low levels of agricultural productivity will be exacerbated, leading to decreased rural household incomes, increased malnutrition, and associated health impacts. Thus climate variability and change are creating poverty traps for many rural households, constantly thwarting efforts to build up assets and increase income. Secondary impacts will be on educational levels and future human resource development, and possible increased social conflict over water and land. Despite Namibia's commitment to gender equality, climate change threatens to increase levels of inequality between women and men, thus further hampering the country's human resource development. Moreover, climate change is acting to increase the burden of all three kinds of situations requiring relief efforts: sudden disasters, slow-onset disasters, and complex emergencies.

Table 2: GDP by Activity Constant 2010 Prices – Annual Percentage Change

Industry	2011	2012	2013	2014	2015

Agriculture and forestry	1.0	8.1	-19.3	11.1	-10.3
Livestock farming	6.1	6.0	-25.5	13.9	-14.0
Crop farming and forestry	-6.3	11.6	-9.6	7.6	-5.2
Mining and quarrying	-5.4	25.1	2.6	-6.2	-0.3
Primary industries	-3.6	14.4	-3.2	-1.8	-3.2
Secondary industries	7.1	-1.8	8.6	9.5	8.3
Tertiary industries	7.4	3.9	7.2	7.7	5.4
All industries at basic prices	5.1	4.8	5.1	6.3	4.5
GDP at market prices	**5.3**	**8.9**	**11.6**	**8.4**	**13.7**

Source: NSA (2015a: p.22).

18. The proposed project will seek to reduce the impacts and risks from combined effects of natural variability and increasing climate induced heats, temperatures and change on crop and livestock production cycles in the Kunene region. Particularly this project will address two aspects (i) impacts of increasing temperature and higher water evaporation on crop production and (ii) bush encroachment on land productivity (and livestock production) that are exacerbated by a combination of increasing atmospheric carbon dioxide and unsustainable land management (human) practices due to inability and limited capacity to adapt past arid production practices to drastic and complex changes. These will be achieved by introducing climate resilient agricultural practices in the three Green Schemes that are currently not active in the region. Adaptation options for climate resilient agriculture – that is agriculture that sustainably increases productivity, resilience (adaptation) through capacitating regional and local level institutions such as the regional council and farmers associations, enhances achievement of national food security and development goals – focuses on practices to build resilience to existing risks and to changes in an evolving climatic and socioeconomic context. In this context, climate resilient agriculture adaptations include a variety of potential actions: implementation of early warning system for climate forecasting, promoting efficient water storage infrastructure and use in times of droughts, improving water access conditions (sustainable use of groundwater resources, increasing water storage capacities, rainwater harvesting, etc.), agricultural development (reduce irrigation through efficiency systems, crop rotation practices, short cycle crops, use of drought-resistant seeds, measures to reduce soil erosion, rangeland and restoration of degraded lands, livestock management (small scale fodder production units, improved fodder management or grazing management, promotion of small stock farming practices), biodiversity conservation (e.g. agroforestry to improve microclimatic conditions for livestock and to mitigate surface water runoff) or health interventions.

19. Responding to Climate Change: Namibia's Constitutional provision (adopted in 1990) is highest in the policy sphere, as it safeguards the maintenance of essential ecological systems and services for a healthy environment for current and future generations. Furthermore, the Namibian people aspire to have similar living standards to those enjoyed by industrialised nations without compromising the ecosystem bases by the year 2030. However, developmental challenges coupled with climate risks and impacts, hamper Namibia's natural abilities. This has prompted government to take necessary actions and create conducive environments to mitigate and adapt to climate change.

20. Hence, the National Policy on Climate Change (NPCC) for Namibia was formulated in a participatory manner, from local-national with civic, public and private sector partners - approved by Cabinet in 2011 - to better translate government's political will and commitment to tackle climate change. Furthermore, a National Climate Change Strategy and Action Plan (NCCSAP) for the period 2013-2020 is in place and paves the way for some strategic adaptation measures to be adopted. Together with National Communications, BUR, and INDC, they enable national policy responses while contributing to the international obligations and commitments to meet decisions of the UNFCCC Conference of the Parties (COP). To date, Namibia has developed and piloted some of the most promising climate adaptation agricultural practices. However, most of these remain at much lower scale – that is, adaptation measures, for example identifying vulnerabilities and taking small steps to moderate the negative impacts - and to some extent to deal with immediate shocks without much success on long-term resilient building.

21. The Country Climate Smart Agriculture (CSA) Programme was implemented with the aim to build resilience of agricultural farming systems for enhanced food and nutrition security in Namibia. Among the top national priority programmes, that is, the Namibia CSA Programme, Namibia Comprehensive Conservation Agriculture Programme (NCCAP), Namibia Green Scheme (GS), SCORE, Partnership for Integrated Sustainable Land Management (that is, CPP-ISLM, CPP-CCA/SPA, CCBA, CPP-CALLC), elements of planning for adaptation have been developed to direct,

particularly, subsistence farmers towards better agriculture. These are crucial baseline investment initiatives for the Project. Further, adoption of sound grazing management plans, early warning systems, and concrete adaptation actions such as water harvesting, storage and distribution holds potential for significantly increased profits and returns on investment for rangeland users. As time goes on, with increased adoption and improved skills and understanding among range users, national income amounting to some N$5 billion (US $610 million at September 2014 prices) might be added to the national economy from the rangeland use sector. Such benefits can go a long way towards mitigating and reversing the anticipated negative effects of climate change and increasing drought incidence in Namibia.

22. Project Location: The project will be implemented in the Kunene region, one of the fourteen geo-political regions in Namibia and with a total landmass of 115,260 km², also one of the largest. Specifically, the project will have learning sites in Sesfontein, Fransfontein, and Warmquelle areas. The 2011 Namibia Population and Housing Census results show that, Kunene had a population of 86,856 people of which 43,253 were women and 43,603 were men. The population is growing at an annual rate of 2.3 percent. About 74 percent of the population lives in rural areas, while about 26 percent of the population lives in urban areas. The population consists of 18,495 households, with an average household size of 4.2 persons. Many people living in the Kunene Region depend on livestock farming, conservancy related tourism and the use of biodiversity products for their daily livelihoods. All these natural resource-based livelihoods are vulnerable to climate change to some extent. Smallholder farmers have already observed the ongoing natural variability and that there are changes in rainfall patterns, and the last few years have been marked by extreme weather conditions. Apart from temperature changes, rainfall changes have been noticed in the Kunene region as an increased length of the dry season, a decrease in the number of consecutive wet days, and overall, a later start and earlier cessation of the rainy season. The observed changes in temperature extremes, the length of the dry season and rainfall intensity not only underscore that the climate in Namibia is tending to become drier, but also that climate variability remains a significant phenomenon of long-term climate trends. Annual rainfall increases from west to east from less than 50mm to 415mm and is very sporadic. Over the last three decades, Kunene region has experienced several droughts as well as erratically distributed rains. Other problems include cultivation of marginal land without fallowing and inappropriate land management, lack of investment in land improvement, inadequate animal feed, depletion of underground water and the natural limitations of the rugged topography. These problems are major setbacks to improvement of the agricultural resource base in the Kunene. Furthermore, inadequacy of agricultural extension services has contributed to the low level of development of agriculture in this Kunene.

23. Kunene's population is characterized by widespread poverty. A shocking value of 52% of households was rated as poor (41%) and extremely poor (11%) during the 2011 census. The region has a dualistic economy: there are the well-developed formal businesses and commercial farming sectors (tourism enterprises and accommodation, supermarkets, shops, bakeries, butcheries) and the underdeveloped and extremely poorly resourced subsistence agriculture sector. The results show that in Kunene region, agriculture, forestry and fishing was the main industry (53.2%) of the work force. Hunger is already endemic among rural and poor populations in Kunene, worsened during prolonged drought conditions. Most depend on livestock-based products such as milk and meat in their diets, and especially the Ovahimba people who live locally, are extremely vulnerable to impacts of climate change. With few opportunities for employment and cash income, they already have difficulty purchasing food. Overall there is limited economic opportunity for local people in the Kunene Region, other than from tourism. Under the climate change scenario, food insecurity will worsen and the number of people at risk from hunger will also increase. As demonstrated in the vegetation map of the Kunene Region, conditions for agriculture are difficult and expected to become even more challenging because of climate change. As a result, there is a great need to be more flexible and strategic about practicing more adaptive livestock management because of fluctuations in grazing availability.

24. Improving rangeland and ecosystem management practices of smallholder farmers under conditions of climate change in Sesfontein, Fransfontein, and Warmquelle areas of the Republic of Namibia will build on productive interventions undertaken in the Kunene Region to work with small-scale and subsistence farmers (mostly women) who depend entirely upon the climate for rain-fed agricultural production of staple grains for income and household food security. Farmers in these areas typically utilise mal-adaptive farming practices ill-suited to climate change adaptation, which results in low yields, hunger, poverty and increasing vulnerability to climate change impacts, such as the alternating threats of droughts and floods.

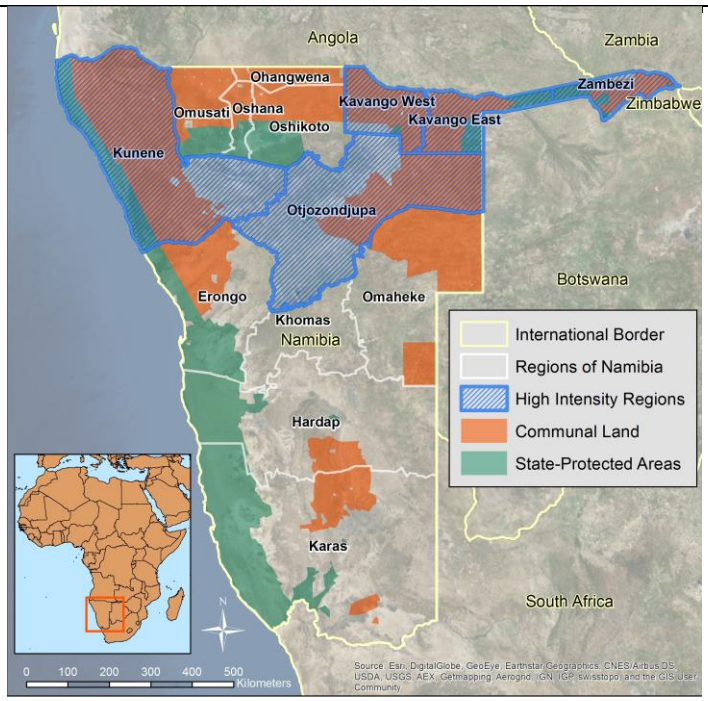


Figure 5: Namibian Map depicting the Kunene Region in the north

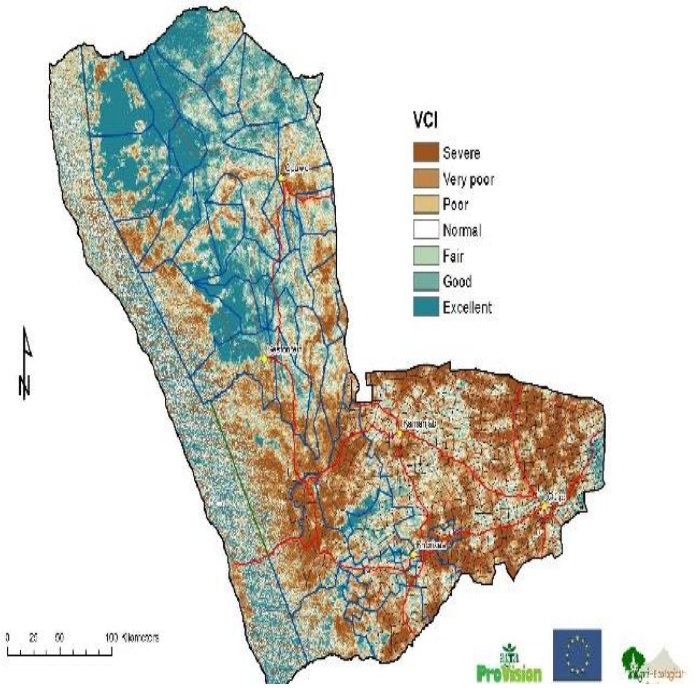


Figure 6: Kunene Region vegitation condition Map

25. The region was carefully selected following a number of elaborate participatory processes that commenced with the national development-led process resulting into the Policy on Climate Change in 2011; the Strategy and Action Plan in 2014 as well as the V&A assessments finalized in 2015. The locations and sites were selected on the basis of observed temperature extremes, frequency of drought episodes, and the impacts of climatic parameters on food and livelihood security. An additional criterion for selection was the potential to access ground and surface water resources – vital prerequisites for small irrigation (thus Sesfontein, Fransfontein, and Warmquelle). The direct beneficiaries of the project are smallholder farmers in rain-fed areas and vulnerable group whose access to arable land is severely threatened by soil erosion and land degradation. Special emphasis is placed on women and female-headed households within this vulnerable group.

26. Rationale of the Proposed Project: Over the past decades farmers have already started to react to increasingly difficult and highly variable climatic conditions. The traditionally mobile Ovahimba cattle farmers have practised migratory range management in the arid Kunene environment for hundreds of years. The initiative to turn wildlife conservation into an asset and a community-empowerment strategy can be seen as a natural move towards climate change resilience. The departure from a largely livestock-based livelihoods system to that of diversifying into managing wildlife as a common resource in conservancies, crop production, climate resilient breeds, small livestock, producing biodiversity products such as *Commiphora* raisins, and engaging in nature-based tourism, are proactive land-use changes that respond to climate challenges. Such strategies of diversification and sustainable land and resource use could be the starting point for further adaptation planning by communities. Concrete climate change interventions in the Kunene region should include shifts in livestock and rangeland policy, encouraging the adoption of more resilient systems, which are less rigid and more able to change and adapt. Recent research and analysis in Namibia (Humavindu et al. 2013) has found that adoption of good rangeland management practices, involving flexible herding, economies of scale and commercially viable utilisation of invasive bush, can significantly enhance private profitability and the economic contribution of livestock production.

27. Therefore the Government acknowledge that there is a need through the project, to break down existing barriers to adaptation, including: 1) lack of information at all levels, awareness, required skill and its management of climate risks, 2) weakness at local and national capacities to develop climate change strategies and adaptation measures and its dissemination and replication mechanisms, 3) poverty and the lack of resources to invest in soil and water preserving assets at the community and household levels that can improve livelihood of the community, 4) lack of alternatives to short-term and sustainable coping strategies, and, 5) institutional fragmentation which resulted to poor coherent strategy and projects that are complementary. As a result the “Namibian Climate Change Strategy and Action Plan” developed as

a tool to guide to tackle to the above-mentioned challenges. Thus this project shows clearly that the proposed project components and activities are consistent with the government national and sectoral strategies related to climate change for adaptation, mitigation and cross-cutting issues for adaptation and mitigation.

C.2. Project / Programme Objective against Baseline

28. Namibia's dependency on rain-fed agriculture increases the vulnerability of farming systems and predisposes rural households to food insecurity and poverty. The spiral cycle of natural variability and long-term change has already resulted in very poor productivity overall, with below average rainfall affecting crop yields, livestock and grazing conditions, and household food security - all of which breed poverty. While the Namibia has sustained a steady economic growth, and has been classified as a middle-income country (MIC) in a relatively short timeframe (25 years), it still faces development challenges. These include persistent high poverty levels (impacting 28% of the population); social-income disparities (10% of the population owns 70% of the total nation's wealth), environmental degradation (estimated to likely costing GDP losses of about 6% by 2020) and high unemployment rates (27%). This is worsened by the on-going crop failures and decreasing outputs due to reduced rainfall and increasing temperatures and extreme drought conditions (fig 4), which are attributable to a greater degree to climate variability and change vis anthropogenic factors. The country's reduction in crop yields will have devastating impacts on food security at both national and household levels, especially for vulnerable small-scale farmers. Thus smallholder farmers are likely to suffer more direct economic losses (in agricultural production) due to the combined effects of long-term change and variability, manifested in severe drought conditions, hot temperatures, erratic rainfall, and water scarcity. Under the current conditions, the agriculture sector in Namibia needs to grow by 4% a year to meet the food requirements for vulnerable farmers and the expanding population (see Namibia's Vulnerability and Adaptation Assessment). In light of these challenges, Namibia needs to adapt agricultural practices and increase the resilience of livelihoods to be able to withstand the challenges posed by climate change to sustain development and growth for the country.

29. Baseline Scenarios for Adaptation: The central focus of the project design is on achieving transformative results and draws upon lessons learned and extensive stakeholder consultations. To this end, a review of previous relevant national programmes revealed that all were sector-led with limited linkages with other programmes or sectors. This was found to compromise their sustainability. As livelihoods are a function of various elements – such as infrastructure, technology, and capacity – being present at the same time, the lack of one will affect the sustainability of the whole project. To address this shortcoming, this project has mapped all the components that will need to interact in specific locations to bring about a paradigm shift in how communities make and enact decisions about their livelihoods. The project champions a transformative approach with gender responsive interventions that specifically target women. It also ensures sustainability and potential replication by valuing women's pivotal role and building their capacity to become leaders and change agents, in their own rights. Several climate change adaptation projects have been implemented previously in Namibia, such as the African Adaptation Project, Climate Change Adaptation, and the Country Pilot Partnership Programme for Integrated Sustainable Land Management. The findings from the final evaluation demonstrate that there was a high degree by farmers to adapt to technologies that promotes resilient in the agricultural sector. This latter prompted the Government of Namibia to develop policy tools such as the Namibia Comprehensive Conservation Agriculture Programme and the Namibia Rangeland Management Policy Strategy to scale up climate change adaptation interventions through government led process.

30. Kunene Region Baseline: The Kunene Region was selected because it is one of the regions that are food-insecure, have a long history of poverty, and suffer from high variability in rainfall and incidences of drought. Typically, residents depend on agriculture, mixed farming and agro-pastoral practices with the main economic activities being livestock production, and to some extent tourism. Cattle, goats, and sheep are the main livestock species reared. Even the farmers categorized as "middle and better-off" can barely produce more than their annual food needs, while the less fortunate (categorized as "poor/very poor") are dependent on the provision of local labour and/or are engaged in firewood sales to meet their food needs. Women are particularly vulnerable and overburdened when food, water and energy are in short supply. Recent severe drought caused massive loss of animals including cattle in Kunene, which has substantially increased the risk of even further deterioration of livelihood and vulnerability of the people. Forty-five percent of total loss of cattle occurred in Kunene, losing 64,472 heads during October 2015 and December 2016. Kunene region also belongs to the area in which most of the land show severely high vegetation condition index (VCI) which indicates the moisture stress level. At the same time, Kunene region has been selected where it has been established that there is underground spring water availability, signifying the potential for irrigation development that could be used to significantly improve water access. In addition, good access to markets has been confirmed in the selected areas within the region. All these factors imply high production and adaptation potential.

31. Livelihoods Baseline: Frequent drought, loss of livestock and pastures, water shortage (for humans and livestock), malnutrition (due to lack of food), and migration of households and wild animals. Deforestation, poor environmental conservation practices, conflict over grazing land and water points, and overgrazing are the major factors aggravating the impacts of drought. The climate change impacts on grazing and livestock health, as reported in several studies, are expected to be severe and includes reductions in forage quality and palatability could occur because of increasing carbon to nitrogen ratios, particularly on Kunene rangelands where low nutritional value is already a problem (Tarr 2012). Households in the Kunene region have indicated that the number of livestock has been decreasing over the last decade, mainly due to loss of carrying capacities as a result of rangeland deterioration. Waterborne diseases are the main reported human health problem, followed by diarrhea – both caused by water stagnation, lack of clean water, and malnutrition. This has reduced workforce productivity, particularly for women who carry out traditional healing, caring, and nurturing services for the young, the elderly and those who are ill.

32. Vulnerability Baseline: Approximately 70% of Kunene's households depend on subsistence agriculture. Livestock rearing, a major activity and contributor to GDP comprises cattle as the leading livestock along with sheep and goats. Poultry is still being developed to enable the country to become self-sufficient. Only 45% of smallholder framers in the target areas report to have access to agricultural extension services and the situation has led to backward farming practices (including poor animal husbandry) and poor natural resource protection/rehabilitation practices, soil erosion, and deforestation. The consequent poor productivity has made the communities more dependent on purchased food items, food transfers or food aid. Their situation is exacerbated by very low literacy rates and overall lack of awareness of climate change and its impacts, as well as poor access to vital support and facilities, especially for women who are the most vulnerable. The vulnerability of livelihoods is, therefore, mainly attributed to small farm size, low income, not using drought-resilient breeds, use of low-yield livestock varieties, limited access to weather information, lack of access to value chains, limited access to credit facilities, low overall literacy rate, fragile ecosystems, and weak institutions at local level to prepare climate-responsive plans. Climate change further exacerbates residents' already-vulnerable livelihoods and manifests its effects through increased school dropout rates among girls, animal disease, crop failure, livestock loss, malnutrition, human disease, loss of biodiversity, and increased over-exploitation of natural resources such as forest and pasture.

33. Rural women in Namibia are constrained by unequal access to productive resources and services and inadequate or inaccessible infrastructure. The limitations rural women face in turn impose huge social, economic, and environmental costs on society as a whole and rural development in particular in Namibia, as a result agricultural productivity lags behind. Thus from this project women and vulnerable communities will benefit from higher access and participation; as the main target of this project will be to women and vulnerable communities. Economic empowerment is important as a means of guaranteeing families' secure livelihoods and overall well-being. Women and vulnerable communities' economic empowerment can have a positive impact and interconnected with, their social and political empowerment, through increased respect, status, and self-confidence and increased decision-making power in households, communities, and institutions. While there is a strong "business case" for addressing women and vulnerable communities' economic empowerment

34. Barriers to Adaptation: Per the IPCC (2001), the main factors that determine a community's adaptive capacity include economic wealth, loss of ecosystem services, information, skills, available infrastructure, inclusive institutions, and gender equity. This underlines the fact that for a community to become adaptive, not one but all characteristics stipulated should be met. This has strongly informed the design of this GCF project. For the project under consideration, all such adaptive characteristics are critically lacking and, therefore, have been identified as the main barriers for communities to become adaptive. Analysis of the baseline studies and secondary data from the Disaster Risk Management Unit within the Office of the Prime Minister reveal that, in the selected area, the average school attendance is 35.9%. About 41% of the population had completed their primary education and about 14% had completed their secondary education before leaving school. Similarly, only 2.7% of the population had completed tertiary education. This has been the result of climate change that has brought about repeated drought, which has critically impaired school attendance, among other debilitating effects. Low levels of literacy and education have significantly handicapped these communities in adapting to climate change. Gender inequality appears to be high in Kunene region compared to the rest of the country and further increases as the education level attained. This is critical as most young girls discontinue their education even before completing first grade.

35. Given the necessary access to information, skills and technology, access to finance might help male and female farmers and entire communities better adapt to the challenges confronting them. However, even with strong social cooperation to facilitate access to finance credit –including grants, debt, as well as in kind and cash facilities – the credit obtained (generally by men) is used mainly to purchase food and pay for healthcare, rather than for productive purposes. This further reflects the lack of capacity of individuals and families to use any available resources to work their way out of the drought and poverty cycle. Otherwise necessary resources – such as access to modern irrigation schemes, potable water, weather information, market systems, and institutions providing improved breeds –are generally scarce in the Kunene. In short, the livelihoods in the selected areas exhibit the unavailability of all characteristics suggested by the IPCC as being essential if a community is to become climate-adaptive. This underlies the need to map the barriers within the participating communities in a comprehensive manner, and to rollout strategic and holistic actions that are gender responsive and can help communities overcome their acutely vulnerable situations and adapt to climate change.

36. Adaptation Objective: The project aims to reduce the vulnerability of smallholder farmers under climate change conditions by safeguarding natural capital that generate ecosystem services to sustain agricultural production systems. More specifically, this project is intended to:

a) Promote investments in integrated drought early warning systems and improve the existing ones;
b) Strengthen and improve the capacity of key stakeholders in drought risks management at regional, national and local levels; and
c) Support communities to undertake innovative adaptation actions that reinforce their resilience to drought

Component 1: Promote cost effective investments in early warning systems that determine climate-driven vulnerabilities and effective adaptation options

37. Baseline: Extensive data gaps exist with respect to assessing impacts, and developing adaptation strategies. There is consensus that Namibian capacity to analyse climate change trends is poorly coordinated and underfunded. Early warning systems have only been implemented in the broadest terms, and this is not yet felt to be sufficiently accurate. The Meteorological Services does not yet have an adequate database, observations are not always systematically conducted and information received from the regions is not computerized, and may be unreliable. All of these factors mean that climate risk information, both in terms of climate observations and projections, is scanty and poorly understood by policy makers, smallholder farmers, and civil society. An in-depth assessment of the potential changes in climate from national to local/community scale has yet to be undertaken. Although Namibia receive timely and understandable warnings of impending hazards, they also a lack of communication systems and arrangements for ensuring that early warnings are acted on successfully. Elements of an effective early warning system are missing. In order to address climate change, Namibia needs to promote education and awareness for mainstreaming early warning systems into climate change concerns at different levels in society; and, stated broadly, to develop capacities to climate proof development at the national and sectoral level. A previous initiative to develop a national early warning system has not been taken to fruition because information stopped at academic level only and did not focus at community level. It is evident that communities in Namibia lack systematic advance warning of climate risks such as drought, hampering their ability to build adaptive capacity.

38. Adaptation alternative: The proposed alternative is to improve climate information and the sharing of this in a coordinated fashion, to enhance adaptation responses. The relevant activities under the adaptation alternative include developing enhanced projections for the region, raising awareness of the expected climate change impacts in the area, and developing a community-based early warning system to allow for a more proactive approach to reducing risks to livelihoods and health associated with drought and other. Projections will be used to integrate improved climate risk information into project activities, for example by reviewing and fine-tuning studies for groundwater recharge, natural springs, and floodwater harvesting structures to ensure that they constitute appropriate and sustainable mechanisms in light of expected changes; and to guide technology choice for climate-sensitive options to improve agricultural and livestock production. Capacity for meteorological observations will be developed through iterative training, equipment and institutional development at extension level to ensure sustainability of the enhanced meteorological observation and analysis capacity.

39. Early Warning system is envisaged by the project to alert the population under threat of an imminent disaster in not yet sufficient lead-time to undertake protective actions. Furthermore, the system requires the following components to work together: (1) Hazard monitoring and detection; (2) Issuance of warning signals; (3) Multi-level dissemination of risk

and warning signals; and (4) Preparedness at the local level to interpret warning signals and take timely and appropriate actions. In this chain, the effective and efficient dissemination of hazard information of the local level is especially critical, and a common weakness in many early warning systems. If this part fails, innumerable human and material losses can follow.

Component 2: Reducing climate driven risks in target ecosystem and land through supporting innovative drought adaptation actions

40. Baseline: Water is the most limiting factor to improved agricultural production in the Kunene region, which is an extreme drought-prone area, where exceptionally variable seasonal and inter-annual rainfall and productivity is often insufficient to support existing livestock and human populations. In addition, land degradation and soil erosion are considered to be serious environmental problems. These constraints are projected to increase as the impacts of climate change become more severe. While Namibia has a great deal of experience dealing with land degradation, desertification, water conservation technologies and infrastructure, this has not always been accompanied by sufficient ongoing investment into these approaches. As a result, optimal use has not always been harnessed from the extensive efforts that have indeed been made. While the Namibian Government is aware of these climate-related problems, and has plans for improving groundwater recharge, small-scale infrastructure, and floodwater harvesting, it lacks resources and budget to put in place the necessary interventions. Notwithstanding the inherent limitations in water availability and associated low levels of production in these areas, optimal use of the available water resources is not being made. Several commercial farmers on Namibia's freehold lands have started implementing rangeland management models, which has led to increased grass production, higher species diversity and abundant soil surface cover. This is yet to be implemented on communal areas at a rate that would be considered effective. There are ten farmers associations (FA) in the Kunene region, namely Grootberg FA, Braunfels FA, Sori-Soris FA, Fransfontein FA, Kainatseb FA, Morewag FA, Bergsig FA, Sesfontein FA, and Khowareb FA. These associations have been in existence for the past 25 years with the aim to promote sustainable livestock production and access to markets and better prices for their farmers. However, most associations are yet to diversify their agricultural activities, as they are primarily livestock focused. Moreover, there is a need to build their capacities to mainstream climate change and disaster risk management in their operations.

41. Adaptation alternative: The project will promote the efficient use of groundwater recharge by developing small-scale infrastructure for water storage facilities and distribution systems thereby implement climate-proofed mechanisms that will support at least a combined 500 hectares of drip irrigation systems in the Kunene region. Rehabilitate at least 80,000 hectares of rangeland through supporting appropriate ecosystem management plans at local levels that will improve grazing areas. The proposed rangeland conservation activities will improve runoff management and infiltration on both ecosystem and arable areas. The project will therefore construct microphysical structures such as hillside soil and stone bunds, and terraces to reduce the intensity of runoff, which is projected to increase in terms of the expected climate change impacts. These structures will also facilitate the proposed afforestation and enclosure (permanent and temporary) development. To reduce land degradation of farmlands, improve soil fertility and soil structure and enhance in situ moisture conservation, activities such as farmland terraces will be undertaken.

42. The project will also support backyard drip irrigation systems and small scale fodder farming to be established, will contribute to building adaptive capacity and enhancing resilience of households. It is planned that the project will support the rehabilitation of two green schemes facilities at Sesfontein (11 hectares) and Warmquelle (7 hectares), which will be used as a learning center for climate resilient agricultural production to local smallholder farmers. While a community based green scheme at Fransfontein (40 hectares) will be established to transfer lessons learned from the other facilities. A range of climate-resilient agricultural technologies and methods will be developed and transferred to farmers e.g. drought- and disease-resistant varieties, integrated crop-livestock production systems agroforestry, and enhanced rangeland management. Training will be implemented to increase the distribution and use of improved fuel-efficient traditional stoves. Additionally, seasonal forecasts will be used in a farmer-led collaborative action learning process that integrates scientific and traditional/local knowledge to enhance adaptive capacity and climate- proof production systems. The green scheme sites will be used as learning facilities for smallholder farmers in the Kunene region and upon acquiring such skills they will be supported to implement backyard irrigation systems and indigenous gardens to improve their coping mechanisms. Capacity building for the nine farmers association in the Kunene region will be undertaken by mainstreaming disaster risk management and climate change adaptation in their operations. In addition, they will also be

involved in implementing rangeland management practices that promotes ecosystem integrity and agricultural productivity.

Component 3: Knowledge and information support mechanisms

43. Baseline: While policy makers and planners are becoming more aware of the importance of an enhanced response to climate change, Namibia has not yet developed local level strategies and information hubs for climate change policy adaptation. An important gap highlighted during the project formulation phase was the lack of awareness of the significance of climate change impacts. While at local level, people are aware of the increasing climatic variability that is negatively affecting their livelihoods, they lack an understanding of the entire chain of climate change, ecosystem integrity, and agricultural production. Despite progress, there remains a lack of understanding of the sectoral and development implications of climate change effects in line ministries. This is an underlying cause of the current situation, in which climate change in general and adaptation in particular is not mainstreamed into development planning processes. Currently there is little collated information available on climate-related risks in the agricultural sector, either at the regional or site level. Management and dissemination of information about climate change-related risks is not carried out systematically, which further also militates against an effective response. Moreover, any lessons learned are not being captured in a fashion that facilitates broader sharing, or that casts light on ways to address an aggravation of the food security situation as a result of climate change. Thus opportunities for cross-fertilisation between projects and regions, and to influence policy, are being lost.

44. Adaptation alternative: The project will have a strong learning and knowledge management component to capture and disseminate lessons learned and to influence policy. The knowledge management system will be institutionalized within the regional administration systems of the Kunene area and the Ministry of Agriculture, Water and Forestry, which will in itself provide lessons to guide the other regions. This will include lessons learned on the additional burden faced by women and children with respect to climate change. Lessons will be shared through various appropriate regional and global networks, such as the Direct Climate Action Platform (DCAP) of the Green Climate Fund to facilitate learning across countries. The knowledge management system will include a feedback loop to policy makers at national level, to facilitate uptake of lessons learned into policy.

C.3. Project / Programme Description

45. The project has earmarked outcomes that would be unfolding during the short, medium, and long term of the project period. To this end, outcomes expected in the short term include improved potable water supply services and increased capacities of women to manage water technologies, improved health, increased school enrolment, improved participation of women in decision making and in productive activities and increased agricultural productivity, which will directly increase the adaptive capacity of the local community. Water diversion and water retention structures will protect fields from excess water and retain water for dry spells. In the medium term, livelihoods of the community will be diversified; degraded rangelands will be rehabilitated and afforested; women will be involved in natural resource management and equally represented in decision making positions; and increased climate related information will be relayed to the communities, which will lead to an improved ecosystem and informed decision making. Trees will prevent surface runoff, soil erosion and increase water recharge. Participating households may also learn techniques and skills, while working on the project activities, which they can then use on their own fields after the project. Women's unique indigenous knowledge of the ecosystem and plant attributes will be tapped into when afforestation schemes and fuel wood replacements are considered.

46. In the long term, food security in the targeted project area will be achieved; the natural habitat restored, and climate compatible planning and implementation will be mainstreamed at the systemic and ground level in project intervention areas with full and equal participation of women at all levels. The project outcomes have been designed to be super imposed over one another over time so they build on the community gradually and effectively de-couple their dependence on rain-fed subsistence agriculture that is highly vulnerable to climate change. At the local level, the project will increase the resilient capacity of the community with mitigation co-benefits for both men and women, which when replicated at scale will be an effective instrument to contribute to the national ambition of the Namibia Development Plan 5 and Vision 2030. All the above will be achieved through implementation of three components:

Component 1: Promote cost effective investments in early warning systems that determine climate-driven vulnerabilities and effective adaptation options

47. Knowledge-based economy and technology driven nation' was included in NDP5. In order to effectively address adaptation and mitigation, the public needs to be aware and have access to accurate, up-to-date information in order for them to effectively participate in climate change issues. An integrated region-specific early warning system for climate change risk assessments and adaptation planning will be established to support stakeholders' capacity development on adaptation and identification of cost effective adaptation techniques (Output 1.2). An analysis of climate-driven vulnerabilities and cost effective adaptation options for target ecosystems (will be undertaken using data on trends in key climate variables, in environmental indicators and in relevant socio-economic indicators, future trends in population, urbanization, poverty, education, human health, energy needs, and water consumption, etc. that would also impact land-use change and hence ecosystem stresses. Climate monitoring information and forecasts, generated under Output 1.1, will help to identify climate change impacts on biodiversity and also to facilitate resilience enhancing approaches. This will help to predict the likely responses of ecosystems to climate change and help develop adaptation options to increase their resilience. A platform for data providers will be established to help synchronize and organize.

Output 1.1: Early warning systems established for observation, data collection and information management and dissemination

48. In order to overcome the identified barrier of lack of specific information on climate change risks, improved climate risk information will be generated and climate monitoring enhanced and used to raise awareness of and enhance farmer's preparedness to climate change hazards. User-friendly knowledge dissemination products developed and used to raise awareness at different levels on the specific climate change risks facing the project sites, through the awareness raising campaign detailed under output 3.1.

Specific Activities under this component includes:

Activity 1.1.1 Enter into agreement with the Namibia Meteorological Services to support data collection and distribution to decision-makers and communities at risk and to monitor the evolution of detected climate risks.

Activity 1.1.2: Develop an early warning system through stakeholder's participatory approach for the Kunene Region.

Action 1.1.3: Undertake training to ten Farmers Associations to integrate early warning systems within the Kunene Regional Council and support community preparedness and ability to respond to climate change related disasters.

Activity 1.1.4: Training of the Kunene Regional Council, extension services and 10 participating CBOs on early warning system and integration.

Activity 1.1.5: Design and implement a multi-media communication method for early warning system.

Activity 1.1.6: Produce awareness materials on early warning system to enhance prevention, preparedness, response and mitigation strategies through education programs using participative solutions.

Activity 1.1.7: Collate weather data and link to Namibia Meteorogical Services to support production planning.

Activity 1.1.8: Design and implement a disaster risk reduction and community-based early warning system

Output 1.2: Established institutional linkages for preparedness and response plan for disaster risk reduction

49. The enhanced capacity to collect and monitor information and the ability to make informed decisions through the measures under the above output together with the mapped hazards are also the informational basis for the disaster preparedness and response system that is to be implemented under the proposed project. The activities under this output will encompass the development of a disaster preparedness and response plan for the Kunene region. The region is affected by prolonged droughts and currently has inadequate disaster management arrangements. An additional activity focuses on providing training to regional bodies that builds capacity to adopt and implement the disaster preparedness and response plans. In terms of measures for drought preparedness, the establishment of emergency water storage facilities for small-scale farmers will be targeted through the activities. The facilitation of communication among stakeholders and the establishment of coordination mechanisms such as regional drought management committees will strengthen the institutional coordination on the preparedness and response to drought-related disaster. At the same time, the establishment of this network among regional leaders will be the basis for the further replication of the disaster preparedness and response plan. Furthermore, there is a need to support farmers associations in the region to facilitate implementation of response mechanisms and on the ground preparedness plans for disaster risk reduction actions.

Specific Activities under this component includes:

Activity 1.2.1: Integrate disaster risk management into the existing regional structures such as the Kunene Regional Development Committee under the Ministry of Rural and Urban Development, and local farmers associations.

Activity 1.2.2: Undertake a detailed analysis of climate-driven vulnerabilities and cost effective adaptation options for target ecosystems

Activity 1.2.3: Develop and implement operating guidelines for mainstreaming disaster risk management at regional and local levels (10 farmers associations)

Activity 1.2.4: Initiate 6 community-based planning exercises to design the community-based disaster risk reduction and management plans, using a sustainable livelihoods approach to update and expand existing livelihoods maps and to clarify priority climate and related risks.

Activity 1.2.5: Train 10 farmers associations and 200 community members (farmers association, communal conservancies, water point committees, etc.) in data and establish community-based response plans for disaster risk reduction.

Activity 1.2.6: Train local, national and regional institutions (including meteorological sectors) on risk management and have a clear comprehension of their role and coordination mechanisms.

Activity 1.2.7: Provide training to 82 extension services to enable them respond to livestock management and early warnings of bad weather.

Component 2. Reducing climate driven risks in target ecosystem and land through supporting innovative drought adaptation actions

50. Innovative adaptation actions will be identified, improved where necessary and supported for adoption. In addition, scale up strategy will be developed and replicated. The innovative aspects will include modified rainwater harvesting structures, water storage systems, and distribution e.g. simplified water jars, rock water harvesting techniques; water ponds, mini irrigation systems to support crops during water stress, restoration of degraded water catchments, underground water sources e.g. construction of boreholes and water wells, road side water harvesting; installation of solar pumps, alternative energy sources (solar, energy saving stoves, etc.), improved water and soil conservation techniques; communal grazing management plan and restoration on 80,000 hectares; growing fast growing pasture varieties and storage as silage or hay for longer term use by domestic animals, improved livestock breeds of animals (cattle and goats), and drought resistant crops. These actions contributes significantly to Namibian Green Scheme Policy designed to maximise irrigation opportunities along the maize triangle (Grootfontein, Tsumeb and Otavi), as well as in the north central and north eastern regions using the Kunene, Kavango and Zambezi rivers. It also serves to promote agro-projects in the South using Orange River and dams such as Naute and Hardap. While ecosystem management activities are grossly aligned with the Namibia Rangeland Management Policy that serve as a framework and guideline towards implementing strategies that will enable rangeland users and managers to manage their rangelands in such a way that productivity and biodiversity are restored and maintained. This is out of the realization that conditions and productivity of rangelands have direct impact on the livelihoods of the large majority of Namibians and that rangeland resource forms the true and vital backbone of the agricultural production.

Output 2.1: Concrete and innovative drought adaptation actions supported for smallholder farmers

51. This output is designed to minimize the adverse impacts of climate-induced rainfall variability on the production and productivity of smallholder agriculture through the development and promotion of women friendly small-scale irrigation and water-retaining structures. In addition, this output intends to improve access to potable water supply, which is intended to alleviate the burden on women and girls. A combination of interventions is envisaged, including development of small-scale irrigation, upgrading traditional irrigation schemes, introduction of drought resilient livestock breed scheme, emergency fodder plans, construction of diversion weirs, and development of pipe-supported irrigation schemes in the target area. This output will focus on women who play a key role in water supply for household use with the intention to increase the uptake and usage of concrete and innovative drought adaptation actions.

Specific Activities under this component includes:

Activity 2.1.1: Strengthen the capacity of 10 farmers associations in Kunene to integrate disaster and drought management into planning and implementation;

Activity 2.1.2: Develop drought and disaster risk management framework that protect ecosystem degradation from climate impacts for ten farmers associations;

Activity 2.1.3: Establish small-scale fodder plantations and storage facilities at the Fransfontein, Sesfontein and Warmquelle. These will be small plantations that will be developed on 20 hectares of land that is currently unproductive because of persisted land degradation and bush encroachment;

Activity 2.1.4: Introduce a scheme to support drought resilient livestock breeds, with focus on small livestock farming practices

Activity 2.1.5: Construct storage facility of fodder and promote its adoption across sites;

Activity 2.1.6: Strengthen local institutions on drought management through training – target institutions includes farmers associations, capacity building and awareness raising for local institutions;

Activity 2.1.7: Integrate drought and disaster management practices into local level institutions;

Activity 2.1.8: Implement a grass-reseeding programme that maintains perennial grass and soil cover;

Activity 2.1.9: Support the rehabilitation of 20 hectares of land for Green Scheme facilities at Fransfontein and Warmquelle;

Activity 2.1.10 Establish a 15 hectare community based small scale irrigation scheme at Sesfontein and a cooperative;

Activity 2.1.11: Support 1000 smallholder farmers with implements for backyard drip irrigation system;

Activity 2.1.12: Implement a fuel-efficient programme for the Kunene region to benefit over 6,000 households;

Activity 2.1.13: Procure and distribute certified seeds of drought tolerant and orphaned/high value crops for 2,000 farmers

Activity 2.1.14: Procure, distribute and set up drip irrigation kits to 1,000 selected groups of farmers in Kunene region to support agricultural productivity.

Activity 2.1.15: Procure and distribute drought resistant seeds to 7,000 farmers to support agricultural productivity.

Activity 2.1.16: Rehabilitation of at least 35 livestock watering points such as water trough to ensure adequate water supply for the livestock during the dry period

Output 2.2: Climate resilient ecosystem management practices that supports agricultural production

52. The project will promote conservation and sustainable use of ecosystems, such as rangeland and grazing management practices, in order to strengthen the resilience of humans and the natural environment as well as to mitigate the impacts of climate change. About 80,000 hectares of land will be targeted through appropriate rangeland ecology and management practices that focus on the biological and physical processes of ecosystems and application of this knowledge to sustainable use of rangelands. These activities incorporate plant ecology, plant-animal interactions, and management of landscapes. These will contribute to livelihood improvement and environment sustainability.

Specific Activities under this component includes:

Activity 2.2.1: Support the implementation of rangeland and grazing management to 10 farmers associations.

Activity 2.2.2: Restore priority degraded areas covering 80,000 hectares in Kunene region through appropriate rangeland management practices that includes rotational grazing, ecosystem recovery, and grass seeding;

Activity 2.2.3: Implement backyard biodiversity agroforestry and 'home gardens' of herbs, shrubs and trees to 300 farmers.

Activity 2.2.4: Support the development of integrated natural resource management plan ate regional level as well as implementation of such plans to enhance ecosystem goods and services.

Activity 2.2.5: Establish green zones for pasture production through purchase of grass seeds among selected farmer groups especially on exhausted rangeland fields covering 200 heaters.

Component 3. Knowledge and information support mechanisms

53. This component will aim to strengthen the capacities of different actors and stakeholders in order to shift "from climate risk to resilience". As a result, capacity building is provided in the risk assessment, risk reduction, vulnerability assessment, and adaptation technologies for the project. The component will also focus on strengthening the technical,

organizational and environmental actors regarding: (i) environmental skills; (ii) joint management of water resources and conflict management, and (vi) environmental monitoring. Lessons learned from current national projects that are in progress will be capitalized and a system to disseminate the knowledge acquired in the Green Climate Fund project will be set up at the local level. To disseminate the knowledge, good agricultural practices that are adopted will be disseminated through training / awareness sessions; of spots broadcast in local radio and documentary films. Information on the project will be produced and disseminated among the government authorities, technical and financial partners and beneficiaries. Moreover, a local database will be created for the collection and processing, preservation and dissemination of data sheets, educational tools and other training materials for their replication.

Output 3.1 Strengthened capacities of smallholder farmers to mainstream climate change responses and effective support to adaptation efforts

54. Knowledge materials developed and disseminated. This will be achieved through generating knowledge on drought risk management and sharing it through electronic and print media. The project will document, compile and package good practices on all project interventions. The project will establish communication strategies and processes to enhance the ability of governments, societies and institutions to access and use climate prediction and information. Methods of presenting data (maps, tables, statistics, narrative), mode (SMS, internet, face-to-face, TV, radio, newspaper, periodicals, newsletters), and terminology used (shared definitions, vernacular expressions, employing stakeholder verbiage), and timeliness of delivery (matched to decision cycles, up-to-date, available at time of day and in mode most advantageous to user) are all critical to successful use of climate information for effective decision-making.

Specific Activities under this component includes:

Activity 3.1.1: Develop appropriate knowledge products, including photo stories, presentations and briefing notes, for use in policy advocacy activities
Activity 3.1.2: Conduct annual policy advocacy activities throughout the life of the project, including at relevant national and regional events.
Activity 3.1.3: Undertake media coverage events for project activities and to disseminate knowledge products, targeting outlets that are relevant for policy makers.
Activity 3.1.4: Organize annual local level forums to review and integrate climate risk reduction strategies and measures.
Activity 3.1.5: Produce lessons learned through research
Activity 3.1.6: Supporting better research – such as on-farm links to new or improved crops including drought-tolerant varieties, and other conducive and adaptive technologies

C.4. Background Information on Project / Programme Sponsor (Executing Entity)

55. The Ministry of Agriculture, Water and Forestry (MAWF) in Namibia is the sponsor of the proposed project. MAWF has recently (2014) re-engineered its entire operations to align with the need to grow agriculture to 4% per annum. With this re-engineering, the directorates that will be the host are DAPEES and DARD, responsible for extension services, research, training and development for the agriculture sector. MAWF has managed a number of development funding interventions, that ranged from Euro 4 million to USD 6 million, notably the Rural Poverty Reduction Programme funded by the EU, the UNDP-supported and GEF co-funded projects on piloting climate change adaptation practices, Country Pilot Partnership Programme for integrated sustainable land management, NAFOLA, and various programme and project initiatives co-financed by the FAO of the UN, SADC, NEPAD, and others. The capacities of the MAWF is proven and tested and where lacking, MAWF has previously allowed -and will continue to- the private sector to lead to enable technical and specialist agro-bus advisory services, from a range of critical stakeholders and partners to participate. Existing agencies, such as the AMTA, AgriBusDev and civil society (farmer's unions, co-operatives and associations) will be engaged to ensure scaling up and sustainability of results beyond the project life cycle. For this project, the involvement of AgriBusDev, AgriBank and AMTA is in line with the long-term objectives of the GCF, that is, to develop (and strengthen) long-term transformative institutions that can develop (incubate) national market supply and value chains. To ensure sustainability upfront, the involvement and direct engagement with the national agencies at national and local level is considered throughout the entire lifecycle.

56. The Environmental Investment Fund of Namibia (EIF) is a fully accredited entity of the GCF thus has met the fiduciary responsibilities for managing funds. In addition to the domestic-funded programmes, the EIF has managed micro-scale funding on behalf of the UNDP, UNFCCC, and served as a crucial financial management institution for the eleventh Conference of Parties of the UNCCD (that is, COP 11), a large-scale resource envelope that was deemed very successful,

by international standards for same large-scale undertakings. The EIF offers flexibility that a government department will not have; a trait that makes it an attractive national partner to receive and disburse international climate change financing to promote sustainable development. It is a sustainable parastatal entity, as the funding for its running expenses and operations is allocated through the national treasury; hence, its existence is independent of the GCF finances.

56. Since Namibia's independence in 1990, institutional structural support through CBOs efforts has shown considerable benefits for supporting locally based establishments. In this regard, MAWF and EIF will avoid duplicating planned and/or on-going activities by focussing on the adaptation of incremental needs as identified in the feasibility study. In this regard, opportunities for co-operation and synergies with other on-going national programmes addressing food security and poverty eradication are already being pursued. This includes the National and Kunene Regional CCA, which are elaborated in the multi-stakeholder engagement and participation plan. EIF will enter into contractual agreements with the executing entity and will also manage them accordingly. EIF has model performance agreement templates for its grantees and service providers, which will be adopted for this programme with appropriate modifications to be made for compliance with standards set by the GCF Board. Such performance agreements are respected legal documents and are routinely used by EIF.

C.5. Market Overview (if applicable)

57. Agriculture is Namibia's second largest primary industry after mining. Approximately 48% of Namibia's rural households directly depend on subsistence agriculture. Over the past five years, the performance of the agriculture sector has been weaker than projected due to drought, erratic weather patterns (and rainfall), weak links to available markets and high competition with imported products. In the period 2007-12, total agricultural production declined on average by 2.3% annually. Agricultural production per capita declined on average by 3.7% annually between 2007 and 2012, compared to an increase of 2.4% over the preceding six years. Namibia continues to import more than 50% of cereals and horticultural products consumed locally.

58. Maize and pearl millet are the dominant staple crops produced in Namibia. Other crops produced in Namibia are yellow maize, sorghum, groundnuts, sunflower, beans, cotton and lucerne. Fruits and vegetables, such as, citrus fruits, dates, grapes, cabbages, tomatoes, butternuts, onions and potatoes are also produced. Despite being one of the driest countries in the world, it is estimated that potentially about 50 000 ha of undeveloped land in Namibia could be irrigated from the perennial rivers that border the country and from underground water resources. Developing this land would increase horticulture production significantly. Cattle, goats, sheep and pigs contribute over 75% of overall agricultural output value. Cereals such as maize, flour maize and millet all experienced a decline in production since 2008, particularly in 2013 due to severe drought conditions.

59. Crop production in Namibia is highly susceptible to external factors such as floods, droughts and damage caused by wildlife. Arable land in Namibia accounts for only about 1% of the total land area. Climatic and soil conditions are less favourable for agricultural production. White maize is grown in Namibia under both rain-fed and irrigation conditions with irrigation farms yielding more than double the rain-fed yield on average. Local production of white maize accounted for 43% of net domestic consumption in FY2012/13. In a summer rainfall country such as Namibia, wheat can only be planted under irrigation during the winter months after the maize harvest. Wheat imports increased from 51 014 tonnes in 2008 to 87 726 tonnes in 2012, while local production remained broadly similar over the period under review. Local production of wheat accounted for 15% of total domestic consumption in FY2012/13. Production of *mahangu* in 2012-13 was half that of the previous year (in conditions of drought and heat-wave), while imports more than doubled.

60. It is estimated that more than 200,000 head of cattle was marketed in 2015 south of the veterinary cordon fence. 35% of income of the primary cattle producers South of the Veterinary Cordon Fence (SVCF) was derived from slaughtering at export abattoirs; 17% from slaughtering for local consumption (both formal and informal); 41% from live exports to South Africa, and 7% from export from SVCF to North of the Veterinary Cordon fence (NVCF). With a slaughter capacity of ±200,000 heads per year, it is clear that the live export market to Republic of South Africa and the local slaughter market must be nurtured, and not negatively affected by non-tariff barriers and export restrictions. The following table indicates an estimated value for the producer for cattle marketed in 2013.

T**able 3: Estimated value of cattle marketed in 2013**

	Heads	Value/head (N$)	Total Value (N$)	% Contribution
Export Abattoirs	125,000	5,605	700,580,569	35%
Local Consumption	60,000	5,605	336,278,673	17%
Live Export	200,000	4,025	805,040,535	41%
Export from SVCF to NVCF	30,000	4,500	235,000,000	7%
TOTAL			1,976,899,77	100%

61. Livestock plays an important role in the Namibian economy and the life of its people. Namibia is one of the few countries in the world where animal stocks exceed population numbers. Low annual rainfall combined with high variability limit much of agricultural activities to livestock farming. Seven of the top ten agricultural commodities produced in Namibia are animal products (meat (game, cattle, sheep), milk, eggs, wool), and the livestock sector accounts for approximately three-quarters of the value of agricultural production. The Namibian livestock sector is closely integrated into global and regional markets. Foreign sales in 2013 amounted to N$2. Billion, representing around 7 percent of Namibia's total merchandise exports, with beef and cattle accounting for almost 70 percent of the sector's exports.

62. South Africa is Namibia's principal trade partner. Over 95% of livestock and 78% of meat exports were sent to South Africa in 2013, according to Namibian customs data. Exports to Europe are large and growing, and Namibia succeeded in building a large share of key European markets. Rapid GDP growth in Angola has been driving increased demand for both cattle and beef. The government and private sector have been working to expand exports to the D.R.C., which is also enjoying brisk economic growth, but sales have been erratic.

C.6. Regulation, Taxation and Insurance (if applicable)

63. The Environmental Investment Fund of Namibia is exempted from tax. This project will enjoy full tax exemption on all goods and services except for the salaries of the project implementation unit. For purposes of this project, all capital equipment will be tax exempt, as is the case for all externally sourced grants. However, project personnel from Namibia will pay normal income taxes to meet social security requirements. All capital goods such as cars, equipment will be insured against theft, fire damage and accidents. Project staff will also receive medical insurance benefits, as required under the Labor Act. All these conditions have applied to large projects that Namibia has run in the recent past through the MET. The scale of these ranged from small (for example INC/SNC US$200,000) to medium (for example CPP/US$7,000,000).

64. The Green Scheme facilities will be managed by AgriBusDev, a national body specializing on farm management structures and 'irrigation development in communal rural areas', being directly linked to participation of smallholders farmers. AgriBusDev will however require a water extraction permit from the Department of Water Affairs under the Ministry of Agriculture, Water and Forestry for its operations. This is inline with the Water Resource Management Act No. 11 of 2013 that provide for the management, protection, development, use, and conservation of water resources; to provide for the regulation and monitoring of water services and to provide for incidental matters.

C.7. Institutional / Implementation Arrangements

65. The project will be implemented by EIF, while the Ministry of Agriculture, Water and Forestry is the executing entity. The executing entity is carefully considered very crucial, notably to the scaling up countrywide and sustainability of the project results beyond the five-year period. Within the EIF, the proposed arrangements are aimed at ensuring two essentials, a good project execution and the sustainability of results beyond project closure. A number of key stakeholders have been selected purposefully to enable development of adaptive capacities within these institutions, so that they provide these services long when the project ends. The institutional adaptive capacities are part of a deliberate in-built exit strategy.

66. The administration of the project will be carried out by a **Project Implementation Unit (PIU)** under the overall guidance of the MAWF and EIF through the Project Steering Committee. The PIU will be led by the National Project Manager, who will be responsible for ensuring that the project is fully managed and implemented in accordance with its objective. Thus the Project Manager has the authority to run the project on a day-to-day basis on behalf of the EE (that is, MAWF) within the constraints laid down by the Project Steering Committee. The Project Manager's prime responsibility is to ensure that the project produces the results, deliver outputs and provide reporting and monitoring as specified in the project document, to the required standard of quality and within the specified constraints of time and cost. More specifically, the role of the PIU will be to:

- Ensure the overall project management, reporting and monitoring in accordance with the EIF rules as per the Funded Activity Agreement (FAA) on managing funded projects funded by the GCF;
- Ensure executing entities administer the Environmental and Social Safeguards and Gender Assessments on project implementation;
- Ensure the organisation of the meetings of the Project Steering Committee, stakeholders and media outreach; and implement decision of the Project Steering Committee;
- Facilitate communication, reporting and networking among key stakeholders, project beneficiaries, executing entities and the Project Steering Committee;
- Supervise project staff;
- Support the implementation of the M-SEPP[1] to ensure that all key and relevant stakeholders are engaged and involved with the project.
- Negotiate contracting terms and performance measures in accordance with the EIF rules as pertaining to the Funded Activity Agreement (FAA).

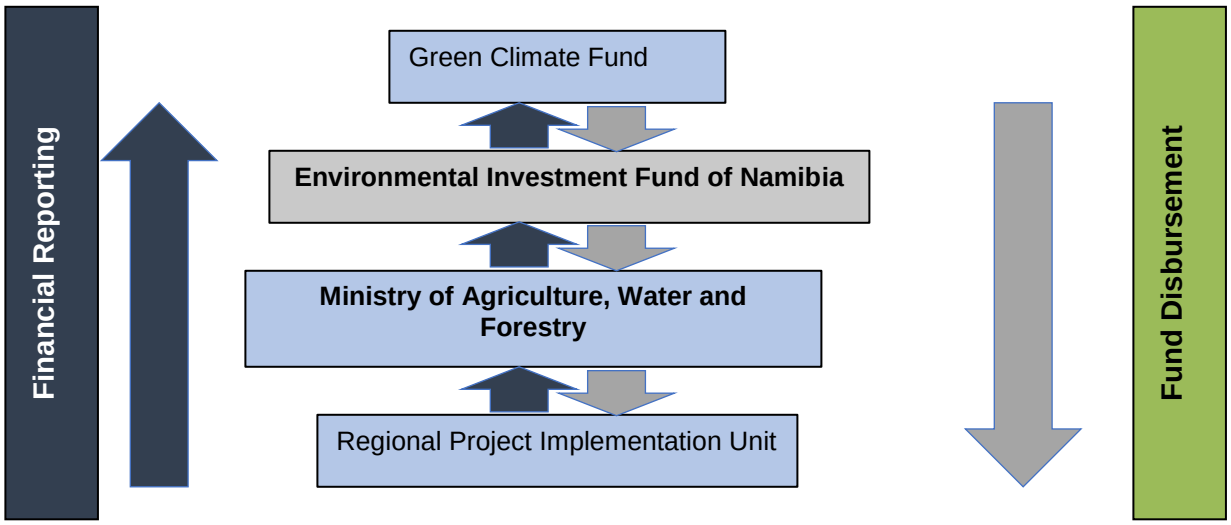
67. The PIU will be based at the MAWF (EE-Executing Entity) and not at the EIF (AE-Accredited Entity). The EIF will only have AE (NIE) roles and responsibilities of oversight, M&E, and risk management. Thereby, the EIF will be ensuring that the GCF rules are followed in accordance with the AE accreditation conditions, and not compromised. The MAWF proposes to have an internal project unit (that is, PIU), which will ensure that there is overall good project management throughout the life cycle of the project. Specific risks and low delivery will be averted by ensuring stricter adherence to the existing requirements, such as, a) there are legal agreements, which are enforceable as government by Namibian contract law, which the MAWF and EIF will use with all contractors; (b) counterparty risks are a core element of all legal agreements in Namibia; and (c) should the need really arise, the Namibian justice system, to which all the executing entities as well as the accredited entity, i.e. EIF is obligated, is robust with adequate recourse mechanisms all the way to the Supreme Courts.

68. The **PIU** will be mainly comprised of professionals with three dedicated staff members remunerated through the project. One of which will be fully dedicated to the regional activities for localised and decentralised project support as part of project implementation on the ground. To improve efficiency and effectiveness, the current PIU of the CRAVE Project will be responsible to oversee implementation of this project with additional support staff to strengthen the unit while the CRAVE Project Steering Committee will oversee the implementation of the project with expanded membership

[1] Multi Stakeholder Engagement Participation Plan

to it. The following positions are envisaged: Project Manager (1); Assistant Project Accountant[2] (1); Regional Technical Officer (1). The PIU will be located within the Ministry of Agriculture, Water and Forestry premises and reporting to the EE and the AE Environmental Investment Fund of Namibia, who will also provide backstopping support to the project. The Project Manager will handle the day-to-day administration of the project. Furthermore, the Environmental Investment Fund of Namibia will provide back-stopping support to the PIU by establishing an internal project implementation support team that consists of the Chief Executive Officer, Director of Finance, Director of Operations, Monitoring and Evaluation Officer and the Communication Officer. The support team will also play an advisory role and oversight role to the PIU and monitor implementation of project milestones.

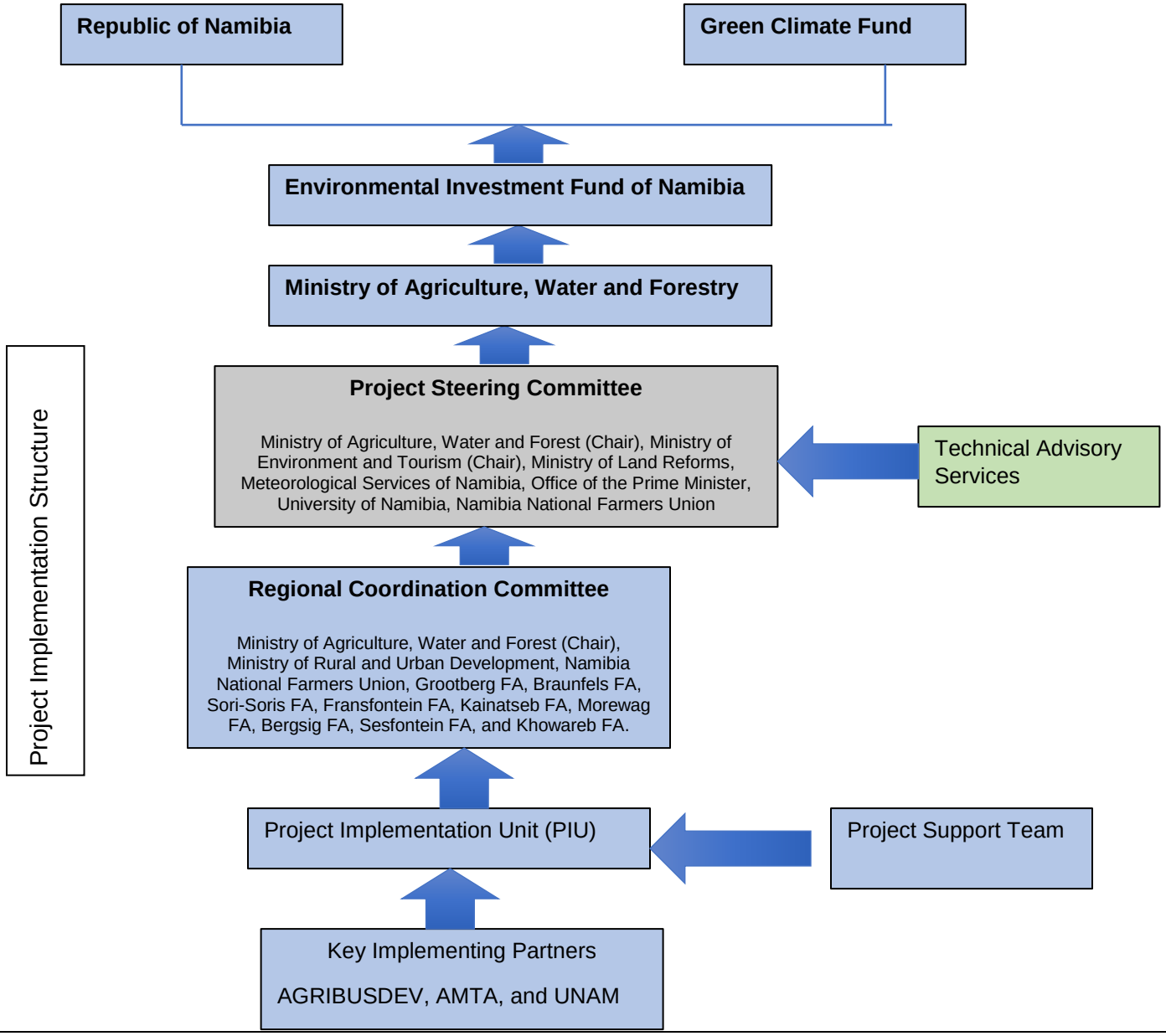
69. Disbursement of funds will be from the Green Climate Fund to the Environmental Investment Fund of Namibia, which will be responsible for budgeting, procurement, and expenditure. The project funds will be deposited in designated account managed by the Environmental Investment Fund. It is envisaged that expenses will be paid directly by the Accredited Entity to the service suppliers in order to enhance accountability and oversight. Government has indicated its wishes to escalate efficient and effective project management and delivery, thus has agreed for the EIF (as an accredited entity of the GCF) within the approval of the EIF Board, to procure certain services by means of creditor's accounts. The executing entity will only receive funding in a form of an advance for covering operational costs such as petrol and office suppliers while contractual obligations and recurring expenditures will be paid directly to the service providers. The financial reporting follows the same channel in a reverse direction. The utilization of funds will be monitored through an internal control framework, which depicts the funds transfer and reporting channels; it shows that funds received by a project account are then channeled through the government structure - national, regional and local- and reported back through the same channels. The channel for fund disbursement and Financial Reporting arrangement highlighted in the following diagram.



70. Inline with the Accreditation Masters Agreement that sets forth, amongst others, the general terms and conditions applicable between the Parties in connection with a Funded Activity, the Environmental Investment Fund of Namibia will enter into Funded Activity Agreement with the Grean Climate Fund. Furthermore the The Accredited Entity will carry out the project through signing a Subsidiary Agreement with the Executing Entity and it will incorporate elements such as due diligence, efficiency and in conformity with the appropriate financial, economic, social, environmental and administrative practicesof the Green Climate Fund, and shall provide promptly as needed, the funds, facilities, services and other resources required for the Project.

[2] The Project Financial Accountant would have qualifications and experiences such as a four-year Honours Degree and requisite experience of a minimum five years. S/he will be responsible for overall financial management, records, and reporting of the project financial transactions. S/he will also ensure that annual audits for project expenditures are carried out in accordance with international auditing standards.

71. Inline with the provisions of the Environmental Investment Fund of Namibia Act No 13 of 2001, the Board of Directors of the Environmental Investment Fund of Namibia in consultation with the Executing Entity will appoint members of the Project Steering Committee for a period of five years. This will be a sub-Committee of the Board. Furthermore, the management of the project will be governed following a two-tier approach. This means that there will be an oversight body at national level and one at regional level. There will be a Project Steering Committee based in Windhoek, and a Regional Coordination Committee at regional level with the purpose of coordinating activities with key stakeholders at both regional and local level. The Project Steering Committee will assume the responsibilities of strategic planning with the purpose of coordinating and harmonising the planning and implementation of activities, identifying areas of cooperation and synergy through inter-agency information sharing. The Steering Committee will provide advice, ensure delivery of the project outputs, and the achievement of project outcomes. The committee will meet four times annually with the proviso to hold emergency meetings if needs arise. The Steering Committee will cosnsist of Ministry of Agriculture, Water and Forest (Chair), Ministry of Environment and Tourism (Chair), Ministry of Land Reforms, Meteorological Services of Namibia, Office of the Prime Minister, University of Namibia, and the Namibia National Farmers Union.



C.8. TIMETABLE OF PROJECT/PROGRAMME IMPLEMENTATION

Please provide a project/programme implementation timetable in section I (Annexes). The table below is for illustrative purposes. If the table format below is used, please refer to the activities as numbered in Section H. In the case of outputs, please mark when all the required activities will be completed.

TASK	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
Output 1.1: Early warning systems established for observation, data collection and information management and dissemination																				
Activity 1.1.1. Enter into agreement with the Namibia Meteorological Services to support data collection and distribution to decision-makers and communities at risk and to monitor the evolution of detected climate risks.	x	x																		
Activity 1.1.2: Develop an early warning system through stakeholder's participatory approach for the Kunene Region.			x	x																
Activity 1.1.3: Undertake training to ten Farmers Associations to integrate early warning systems within the Kunene Regional Council and support community preparedness and ability to respond to climate change related disasters			x	x	x	x	x		x	x			x	x	x		x	x		
Activity 1.1.4: Training of the Kunene Regional Council, extension services and participating CBOs on early warning system and integration		x	x	x	x	x			x	x			x	x			x	x		
Activity 1.1.5: Design and implement a disaster risk reduction and community-based early warning system		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Activity 1.1.6. Produce awareness materials on early warning system to enhance prevention, preparedness, response and mitigation strategies through education programs using participative solutions.		x	x	x	x	x														
Activity 1.1.7: Collate weather data and link to Namibia Meteorogical Services to support production planning.		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Activity 1.1.8: Design and implement a disaster risk reduction and community-based early warning system		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Output 1.2: Established institutional linkages for preparedness and response plan for disaster risk reduction																				
Activity 1.2.1: Integrate disaster risk management into the existing regional structures such as the Kunene Regional Development Committee under the Ministry of Rural and Urban Development, and local farmers associations.		x	x	x	x	x			x	x			x	x			x	x		
Activity 1.2.2: Undertake a detailed analysis of climate-driven vulnerabilities and cost effective adaptation options for target ecosystems		x	x																	
Activity 1.2.3: Develop and implement operating guidelines for mainstreaming disaster risk management at regional and local levels (10 farmers associations)			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Activity 1.2.4: Initiate 6 community-based planning exercises to design the community-based disaster risk reduction and management plans				x	x				x	x			x	x			x	x		

Activity 1.2.5: Train 10 farmers associations and 200 community members (farmers association, communal conservancies, water point committees, etc.) in data and establish community-based response plans for disaster risk reduction			x	x	x	x			x	x	x		x	x	x		x	x		
Activity 1.2.6: Train local, national and regional institutions (including meteorological sectors) on risk management				x			x	x			x	x	x	x		x	x			
Activity 1.2.7: Provide training to 82 extension services to enable them respond to livestock management and early warnings of bad weather.			x	x	x	x			x	x			x	x			x	x		
Output 2.1 Concrete and innovative drought adaptation actions supported for smallholder farmers																				
Activity 2.1.1: Strengthen the capacity of 10 farmers associations in Kunene to integrate disaster and drought management into planning and implementation;			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Activity 2.1.2: Develop drought and disaster risk management framework that protect ecosystem degradation from climate impacts for ten farmers associations				x	x	x				x	x	x	x	x			x	x		
Activity 2.1.3: Establish small-scale fodder plantations and storage facilities at the Fransfontein, Sesfontein and Warmquelle			x	x	x	x	x		x	x	x	x	x	x	x	x	x	x		
Activity 2.1.4: Introduce a scheme to support drought resilient livestock breeds, with focus on small livestock farming practices				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Activity 2.1.5: Construct storage facility of fodder and promote its adoption across sites;		x	x	x	x	x	x	x	x	x			x	x			x	x		
Activity 2.1.6: Strengthen local institutions on drought management through training				x	x	x			x	x			x	x			x	x	x	
Activity 2.1.7: Integrate drought and disaster management practices into local level institutions;			x	x	x	x	x	x	x	x			x	x			x	x		
Activity 2.1.8: Implement a grass-reseeding programme that maintains perennial grass and soil cover;				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Activity 2.1.9: Support the rehabilitation of 20 hectares of land for Green Scheme facilities at Fransfontein and Warmquelle;			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Activity 2.1.10 Establish a 15 hectare community based small scale irrigation scheme at Sesfontein and a cooperative;			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Activity 2.1.11: Support 1000 smallholder farmers with implements for backyard drip irrigation system;			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Activity 2.1.12: Implement a fuel-efficient programme for the Kunene region to benefit over 6,000 households;			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Activity 2.1.13: Procure and distribute certified seeds of drought tolerant and orphaned/high value crops for 2,000 farmers			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Activity 2.1.14: Procure, distribute and set up drip irrigation kits to 1,000 selected groups of farmers in Kunene region to support agricultural productivity.			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			

Activity 2.1.15: *Procure and distribute drought resistant seeds to 7,000 farmers to support agricultural productivity.*			x	x	x	x	x	x	x	x	x	x								
Activity 2.1.16: Rehabilitation of at least 35 livestock watering points such as water trough to ensure adequate water supply for the livestock during the dry period				x	x	x	x	x	x	x	x									
Output 2.2: Climate resilient ecosystem management practices that supports agricultural																				
Activity 2.2.1: Support the implementation of rangeland and grazing management to 10 farmers associations.		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Activity 2.2.2: Restore priority degraded areas covering 80,000 hectares in Kunene region			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Activity 2.2.3: Implement backyard biodiversity agroforestry and 'home gardens' of herbs, shrubs and trees to 300 farmers.		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Activity 2.2.4: Support the development of integrated natural resource management plan ate regional level as well as implementation of such plans to enhance ecosystem goods and services.			x	x	x	x	x	x	x	x	x	x								
Activity 2.2.5: Establish green zones for pasture production through purchase of grass seeds among selected farmer groups especially on exhausted rangeland fields covering 200 heaters.				x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Output 3.1: Strengthened capacities of smallholder farmers to mainstream climate change responses and effective support to adaptation efforts																				
Activity 3.1.1: Develop appropriate knowledge products, including photo stories, presentations and briefing notes, for use in policy advocacy activities	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Activity 3.1.2: Conduct annual policy advocacy activities throughout the life of the project, including at relevant national and regional events.					x				x				x				x			
Activity 3.1.3: Undertake media coverage events for project activities and to disseminate knowledge products, targeting outlets that are relevant for policy makers.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Activity 3.1.4: Organize annual local level forums to review and integrate climate risk reduction strategies and measures.			x	x			x	x			x	x			x	x			x	x
Activity 3.1.5: Produce lessons learned through research							x	x			x	x			x	x			x	x
Activity 3.1.6: Supporting better research – such as on-farm links to new or improved crops including drought-tolerant varieties, and other conducive and adaptive technologies							x	x			x	x			x	x			x	x
Project Management (Including Monitoring)																				
1. Inception Meeting and launch of the project	x	x																		
2. Mid-Term evaluation											x	x								

3. Project Steering Committee Meetings	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
4. Progress Reports		x		x		x		x		x		x		x		x		x		x
5. Financial Reports	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
6. Independent Annual Audits					x				x				x				x			x
7. Monitoring and Evaluations	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
8. End of Project Evaluation																				x

D.1. Value Added for GCF Involvement

72. The cumulative value of the GCF project's investments will be the delivery of climate-resilient agriculture benefits through scaling-up implementation of proven practices that will supplement the income and increase the food security of climate-vulnerable rural farmers in in Namibia. By delivering a tangible economic benefit to participants (of which at least 50% should be women) that adopt climate-resilient land management practices, the project will stimulate economic activity in Namibia's rural areas even under conditions of climate change. The project will catalyse increased investments in a climate-resilient natural resource base and facilitate the development of ecosystem management practices that supports sustainable agriculture production. Water harvesting, storage, distribution, ecosystems, rangeland, and agriculture are brought together to address resilience of farmers holistically. An innovative approach is adopted in the design to demonstrate that both ecological process and water needs can be viably met and managed;

73. Without GCF involvement to complement on-going efforts and address gaps, the project cannot take adequate steps to help vulnerable smallholder farmers adapt to climate-related risks and impacts to water security. GCF support enables additional investments that allow scaling up existing efforts for transformative reach and impact across the country. Currently, the Government Republic of Namibia (GRN) spends about N$580 million per year to cater for emergency response and relief efforts. This includes all types of emergency such as drought, flood, fire, diseases (for example, foot-and-mouth), and livestock and crop-related failures. Due to the nature and extent of the climate change risks in this effort, the government is not able to build resilience of farmers without the support of the GCF, as it covers for all other types. The selected region, which is the most vulnerable, will transform the agricultural sector and improve national food security. While the government is doing its utmost best to reduce vulnerabilities by availing domestic resources to education, health and food-for-work programmes in times of emergencies, there are still huge financial gaps.

74. To manage the long-standing aggregate colonial impacts while curbing new threats, such as climate-related risks, Namibia proactively undertook a long-term development agenda, encapsulated in the country's Vision: 2030 that is premised on substance of healthy ecosystems for current and future generations. This is augmented by the five-year medium-term plans (the NDPs), presently at NDP 5. Current patterns of poverty, to a larger extent, mirrors (or reflects) the then unequal distribution of land; which led to uneven allocation of resources, underdevelopment and multiple deprivation; GRN is developing tailor-made policies and strategies to curb the threats at the root source. This is premised on the realisation that the pace and rate of reducing the poverty debt is low despite the country's MIC status. This then needs newer refined and targeted interventions such as the Project. Notwithstanding, some fairly large-scale public investments going to rural development (separate from the EPN), there has been a decline in the proportion of public funding going to rural development in recent years, mostly in the agriculture, environment, tourism and housing services and sectors. Hence, a de facto 'poverty-environmental degradation' situation is kept within the rural population groups.

75. Without GCF support, Namibia will not be able to invest in the resilience of agriculture and integrated water management to guard against the increasing climate risks and impacts worsening the plight of smallholder farmers. By restoring these systems with new and improved features that increase resilience to climate change and investing in the supportive development of technologies, knowledge and institutional capacities, GCF investment will help Namibia strengthen the country's adaptive capabilities in in integrated water management. These systems could well become an international best practice in adaptation for rural smallholder farmers in other countries with similar climate change impacts. GCF support enables additional investments that allow scaling up existing efforts and enabling a paradigm shift to the subsistence economic activity, for transformative reach and impact, across the country agricultural economy. GCF involvement is critical to:

76. Addressing food security, productivity, and income: Address these challenges posed by climate change to the agriculture sector and livelihoods of the Namibian people by improving productivity and incomes. This is a pro-growth, pro-poor development agenda that supports agricultural sustainability and includes better approaches to address climate change impacts and improve resilience and climate change adaptation. As climate change has a negative impact on agricultural production, achieving any given food and nutrition security target will require greater investments in agricultural productivity increased income. Public and private sectors as well as public-private partnerships will play a critical role.

77. Capacity building and value chains: The project is holistic in that it considers input supply, production, agricultural services, marketing, and business support services as necessary building blocks. Under the approach, both public and private sectors are seen as critical actors in the value chain. Knowledge and capacity building are critical strategic priorities to leverage innovations and increase efficiencies to reduce the greenhouse gas emissions intensity from agriculture and food systems. The approach also provides enabling framework for integrating gender and the needs of the youth across the production value chains.

78. Research for Development and Innovations: The role of research is integral part of the project and reoriented to support innovations such as that of water storage facilitate the transition to climate resilient agriculture by farmers. New and emerging agricultural research partnerships will identify technological advances that respond to the impacts of climate change and climate variability. A major thrust will be the uptake of climate change-resilient agricultural practices, promoting improved land management and sustainable crop intensification in order to bolster smallholder farmers' adaptive capacities and support the national vision of achieving food security.

79. To ensure the above at a scale and latitude that is impactful, the role and support of the GCF is critical. However, Namibia is also mindful that without the first steps (through existing baseline investments), much may not be achieved. Hence, Namibia is already geared towards a progressive decoupling of GHG emissions from economic growth to match the low carbon pathway embedded in its policies and strategies. Namibia has taken a conditional commitment (as contained in the INDC) to reduce its emissions while also increasing its sinks. Moreover, the Government of Namibia has invested in mitigation and sequestration of GHGs for more than a decade unconditionally, which serves as legitimate proof of the national commitment to solve global warming. These initiatives are presently contributing to a reduction of some 160 Gg CO_2-eq of its emissions. Thus, adaptation, particularly in the AFOLU sector is of prime importance to the country and is high on government's agenda to guarantee the welfare, food and livelihood security of the people while reducing climate risks and building resilience.

D.2. Exit Strategy

80. The project will be implemented through the regular agricultural extension, disaster risk management, livestock, meteorological services, CBOs, natural resource, and other Government structures involving farmers and farmers' organizations, thus helping to create a sense of ownership at all levels. As technical support to the intended project beneficiaries will be provided through the existing Government extension system, this will further strengthen its capacity in MAWF and improve on technologies. It is expected that the extension system will continue to provide participatory and demand-driven services in line with the new extension strategy beyond the lifespan of the project. The Government of Namibia is committed to further support and strengthen the extension service, which will provide increased opportunities for rolling-out project results. The project will focus on delivering the benefits of extension services to men and women equally. The project will address the biases in the delivery of extension services, and ensure that they are tailored to the different needs of women and men and their gender specific demands. The project will also ensure that the agents are adequately trained to deliver gender-sensitive extension services. This clear alignment with the country's strategies and plans, combined with a focus on capacity building, will ensure that by project completion the targeted areas can sustain efforts in the participating beneficiaries, as well as extend learning to other territories.

81. The proposed project has been designed in close consultation with and involvement of relevant government agencies and technical line Departments, International agencies such as UNDP and GIZ, local NGOs, local and national private sector, Farmer Organisations and women-led CBOs in the target river basins. These consultations and discussions combined with tried and tested models for improved and resilient integrated ecosystem and water management that will be detailed in the feasibility study provide the project with a sound approach and suite of interventions which are implemented with strong community participation and engagement of local officials. Building on this foundation, the project ensures that the investments as well as the results of the interventions are sustained beyond the project period and in the longer-term through the following elements of project design and implementation:

a) **Capacity building for integrated, locally owned solutions:** GCF resources will be invested in building capacities for climate-resilient, integrated solutions for drinking water following a landscape or ecosystem approach based management. The project promotes institutional planning and coordination across government officials and communities to overcome the sectoral and piecemeal approach to water management that had been adopted in the past. Project outputs will also contribute to enhancing organisational capacity of farmers to plan for and implement climate-risk informed local water management solutions, adopt technologies and systems for climate-smart agricultural production and safe drinking water, and integrate climate information and advisories for water management ensuring their financial and human resource viability post-project.

b) **Private sector role and participation:** The active steps for ensuring private sector participation are designed with and through AgriBusDev, AMTA and AgriBank. There are available marketing instruments with provisions for private sector role players, however, farmer's potential and contribution are not yet penetrating these – because they are much more vulnerable. And although government provides agricultural extension services, with the extent and significance of the climate risks the coping is beyond the farmers' capacities, such that they are reaching tipping points. This private sector sustainability element is to ensure that farm produce will penetrate local, regional and national markets.

c) **Co-investments by government institutions and communities:** The project leverages domestic co-financing in the form of government financing that supports baseline funding of the proposed interventions as well as co-mingling of resources to support project implementation.

d) **Skills and extension services:** The extension services were designed to provide basic agricultural services without considering the climate change risks, increasing temperatures and heat and lack of rainfall. Thus, without proper adaptation, extension services basically mean no adaptation needs for smallholder farmers are catered for. Thus the project directly includes MAWF CASO, FBOs, and MAWF ADC as target institutions.

e) **Technology sustainability:** Technologies - to be initially granted freely to vulnerable smallholders farmers - will be used to diversify the productive uses associated with energy access, for example the provision of cool storage facilities to keep produces fresh; the pumping of the water to water the crops using renewable energy technologies and to promote water saving/conservation measures and efficient uses through micro-drip irrigation practices. Thus the RET/SET are crucial for adaptation sustainability; nevertheless they also provide additional mitigation co-benefits. The EIF opted for these that are also in line with the Namibian Government approach for reducing GHG (following a low emission development path as per the INDC). Service providers for SET are readily available in the Namibian market and these can be easily mobilised to penetrate the regional markets for smallholder farmers, whereas others will need to be tested, developed and adjusted to local weather set up. Lastly, the sustainability is secured through the exit strategy that include among others (for example privately run businesses); the EIF soft green loans; the Solar Revolving Fund; and the OGEMP, that is, Off grid Energisation Master Plan that will provide these to farmers who are able at least to afford and cover for their partial running costs at the onset.

f) **Gender equality dimension:** The project mainly builds local capacities in ensuring that gender standards in programming and operation of the project are adhered by the project implementing entities. It seeks to create greater capacity among staffs and stakeholders of local actors to fulfill their responsibilities effectively. To ensure its success and sustainability, the project will provide a series of capacity development and skill trainings on gender within the various project components and budget lines. These interventions will be delivered by locally established training institutions and will have a transformative and long lasting impact on gender equality and women's empowerment by demonstrating the multiple values of gender responsive planning and budgeting.

82. In addition to the above, the capacity building component of the project will ensure that implementing entities have proper policies and implementation guides, and gender integration checklist that they will use during the project's life and after it phases out. To ensure its success and sustainability, the project will provide a series of capacity development and skill trainings on gender within the various project components and budget lines. These interventions will be delivered by locally established training institutions and will have a transformative and long lasting impact on gender equality and women's empowerment by demonstrating the multiple values of gender responsive planning and budgeting.

E.1. Impact Potential

Potential of the project/programme to contribute to the achievement of the Fund's objectives and result areas

E.1.1. Mitigation / adaptation impact potential

83. The project will advance climate-resilient sustainable development of Namibia by ensuring adaptation of its smallholder farmers in the Kunene region to climate risks and impacts. It will contribute to the Fund Level Impacts of Increased resilience of health and wellbeing, and food and water security and increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions. The climate-impact potential derives from the fact that GCF funding will support an integrated approach to strengthening the resilience of smallholder farmers in the Kunene region through three inter-related outputs contributing to climate resilient, ecosystem management, water and agricultural management.

1. The project will directly benefit 33,366 people in the region of whom about half of them are female. The direct beneficiaries are a combination of the direct beneficiaries of the livestock and agriculture investments, drinking water investments, and early warning system and forecasting investments, not counting the overlapping populations. The project will indirectly benefit about 11,034 more people, with agriculture planning and water management advisories in the region. Together, the total beneficiaries account for 57% of the population across the Kunene Region.
2. Of the total direct beneficiary population, 6,000 smallholder farmers (males and females) in the Kunene region will benefit through early warning system, adoption of climate resilient farming practices, and diversified climate resilient livelihood.
3. The project also benefits about 5,000 people who receive year round and safe drinking water (through direct investments in drinking water systems) and whose drinking water supply systems are protected and sustained through water management committees.

E.1.2. Key impact potential indicator

Provide specific numerical values for the indicators below.

GCF core indicators	*Expected tonnes of carbon dioxide equivalent (t CO_2 eq) to be reduced or avoided (Mitigation only)*	*Annual*	
		Lifetime	
	• *Expected total number of direct and indirect beneficiaries, disaggregated by gender (reduced vulnerability or increased resilience);* • *Number of beneficiaries relative to total population, disaggregated by gender (adaptation only)*	*Total*	30,366 direct beneficiaries and 14,034 indirect beneficiaries leading to a total of 44,400 beneficiaries; 50 per cent of which will be women.
		Percentage (%)	57% of the population in the Kunene region
Other relevant indicators	*Examples include:* • *30% increase of the Kunene population expected increase in the number of households with access to water* • *70% of agricultural households have access to climate information for decision-making* • *30% expected strengthening of adaptive capacity and reduced exposure to climate risks* • *Others*		

84. About 80,000 ha of productive rangeland under sustainable management practices to provide ecosystem goods and services for enabling livestock farming. In combination with community-level activities, it is estimated that food and

nutritional security of 10,000 persons will be better provided for, and 5800 households will be more food secure. The improved overall livelihoods in the project area are expected to create and/or revive sustainable activities in the local economy that are resilient to climate change directly or indirectly involving more than 30,000 people in the activity value chains such as vegetable production, livestock, etc. (local communities, traders, machinists, artisans, women and youth groups, product processors, transporters, etc.).

E.2. Paradigm Shift Potential

Degree to which the proposed activity can catalyze impact beyond a one-off project/programme investment

E.2.1. Potential for scaling up and replication (Provide a numerical multiple and supporting rationale)

85. Climate change-induced drought weakens farmers' resilience capacity. The direct risks that drought poses for farming households are food becoming scarce and more expensive, safe drinking water becoming scarce and more expensive, and declining health. All these factors converge into the multiple burdens that weigh down on women who are traditional providers of water, food, energy, and health care in addition to farming alongside male farmers.

86. A paradigm shift in addressing adaptation needs among farmers in the Kunene region lies in developing an integrated, holistic approach to water security that considers the entire system and the inter-connectedness of the rural agricultural practices, irrigation systems, climate resilient breeds, and water supply and management techniques for multiple uses, including drinking water. Rural irrigation systems provide communities with a means of coping with seasonal variability; and, improving their functionality is seen as a means of adaptation to climate change. Increased resilience to droughts requires cost-effective design changes and enhancements to the system to reduce flood damages and improve dry-season storage. Efficient, planned, climate-risk informed water management at field and sub-basin level should complement improved availability and access to water. This includes resilient and ecologically sustainable agricultural practices, which substantially deviate from current field practices. In addition, early warning information, based on meteorological and seasonal forecasts, is a key part of the water management system. It enables preparation and mitigating measures to be enacted ahead of climate-related disasters and variability ensuring the optimal management of water resources.

87. The rationale for the Theory of Change (TOC) is depicted on the next page and demonstrates how the subsistence economic activity (pastoralist communities) will be transformed and enables market penetration in the wider agricultural market share economy. The project is construed through several interdependent components, which are amalgamated to deliver a paradigm shift that benefits largely adaptation through cross-cutting outputs although it also has some resonant mitigation co-benefits. As smallholder farmers are unable to penetrate the market without support, the entire TOC is premised on this, to first meet household food needs then demonstrate viability to support agriculture demands nationally. The TOC (offers, for example adaptive capacity strengthening for climate risk planning, resilience building, integrated ecosystem management, access to water, lessons learned and best practices. It is broken up into different components clustered to better facilitate different parts, which cannot be done separately but in unison.

88. The project interventions will place women at the forefront on climate resilience through targeted early warning information and coping strategies that impact on the natural environment and could enhance yields. Water capturing, storage and distribution for both agriculture production and human consumption will enhance the resilience of smallholder farmers. Participating households and most vulnerable women stakeholders may also learn techniques and skills, while working on the project activities, which they can then use on their own fields after the project. The project also intends to improve livelihoods by allowing farmers to preserve food consumption and/or their asset holdings after a drought and to repay their loans. The project is expected to enable farmers to increase investments, translating into higher yields, assets and incomes in good seasons, and, therefore, improved food security and livelihoods in all seasons.

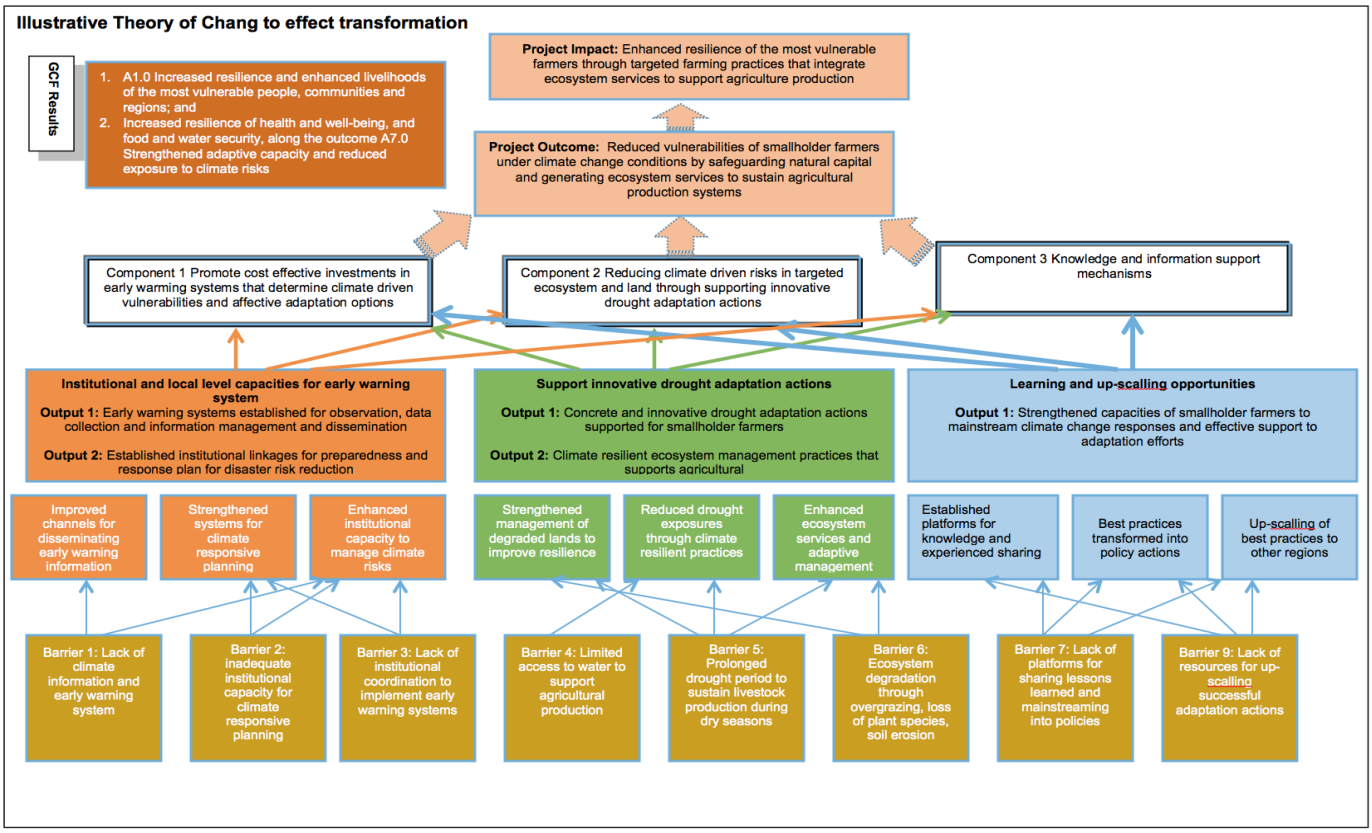


Figure 7: Illustration of the Theory of Change

89. Resilience capacity is often multi-dimensional and encompasses economic (e.g. natural capital, human capital, social capital and financial capital), technological (e.g. improved agricultural/livestock practices, management practices, etc.), environmental (e.g. resources, natural resource management practices), infrastructure-related (e.g. water infrastructure, etc.), safety nets and institutional (e.g. governance/leadership, regulation, etc.), resources, and capabilities. In the process, asset levels and quality can be improved and/or repaired, landscapes can be restored, soils improved, new skills and abilities can be learned, and new markets can be developed or accessed. Taken together, these changes result in improved livelihood security and income per capita. Given that the approach delivers mitigation co-benefits, this will further contribute to achievement of the project and gender responsive strategy. The following critical elements will be the mechanisms that will be valuable to replicate the project at scale:

- Annual local level forums on climate change risk reduction strategies will be organized as part of the parcel of the project to exchange experience amongst neighboring regions such as Omusati, Erongo, and Otjozondjupa, which are not targeted directly by this project. This is for the purpose of upscalling the project activities to other regions and inline with the SAP requirements;
- Policy brief will be prepared for decision makers so to make an informed decision;
- Knowledge management and outreach programs and events will be organized at all levels to capture relevant views and critics from all stakeholders including women groups;
- Research and academia will be involved in synthesizing relevant project results and to generate valuable lessons to inform the design process of other national programs;
- Lessons captured will include, amongst others, how an integrated gender responsive design, implementation, and monitoring modality of this project has influenced its outcome;
- Joint stakeholders monitoring and supervision missions including the non-government actors will be organized to draw lessons and best practices through beneficiary consultations (focus groups of women) and field observations;

- Conducting workshops, seminars, and other lesson learning events on how the lessons learned from this project could be used to inform other national programs;
- Share lessons learned and experience with different climate change forums such as the DCAP and side events at the UNFCCC COPs.

E.2.2. Potential for knowledge and learning

90. Knowledge will be generated throughout the entire project covering all three components. The communication outreach activities, part of the Multi Stakeholder's Engagement Participation Plan (M-SEPP) will target different audiences at different stages of the implementation process. Such targeting enables the sharing of project-related information (progress updates), as well as serve as a feedback loop mechanism for capturing new knowledge through codification of information and data. Project lessons will be shared nationwide through the National Forum to contribute to the global knowledge portals on adaptation, wellbeing and building resilience practices, such as the ALM, DCAP, WeADAPT. The University of Namibia (UNAM) Faculty of Agriculture will host joint annual conferences with the MAWF DARD and EIF to share, document and promote knowledge sharing and promote scientific underpinnings of the project.

E.2.3. Contribution to the creation of an enabling environment

91. The measures proposed are designed in such a manner that they directly link to, and complement, each other through value chains, from extension and engineering services of MAWF, business development, pre and postproduction, and marketing management (AgriBusDev and AMTA). Enhancement of knowledge and research capacities is through UNAM. The public, private, and civil society agencies across the entire timeframe of the project are comprehensively included to ensure that there is a conducive environment enabled to sustain the roles and contributions of different actors. The support to be provided to beneficiaries will create conditions long–term sustainability. For instance, while the farmers will be provided with the training and skills on practices such climate resilience farming, the AMTA and AgriBusDev will support them to develop markets and create business opportunities directly linked to the national agricultural economy.

92. Business opportunities through improved yields and agricultural output will create an enabling environment for entrepreneurial development thereby securing much-needed jobs to enhance resilience of smallholder farmers. If the project is grossly successful, such that the farmers have agricultural surpluses that they can reach self-sufficiency at household level and secure national sufficiency. Smallholder farmers can directly sell to local and regional existing markets, and when unable to sell there the surpluses are to be taken up under AMTA agreement for the National Food Strategic Reserves and Food Banks, which are Government-owned facilities for eradicating poverty and ensuring national food security. The project will establish participatory research and knowledge-sharing systems that will help farmers and rural communities to develop, test, and scale-up locally-adapted farm and land management systems and enterprises. It will also create proper links among research institutions, educators and extension workers, and local communities to share knowledge and innovation from diverse activities and new climate-smart agricultural practices. This will promote sustainability of the project.

93. The proposed project will act as an innovation hub, testing a range of new approaches in climate-resilient agriculture, gender responsive interventions, which together can and will transform the way similar projects are implemented in the future. Previous project interventions focused on plot and farm-scale innovation. The proposed project will be implemented in a more comprehensive and coherent manner. In addition, this project avoids a silo approach and promotes integration among different sectors, including, crop, livestock, forest, and water development in all project sites.

E.2.4. Contribution to regulatory framework and policies

94. The proposed activities to be undertaken are based on a nationally driven agenda that looks at the entire economy. As part of the INDC, AFOLU sector provides an agenda, which Namibia would like to pursue in terms of mitigation. Despite it being a mitigation approach the proposed AFOLU measures will support adaptation actions. Namibia adopted its updated National Agricultural Policy in 2015 thus the contribution of the project will support the implementation of a national policy, with opportunity to inform its review within the first five years of its implementation. The timeframe of the project is well in line with the National Development Plan 5 and the Harambee Prosperity Plan of the Republic of Namibia.

E.3. Sustainable Development Potential

Wider benefits and priorities

E.3.1. Environmental, social and economic co-benefits, including gender-sensitive development impact

95. The project has direct and indirect sustainable development benefits such as: creating household family food security and self-sufficiency, and improved absorptive capacity within the economy (through off-grid, new agricultural practices, foods security), which supports quality livelihoods. The selected region, which is the most vulnerable, will transform the livestock sub-sector and demonstrate value throughout the entire national food security sector thus is financial sound in comparison to public costs. Namibia has committed to total elimination of all forms of poverty including factors contributing to multiple deprivations linked to climate change factors. The high climatic variability and the increase in the frequency of occurrences of extreme climatic events verified in the regions and agro-ecological zones threaten the fulfilment of the objectives of eradicating poverty and achieving sustainable development in Namibia. There are other indirect numerous SD co-benefits to be generated from the implementation of this project. Specifically goals 1, 2,13,14 refers. The project is premised on poverty eradication amongst the most vulnerable society groups and communities in Namibia (SDG1). The project will address food insecurity and hunger resulting from crop failures and erratic rainfall patterns (SDG 2).

96. The project will have a range of interlinked social, environmental and economic benefits, all of which will contribute to increasing community resilience and adaptive capacity to increasing climate variability and projected climate change, as listed in. The project specifically adopts a sustainable agricultural approach to the achievement of its outcomes, and will facilitate the use of methods such as agroforestry and conservation agriculture, which are accepted ecologically sustainable methods to improve agricultural production.

97. Environment: The project will have a range of positive environmental impacts. For example, flood water-capturing activities such as hillside terracing and enclosures will benefit the existing vegetation, due to retained soil moisture, and new regeneration of vegetation will be enhanced. In this way, ecosystem services in the project site will be enhanced, which in turn will have a positive impact on livelihoods – for example, through the increased availability of non-timber forest products (NTFPs) in areas where enclosure is practised. Improve runoff management and infiltration on both rangelands and arable areas will reduce soil erosion and land degradation. Establishment and rehabilitation of the green scheme sites and backdoor tree planting will enhance ecosystem services. Improving the capacity of vulnerable communities and their institutions to detect, plan and respond for the predicted and unpredicted climate change impacts and its adverse effects will be reflected by more effective natural resources management, improved famine/drought warning system, and timely information dissemination for adaptable agricultural practices.

98. Economic: Economic benefits of the project can be broadly categorized into two types: reductions in potential losses of agricultural produces or assets (e.g. livestock or built structure) imposed by additional climate risks; and enhanced/diversified income opportunities especially for the marginalised group that includes women and youth farmers. Within the context of the proposed project, farmers in Namibia have historically faced economic losses primarily in the form of crop losses due to climate anomaly during the cultivation or due to post-harvest losses, livestock

losses (or its productivity) due to prolonged drought spells. Presently, losses from these shocks are unexpected and extremely difficult to buffer for most vulnerable farmers due to multiple factors as described under section C. A suit of interventions proposed in the project will equip them with a range of options that increase their resilience to and reduce potential losses from such shocks. Environmental degradation will be reduced by reducing vulnerable communities' high dependency on natural resources for fuel wood, construction and other purposes, through tree planting and woodlots and by the distribution of improved fuel-efficient traditional stoves.

99. Social: Expected social benefits from the project are multiple and interrelated with economic and environmental benefits that will be brought about by the project. Most importantly, a dedicated Component focusing on increasing resilience to climate change through better irrigation farming system that include introduction of technology and for the second site better range land management on the existing source of livelihood. It is important to note that Namibian farmers are already highly vulnerable to the current climate variability, let alone the future climate variability, which are predicted to be larger. It is also important to take note that natural disasters not only destroy economic assets but also impact social cohesions as the lack of economic viability accelerates outgoing migration trends in search for income earning opportunities. Climate risk information dissemination network as well as heightened awareness that will be strengthened with the GCF resources will also increase the preparedness of vulnerable communities.

100. Finally, women play an extremely important role in the natural resource management, in crop and livestock production, soil and water management, and in value chain activities such as the processing and sale of livestock and food. This is despite the international evidence from across regions that women have less access than men to productive resources and opportunities. Many smallholder farmers in Namibia are women either because they are household heads or wives; they grow crops, raise animals, collect water and wood for fuel, care for family members and engage in other social obligations. Research suggests that women are more likely to re-invest their income in their family improving its welfare, education, nutrition, and health.

E.4. Needs of the Recipient

Vulnerability and financing needs of the beneficiary country and population

E.4.1. Vulnerability of country and beneficiary groups (Adaptation only)

101. Namibia's Climate Vulnerability: In Namibia, rainfall changes from present levels will create vulnerability in the water balance, which is expected to become drier because of an increase in evaporation rates due to temperature increases. An increase in evaporation of about 5% is expected per degree of warming[iv]. With rainfall decreases, Namibia is likely to face severe water shortages and total lack is projected for the central part as early as 2016, unless rain falls soon and in large quantities to enable the major aquifers and underground sources to be recharged. The country's poor rural population, particularly subsistence pastoralists and dryland populations, will be affected most as they are already facing existing vulnerabilities in terms of social, economic and gender imbalances. Namibia's northern and southern parts of the country experience the highest temperatures, with the average maximum for the hottest month being over 34°C. High evaporation rates in the country vary between 3 800 mm per annum in the south to 2 600 mm per annum in the north. This is attributed to high solar radiation, low humidity and high temperatures. It is also estimated that potential evaporation is at least five times greater than average rain received over most of the country[v]. Climate change is likely to pose new challenges for various crops, regions and farming systems. With a 2˚C increase in temperature and a 10% reduction in rainfall, the maize yield, for example, is expected to offal to 0.5 tonnes per hectare. It is projected that crop production would decrease by at least 50%.

102. The vulnerability and adaptation (V&A) assessment (MET, 2013) reveals that more than half of the Namibian population live in rural areas and depends heavily on subsistence farming. Poverty is an important driver in the sensitivity of people to climate change and their adaptive capacities. This high vulnerability is further attributed to the country's natural resource-based economy, its arid nature, and variability in climatic patterns, as well as socio-economic factors, such a high divergence of income levels, which limit the adaptive capacity of its population (GRN, 2002; Dirkx et al, 2008; MET, 2011). Additionally, natural resources such as forest products and rain-fed agriculture on which people depend are vulnerable and sensitive to anthropogenic climate change (Reid et al, 2007; GRN, 2002).

According to the vulnerability assessment report to the impacts of climate (2011), the first vulnerability aspect concerns the likelihood that an individual or group will be exposed to and will be adversely affected by new climatic circumstances. The second aspect of vulnerability relates to the characteristics of individuals or groups in terms of their capacity to anticipate, cope with, resist and recover from the impacts of environmental change. This capacity to adapt to climate variability and climate change understandably varies among specific regions and socio-economic groups in Namibia, in the sense that those with the least capacity to adapt are generally the most vulnerable to the impacts of climate variability and change. In turn, this depends to a great extent on resources available to a given group, individual or region. The report points out that livelihood vulnerability to climate change is acute in the Kunene region, followed by Zambezi, Kavango East and West, Omusati, Ohangwena, Oshana, Kunene, Otjozondjupa and Omaheke regions.

99. The greatest vulnerabilities due to negative climate change impacts have been predicted within Namibia's agricultural sector. In addition to climate-related challenges, drought and high temperatures are considered normal in highly variable drylands like Namibia. In the three regions targeted, the incidences and severity of these threats and risks has been increasing affecting the small scale farming production activities. Most of the affected communities in the regions are the vulnerable groups, such as women and subsistence farmers. There are various socioeconomic and environmental factors and barriers contributing to these regional vulnerabilities and key among direct consequences of both natural and human-influenced failures interacting with climate stressors, is food insecurity due to drought. Risk exposure of communities as a result of climate change:

- **Drought and low rainfall:** More than 80% of peoples living in Kunene region depend on natural resource use for their livelihoods as subsistence farmers, small-scale emerging farmers and horticultural farmers. These communities have been identified as having the highest levels of exposure because drought increases the likelihood that crops will fail or animals will die. Drought has affected food production directly over the last 15 years in Namibia (Ziervogel and Angula, 2016).
- **Loss of forest cover and species:** Deforestation and desertification; frequent forest fires; changes in forest types, species composition and distribution; and the disappearance of medicinal plants. Vulnerable species are those that have limited geographical ranges, drought/heat intolerance, low germination rates, low survival rate of seedlings, and limited seed dispersal/migration capabilities. Unsustainable supply of forest, products and services. Decrease in employment and foreign exchange earnings through forest-based industries and trade
- **Inadequate access to climate information:** This is a serious concern for stallholder farmers who depend on land and natural resources and need to know what climate to expect. This is especially true as residents incur the direct costs of damage from increased extreme weather events.
- **High temperatures:** Extreme high temperatures over the past 15 years have been associated with the outbreak of pests and diseases that impact both crops and animals. Over the years, there has been outbreak of foot and mouth disease, anthrax, and rabies. These diseases have profound impact on both livestock production and wildlife management resulting in loss of revenues to support livelihoods. Sensitivity for those on social grants, such as the elderly and those living with HIV/AIDS was seen to be high, because they will not be able to work long hours in their fields if it is too hot. Small-scale traders are less sensitive because they do not directly depend on natural resources. However, their products are likely to expire faster due to heat stress.
- **Biodiversity loss and species movement:** There is indication that recent and ongoing climate change is leading to rapid changes in the distributions of species in Namibia's protected area network. Species movements into areas where they were not previously found are observed, the disappearance of species from a region where they once were, or a shift in the abundance and distribution of individuals within a species range (Midgeley et al. 2010). Changes in fire and precipitation regimes continue to drive or accelerate shifts from one ecosystem state to another. Declines in charismatic wildlife populations lead nature-watchers, photographers, and hunters to seek other habitats that offer more substantial populations and that have an impact on local livelihoods. The impacts of these changes includes, loss of income opportunities and jobs, loss of primary production to provide ecosystem goods and services, and increased levels of poverty as residents depends on natural resource for their livelihoods.

100. Agricultural Vulnerabilities: Notwithstanding the vulnerabilities of the beneficiaries, that is, smallholder farmers, agriculture faces many challenges from climate change in Namibia. Thus, from a sectorial perspective, it needs to adapt, while meeting demands for food production. The influence of climate change on agriculture is two-fold; agriculture is highly sensitive to changing climatic conditions and agriculture is a net greenhouse gas (GHG) emission

source. This means that agriculture will need to adapt management to address climate change and increase production, while reducing GHG emissions. Agriculture in Namibia plays a critical role in the formal and informal economy by sustaining rural livelihoods and food security. However, agriculture is directly dependent on climatic variables such as temperature and rainfall, which dictate crop and livestock selection for a specific location, cultivar choices as well as when to plant, thus making it highly vulnerable to climate change. Any changes in these climatic variables may alter agricultural productivity in various ways. Under the current conditions, the agriculture sector in Namibia needs to grow by 4% a year to meet the increasing food requirements for the growing population. However, the expansion of cultivated areas to compensate for low yields, the exploitation of low nutrient soils without restoration of soil fertility, changing climatic patterns, including low and erratic rainfall, and the lack of well-adapted technologies have been identified as some of the major challenges. The conservation and maintenance of soil health is of critical importance. Future food security relies not only on higher production and access to food but also on the need to address the destructive effects of agricultural production practices on the environment. This will also increase the resilience of production practices to the effects of climate change.

101. Gender related vulnerabilities: Women in Namibia tend to have unequal access to resources and control over resources particularly in rural areas (Iipinge et al., 2000). This makes women more vulnerable to poverty. Climate change exacerbates these existing social problems. Gender equality, including fairness, just and equitable access to all resources, is an important priority in Namibia's National Development Plan and is one of the Sustainable Development principles. The strategy acknowledges that gender issues have not been adequately addressed in most of the major government strategies. The specific vulnerability of women in Namibia is notable in a number of areas. For example, almost half of the severely food insecure households are headed by women, as well as a third of the moderately food insecure. These female-headed households, which represent about a fifth of total households, also have a significantly higher overall incidence of extreme poverty. The project will promote women participation and equal voice to air their concerns and challenges, identify barriers that keep them out of the main economic, political and social spheres, and find sustainable solutions is best achieved when women are directly engaged. Thus most of the women's vulnerabilities will be addressed by creating platforms that ensure women's participation, involvement and inclusiveness in all stages of the project lifespan. Gender concerns will be central to the design of business and economic instruments. The participation of both men and women is a Constitutional mandate and fully enshrined in the National Gender Policy and Plan of Action, as well as part of the ruling party philosophy, which was fully applied with a zebra action (that is, 50/50) in 2015.

102: Kunene Region: The observed trends in climatic changes and future projections for Namibia are merely indicative. Although regional differences are expected. For north-western Namibia, apart from temperature changes, rainfall changes have been noticed as an increased length of the dry season, a decrease in the number of consecutive wet days, and overall, a later start and earlier cessation of the rainy season. There has been a tendency towards smaller rainfall totals in the Kunene region, although future projections suggest an increase of summer rainfall across much of the country, with high intensities over a shorter time period. The observed changes in temperature extremes, the length of the dry season and rainfall intensity not only underscore that the climate in Kunene is tending to become drier, but also that climate variability remains a significant phenomenon of long-term climate trend. The depletion of ecosystem services due to the degradation of natural resources, for example, declining grazing capacity, receding groundwater reserves and soil loss due to erosion has been observed in recent years. More pertinent to Kunene Region, droughts could increase or become more severe in some climate change scenarios. This requires careful planning and preparedness among farmers and resource users. There is a need to introduce alternative adaptation measures of the rural communities of the Kunene region. Apart from their extremely vulnerabilities in Namibia as previously stated, the region is the most poorest one and has the lowest literacy rate. 103.There is consensus from different climate adaptation studies conducted in the Kunene region to comprehensive introduce adaptation measures in the agricultural sector as it is the main source of livelihood for the majority of the population. High levels of food insecurity are already experienced in the region. Based on a combination of the indicators of sensitivity and adaptive capacity that calculated vulnerability of Namibia, the Kunene is the most vulnerable region in Namibia and with the least adaptive capacity according to the Third National Communication to the UNFCCC. There is a need for adaptation the agricultural sector through technological, policy and institutional capacity building framework. The technological priorities for the Kunene region as recommended in the SNC remains fostering yearlong food production through irrigation and water harvesting, conservation agriculture, diversification, use of improved indigenous crop germ plasm,

use of well adapted indigenous livestock breeds, increased seed and fertilizer (incorporating organic fertilizers) availability, shared water resource management, early warning systems, drought mitigation measures, restoration of rangelands and improved livestock management policies and strategies. In dealing with drought, deforestation, soil and rangeland degradation, adaptation efforts have been decentralized to the natural resources end user level. Individual farmers both on commercial and communal farm holdings are encourage and the later mentored on tactical farm decisions that timely respond to seasonal variations in climate change stressors. Namibia wishes to be a knowledge based economy by 2030 and hence effective adaptation requires advocacy and communication channels that work to change mindset about climate change and the need for surplus farming.

E.4.2. Financial, economic, social and institutional needs

104. To manage the long-standing aggregate colonial impacts while curbing new threats, such as climate-related risks, Namibia proactively undertook a long-term development agenda, encapsulated in the country's Vision 2030 that is premised on substance of healthy ecosystems for current and future generations[3]. This is augmented by five-year medium-term plans (the NDPs), presently at NDP 5. Current patterns of poverty, to a larger extent, mirrors (or reflects) the then unequal distribution of natural resources which led to uneven allocation of resources, underdevelopment, and multiple deprivations. The Namibian government is developing tailor-made policies and strategies to curb the threats at the root source[4]. This is premised on the realisation that the pace and rate of reducing the poverty debt is low despite the country's middle-income country (MIC) status. This then needs newer refined and targeted interventions such as this project. Notwithstanding, some fairly large-scale public investments, there has been a decline in the proportion of public funding going in recent years, mostly in the agriculture, environment, tourism and housing services and sectors[5]. Hence, a de facto 'poverty - environmental degradation' situation is kept within the rural population groups.

105. The Government of Namibia's 2015/16 budget has been described as 'pro-growth and pro-poor' with a special focus on poverty eradication and improved access to social welfare, as the second highest priority after economic growth. With 18% of the budget allocated to Education (N$11.32 billion), and N$6.4 billion to Health, there is a strong indication of commitment to improving the social sector. This is in addition to the recent increase of Old Age Pensions by 60% from N$600 to N$1 000, and with a commitment in the Medium Term Economic Framework (MTEF) to increase the pension annually to N$1 200 by the end of the current MTEF in 2017. While overall inflation has been declining since 2013 from 5.6% to 3.6% in 2015, the food inflation has averaged 7.7% indicating food as the single most important driver of inflation in Namibia. The causes of food insecurity in the country, which are exacerbated by high poverty levels, include extreme weather events (drought and flooding), massive environmental degradation, livestock diseases, and limited access to agricultural inputs, rising food prices, and the impact of HIV and AIDS, among others.

106. Currently, the Namibian Government spends about N$580 million per year to cater for emergency response and relief efforts. This includes all types of emergency such as drought, flood, fire, diseases (for example, foot-and-mouth (FMD)), and livestock and crop-related failures. Due to the nature and extent of the climate change risks in this effort, the government is not able to invest substantial resources towards CBNRM without the support of the GCF, as it covers for all other types. CBNRM has the potential to transform the crop/horticultural sub-sector, maintain health ecosystems, and improve national food security. While the government is doing its utmost best to reduce vulnerabilities by availing domestic resources to education, health and food-for-work programmes in times of emergencies, there are still huge financial gaps. Total estimated cost (excluding co-financing) is over 5 years. Namibia is applying for a grant, as opposed to loans from the GCF. While Namibia is considered a middle-income country, the majority of national wealth is in the hands of a mere 5% of its population, making it one of the most unequal economies and societies in the world. This

[3] Republic of Namibia- National Planning Commission (2004), Namibia Vision 2030.

[4] The skewed economic growth in Namibia is extreme, such that 10% of the Namibian society (mainly whites) receives more than 65% of income, leaving 35% for the remaining 90% of the population (predominantly blacks and mixed races) (National Development Plans, 2002). Thus, even after 25 years of independence, some of the Namibian language groups enjoy quality of life similar to those of developed economies, like Luxembourg and Greece at one end of the scale, and groups that suffer poverty similar to that of least developed economies, like Ethiopia and Mozambique (United Nations, 1999).

[5] Republic of Namibia –Ministry of Regional and Local Government, Housing and Rural Development (2012), *National Draft Rural Development Policy.*

puts a burden on the government to devote its resources to Public Investment Programmes for social development and the economic upliftment of the majority.

E.5. Country Ownership

Beneficiary country (ies) ownership of, and capacity to implement, a funded project or programme

E.5.1. Existence of a national climate strategy and coherence with existing plans and policies, including NAMAs, NAPAs and NAPs

107. By signing and ratifying the UNFCCC, Namibia has, respectively, committed to the adoption and implementation of policies and measures to adapt to climate change and to manage existing climate risks, including improving resilience preparedness and adaptation capacities. The project design is fully informed by the vulnerability assessments undertaken as part of Namibia's preparations of the INC, SNC, BUR1, and TNC. The objectives and activities are in line with the strategic aims of the 2011 National Policy on Climate Change (NPCC) and its accompanying strategy and action plan (NCCSAP) as approved by Cabinet in 2014. The seven principles provide strategic guidance for a response to climate change that is nationally appropriate, effective, efficient, fair, non-discriminatory, inclusive and timely. The project reflects the voluntary intentions of Namibia enshrined in the INDC (2015), which is setting the supreme adaptation and mitigation options, targets and national focus - in the medium- to long-term. The GRN lead coordinating entity for climate change, that is, MET, which is also the NDA for both GCF and AF has been part and parcel throughout the entire project formulation stage, thus ensured that there is direct and full alignment between this project and INDC, especially AFOLU priority actions. Namibia's CBNRM program is a long-standing national program, which was established in 1990 by the Government of the newly independent Republic of Namibia under the lead of the Ministry of Environment and Tourism. The program is a joint venture between the Government of the Republic of Namibia and NGOs, CBOs, communities and other development partners. Since independence in 1990, a highly enabling policy and institutional framework on which the proposed program will be built on and benefit from have therefore supported the entire CBNRM program. The proposed project enjoys full country ownership in the sense of alignment with national policies and priorities. The project directly responds to priorities as outlined in

- **The Constitution of Namibia**, which highlights the need to develop and implement policies to maintain the ecosystems, ecological processes and biological diversity for the benefit of the present and future generations.
- **Namibia's Vision 2030**, in which expansion of agricultural practices is favored.
- **Namibia's National Climate Change Strategy and Action Plan Invalid source specified.**, in which the highest priority theme for adaptation activities is "food security and sustainable biological resource base". The document states "Namibia's biodiversity is a fundamental to livelihood generation and a national asset of significant value. In addition, it underpins an important nature-based tourism industry. Climate change impacts (sea level rise, changes in temperature and rainfall) may affect natural resources: temporal and spatial shifts in habitat/habitat loss, loss of biodiversity and ecosystems, species diversity, and invasive species among others."
- **Namibia's National Policy on Climate Change** Invalid source specified., stressing the strong role to be played by local CBOs and NGOs:
    - "The policy recognizes the importance of meaningful participation in the planning, development and implementation of climate change activities at local, regional and national level. The policy recognizes the need to ensure the participation of women, children and other vulnerable/marginalized groups and individuals, as well as, the use of appropriate local knowledge for adaptation."
    - "The policy recognizes the important role of the participation of Non-Government Organizations (NGOs), Community Based Organizations (CBOs) and Faith Based Organizations and the private sector in climate change adaptation and mitigation. In particular NGOs , CBOs and Faith Based Organizations should contribute to climate change awareness and advocacy."

108. INDCs of Namibia Invalid source specified., for which the great majority of Namibia's mitigation contributions is projected to result from changes in the agriculture, forestry and land use (AFOLU) sector, which CBNRM is closely linked to.

E.5.2. Capacity of accredited entities and executing entities to deliver

109. The **Environmental Investment Fund (EIF) Financial Management Structures and Systems** have been scrutinised by the GCF and its compliance with GCF Standards is what led to the accreditation of the EIF. Thus as an accredited entity, the EIF will be responsible for the management of the finances (procurements, disbursements and auditing). Moreover, the Fund was independently assessed and rated by the Association of African Development Finance Institutions (AADFI), in collaboration with the African Development Bank (ADB) that applied the Prudential Standards, Guidelines and Rating System (PSGRS) assessment tool. This is a rating system that assesses three areas of the Fund, namely: governance guidelines, financial prudential standards, and operational guidelines. In 2014, the Fund was awarded a B rating and in 2015, the Fund was rated B+, an improvement in the financial management system. Implementation of the project will be done according to the procedures of the EIF with full oversight of its Board. Further the project implementation arrangements build upon stakeholders' partnerships with private and public sector entities, MAWF and AgriBusDev, UNAM and AMTA.

110. The MAWF's vision is to be the leading contributor to food security, agro-product competitiveness, increased, and equitable access to Namibia's natural resources for improved livelihood, wellbeing and wealth for all. In pursuance of this, the ministry has managed to secure domestic and international funding from micro to large-scale initiatives. These covered the bilateral and multilateral funds, for example German, Finland, GEF, GIZ and the EU, to mention but a few. As a public entity, MAWF has since independence been entrusted to administer budgets currently to the scale of billions of US dollars - funds and resources which they delivered well. Although there have been a few incidences of low delivery (especially, at the beginning of the financial year) of the entrusted public funds, the reasons found from the auditing and public trails hint to extensive rigorous and due diligence in both financial and environmental management. For instance, a number of low deliveries were experienced as a result of implementing entities failing to complete EIAs and other feasibility studies required prior to approval of major development projects by the Cabinet. In addition to the management capacities of MAWF, the executing entity will work closely with its specialised subsidiary institutions that will provide guidance during the implementation of the project. These includes:

- **The AgriBusDev** is a national body specialising on five farming models and farm management structures, with model 5.5 'commercial irrigation development in communal rural areas', being directly linked to participation of small scale irrigation farmers (SSHFs). SSHFs are direct beneficiaries of this project support and will benefit from their proven technical expertise as well as their results-driven principles. The business model is underpinned by their active support and the realisation that there is potential to increase production and employment opportunities in the agriculture sector. Its operations are informed by regional and international instruments, notably the Comprehensive Africa Agriculture Development Programme (CAADP) and the New Partnership for Africa Development (NEPAD), as complementary to national strategies such as NDP4, NCCAP, and etcetera. It was created as a privately run agency by Government to ensure that the overriding government strategy that recognises 'most effective way to eradicate poverty and improve food security is to raise productivity of agricultural resources on which the poor people depend for their livelihood'. AgriBusDev through its farmer's mentorship, training and practitioner's capacity building in terms of production, marketing management and general agro-development will be critical in the SSHF support. It produces according to international standards and supports farmers to apply commercially based practices in irrigated fields. They complement well the gaps that the DAPEES cannot fulfil as a government publicly run entity.
- **The Agricultural Business Development Agency** is a specialised agency of the MAWF created to promote marketing and trading of agro-processed products. It manages the National Food Strategic Reserves, thus will be directly engaged with producers and growers to ensure that surplus produce is safely stored, processed and sold to ensure the successful running of the agricultural economy nationwide. Their technologies and technical skills to operate facilities such as the cool storage are crucial to ensure that there is no wastage and ruin.

111. Further more, the University of Namibia UNAM has decentralised three campuses specialising in agricultural research, training; crop; and livestock production. With these community development and outreach activities (in addition to academic dynamism), it is well placed to provide academic excellence, research and development in direct support of the project. Strategic partnerships will be forged to deliver scientific research associated to the project deliveries with the aim to generate new knowledge and understanding.

E.5.3. Engagement with NDAs, civil society organizations and other relevant stakeholders

112. An early internal concept note was developed for an adaptation project in the agricultural sector in Namibia, for which all-major Government stakeholders were consulted and consensus was developed with regard to the main theme of the programme. This original concept has been refined to ensure that the project encapsulates tangible adaptation activities. The concept note was approved by the Ministry of Environment and Tourism and received a No objection letter for submission to the Simplified Approval Process call under the GCF. The project formulation mission held a number of meetings with the MAWF, starting with an inception meeting with the Permanente Secretary. After consultations with the MAWF and with the Ministry of Environment and Tourism of Environment, the MAWF selected the Kunene Region, with Sesfontein, Fransfontein, and Warmquelle as the main targeted areas of implementation. Criteria for selection include equitable distribution of development, and vulnerability to climate change (Kunene region is already the most drought-prone area in the country). A number of follow-up meetings were held with the MAWF to elaborate on the focus of the project, in line with national priorities were undertaken. The project development teams made a field trip to the Kunene region in June 2017 to further discusses and refines the project activities with key stakeholders at the level. Initial meetings were held in Opuwo Town, the regional capital, with the Governor to ensure ownership and co-operation, and with key stakeholders in the Kunene administration. The team then travelled from Opuwo to the field site in Sesfontein, Fransfontein, and Warmquelle, together with relevant extension officials of MAWF and Regional Administration officials/experts, and met with the administrator of the Kunene region.

113. Regarding involvement of community members in the project design and activity selection, in preparation for the mission, the Ministry of Agriculture, Water and Forestry, invited key stakeholders to a consultative meeting that took place on the 24th of June 2017 and included organisations such as the Namibia National Farmers Union, NACSO Secretariat, Kunene Framers Association, IRDNC, and NNF to undertake confirmation of the community needs that had been already reflected in the Kunen Regional Development Plan. The Environmental Investment Fund of Namibia, which is accredited as the National Implementing Entity has been a critical facilitator in this process functioning in close partnership with the Ministry of Environment and Tourism, which is the Designated Authority. A number of participatory meetings that were aimed at developing and refining the concept took place. In summary, the development of this project started in in February 2017, with readiness assistance from the Korea Environmental Institute of Technology and Industry. Intensive interactive consultations took place over a period of February to August 2017; the latter include the specific elaboration of this project, and consisted a great variety, diverse and multiple numbers of stakeholders in the country. These included government ministries, agencies, Members of Parliament, Non-Governmental Organisations (NGOs), IGOs, private sector representatives, regional councils, local authorities; Community based Organisations (CBOs) and other civil/civic society organisations. The inputs gathered during those consultations form the basis of the project. The project will therefore work closely with the following key stakeholders:

1. NamWater Corporation which the bulk water supplier of the country and thus will be consulted on irrigation water provision.
2. Agro-Marketing and Trade Agency (AMTA) is a specialized Agency of the Ministry of Agriculture, Water and Forestry (MAWF) with a mandate to coordinate and manage the marketing and trading of Agricultural Produce in Namibia. AMTA manages the Fresh Produce Business Hubs (FPBHs) and National Strategic Food Reserve (NSFR) infrastructure, and uses this infrastructure for food storage to ensure food safety and security in Namibia. Thus AMTA encourages surplus crop production.
3. Namibia Agronomic Board (NAB) promotes the agronomic industry and facilitates the production, marketing and processing of controlled products in Namibia. The Board also sources funding to enhance small-scale agronomic production and marketing.
4. Kunene Regional Council has an interest in the climate change activities linked to developmental activities taking place in the region.

5. Namibia National Farmers Union, which is a national federation of regional farmers unions. It was established in June 1992 to serve as a mouthpiece for Namibian communal and emerging farmers. The entity will assist in coordinating and mobilising activities related to framers associations in the Kunene region.
6. Ten Farmers Associations in Kunene, they promote livestock production, marketing and strives to undertake holistic rangeland management in order to restore and manage grazing sustainably.
7. Communal conservancies promotes integrated approach to rural development, including the management of wildlife and other natural resources as well as nature based tourism related activities.

E.6. Efficiency and Effectiveness

Economic and, if appropriate, financial soundness of the project/programme

E.6.1. Cost-effectiveness and efficiency

114. The effectiveness of proposed solutions has been tested out in a number of projects at varying scale. This project builds on those lessons of cost-effectiveness and efficiency of delivery. The geographic, hydro-climatic and socio-economic suitability of the recommended activities were successfully tested in the field and they offer the most effective and efficient solutions to the climate stresses on local water resources in Namibia. The costs of implementing the project are heavily co-financed by existing systems and staff of government agencies. For example, the Agricultural Business Development Agency will become the project's nodal implementing 'hub' at the local level, coordinating the integrated water management plans at local level and conveyor of climate and technology-related information. The project will build synergies with other projects in the same geographical location and working on issues like water resource development and management, disaster management and climate resilience to maximize effectiveness. Community participation in the implementation and operational stages will ensure cost-effectives of the investments.

115. From an implementation point of view, the project will be executed by the current CRAVE Project Management Unit, which is one of the GCF funded projects in Namibia. The CRAVE project is under the MWAF and such arrangements is proposed in order to improve coordination of activities achieve and achieve greater economies of scale. The CRAVE Project Steering Committee will also be expanded to include representation required by this project and assume the overall responsibilities for the project implementation. The efficiency of the project is therefore enhanced from the management and executing point while the cost-effectiveness proposed adaptive investments can also be considered to enhancement of community adaptation, through community contributions (which also have a positive side effect of stronger ownership and sustainability). That could be communities contribute in terms of voluntary labor and in kind contributions in site selection, planting and patching, mulching, irrigation construction, boundary demarcation and weeding. Operational cost effectiveness of the proposed project is further enhancement through the following characteristics:

1) Throughout the project, the GCF resources will be aligned with the financing and delivery of project Outputs that have competitive procurement components to ensure cost effectiveness;
2) During the project preparation phase, the project will make an active effort to mobilize co-financing from different sources, which is expected to diversify financial risks and increase financial flexibility.
3) A number of project activities will involve local communities and connect directly to local opportunities for the purchase of goods and services.

E.6.2. Co-financing, leveraging and mobilized long-term investments (mitigation only)

116. The co-financing ratio, defined as the total amount of co-financing relative to the Fund's investment in the project, government co-finance (USD 700, 000 constituting around 7% of the total project cost) comes from the commitment of public finance from the Government's own treasury. Furthermore, the community in-kind contribution will strongly leverage the GCF investment, given the essential complementarity of the new technology that this enables. Attempts to leverage new investment will be made as project implementation progresses.

E.6.3. Financial viability

117. The financial rate of return has not been calculated because the benefits of the proposed activities that the Government implements (benefits such as increased production or cost savings) do not directly generate revenues to the Government. Rather, the Government is providing support to farmers, pastoralists, and other agents so that these groups can adapt to climate change in addition to benefitting in other ways. Hence, only the expected economic rate of return for the project, where it is possible to estimate benefits of the proposed interventions, has been calculated for a 15-year period. The economic returns in terms of economic net present value (ENPV) and economic internal rate of return (EIRR) are briefly presented in Section F.1 below.

118. Without the proposed GCF contribution the project would need to be downscaled considerably, either by reducing or eliminating some of the Activities that are integral to the longevity and sustainability of the project. Given the focus of GCF contributions on vital capital investments, it would likely not be possible to achieve the paradigm shift, as this requires the introduction of new technologies as well as practices. This in effect means that the project in the form it is proposed now would not be viable without GCF funding. It is expected that the activities started in the project will continue after the GCF intervention. In particular, given that the GCF grant is used to cover investment costs, other costs will be covered after the fifth year of the project following the exit strategy indicated elsewhere in this document.

E.6.4. Application of best practices

119. Application of experiences, best practices and knowledge management is recognized as an important component of the programme, reflecting one of the key themes of the GCF. Component 3 deals specifically with developing a knowledge management system and ensuring that this has feedback links to policy. Other project components will produce results that will be encapsulated into the materials developed for required for subsequent capacity building and awareness raising. The generation of improved and up-to-date climate risk information will be one of the first project actions, under component 1 and 2, will be used to fine-tune subsequent project activities to ensure that they result in climate resilient development. For example, the projections will be integrated into project feasibility studies for the water-related activities and to design appropriate water management measures. They will also be used to develop materials for the ensuing public awareness raising campaign, which will start with a launch event in Kunene Region, followed by targeted activities at different localities in Kunene and in the project area, using radio and community drama groups.

120. Selected locations in the project area will be involved in learning-by-doing activities in which farmers develop their own capacities for applying on-farm adaptive strategies. The project activities will promote integration of scientific knowledge, climate information and local practices in a farmer- led approach. In the resultant empowering process, farmers could critically reflect on scientific forecasts and make informed land-use decisions based on an integrated interpretation of the data, plus presentation of a range of technological options by the research stations, and on their own knowledge. Such a process would support locally developed adaptation options and their upscaling. Through this and other project components, collaboration will be increased with local research and educational stations, such as the University of Namibia, on integrated multi-disciplinary appropriate agro-ecological technologies. Best practices, learning, and knowledge management outputs for the projects include those covered under component 3, which is the knowledge management component of the programme, as well as a number of outputs that fall under other outcomes. The project thus includes the following best practices outputs:

- Improved knowledge of climate risks generated through early warning system for the sub-national scale, using either station observations or satellite observations;
- User-friendly knowledge dissemination products developed and disseminated using improved climate risk information;
- Detailed strategy for the climate change awareness raising campaign for the project, spelling out a workplan, target audiences and modes of communication;
- Well-publicized launch event for the climate change awareness raising campaign to capture public imagination and secure initial political commitment, accompanied by an ongoing TV and radio campaign;
- Awareness raising events at the policy level, and community level, four events for each target audience/location over the five-year programme, using innovative methods such as community drama groups and child radio programmes;

- Stocktaking assessment of former and existing initiatives and structures for community preparedness to climate risks and early warning systems, such as the structures established under the MWAF;
- Traditional knowledge integrated in the early warning system, using a participatory approach to update and expand existing understanding to clarify priority climate and related risks.
- A knowledge management system established for the project, based on existing processes in the Kunene Regional Council. This will include identifying a lead agency for this purpose, as well as a coordination mechanism between relevant departments for sharing lessons, and developing a standardized system for capturing lessons learned;
- Study tour to a country in the region with similar climate risks and environmental constraints, to enable sharing between programme stakeholders (government and local community) and the regional community. This is expected to enhance the capacity of regional administration staff to plan and implement and monitor climate change risk reduction programs and activities through out the Kuenene region;
- Organize a regional forum to review and integrate climate risk reduction strategies and measures in the regional development plan and Integrated Water Resources Management Action Plan to facilitate mainstreaming of climate risk reduction measures into the policies, regulations and annual regional and national capital budgets;
- Appropriate knowledge products developed for policy advocacy activities, including photo stories, presentations and briefing notes;
- Regular policy advocacy activities conducted throughout the life of the project, including at relevant national and regional events;
- Good media coverage for project activities and to disseminate knowledge products, targeting outlets that are relevant for policy makers as well as the public;
- Farmer-to-farmer seasonal forecast workshops to assist farmers in developing their own capacities to apply on-farm adaptive strategies in the face of changing climate conditions, through an action learning process that involves farmers, the scientific community, research institutions and the meteorological services in a collaborative learning process;
- Lessons shared through various appropriate regional and global networks, such as the Adaptation Learning Mechanism and DCAP to facilitate learning across countries;
- Feedback loop to policy makers at the Kuenene region and national level, to facilitate uptake of lessons learned into policy;
- The feedback loop to national policy makers will be developed by capturing lessons learned from the project and disseminating them at the national policy level though policy advocacy activities which are listed above. The project will explore the best possible way to institutionalise this, which will most likely be through the Economic Development department in Kunene Region;
- The repository for data and information generated through the project will be located in MAWF for reporting purposes and integration to NDP 5 and Harambee Prosperity Plan;
- The documentation of best practices to facility learning will be centered around the following themes: assessment of the costs and benefits of adaptation; best practices in integrating adaptation into local development and national policy, project design and implementation mechanisms; the conditions for success, and failure factors, with regard to replication and scaling up.

121. Annual project monitoring visits and quarterly and annual reporting will ensure that lessons can be captured as they are generated, both to refine programme design and direction, as required, and to feed into the broader mechanisms referred to above. All monitoring information and any reflections on the project will be shared with the various programme managers and stakeholder representatives, so that a common understanding of appropriate programme design, implementation measures, and necessary flexibility is developed, which will assist with designing the required replications of the programme adaptation measures throughout Namibia and elsewhere in the region.

E.6.5. Key efficiency and effectiveness indicators

GCF core indicators	Estimated cost per t CO_2 eq, defined as total investment cost / expected lifetime emission reductions (mitigation only)	
	Not applicable	
	Expected volume of finance to be leveraged by the proposed project/programme and as a result of the Fund's financing, disaggregated by public and private sources (mitigation only)	
	Not applicable	
Other relevant indicators (e.g. estimated cost per co-benefit generated as a result of the project/programme)		

**** The information can be drawn from the project/programme appraisal document.***

F.1. Economic and Financial Analysis

122. To assess the economic vulnerability of the intended 13,000 smallholder farmers, a detailed cost-benefit model is applied. In the small scale unfenced open access communal land model, the typical base case involved a household enterprise with 35 head, making use of some 180 hectares of commonage, and aimed at production of meat, milk, draft power, and stock accumulation. Range condition was very poor with no perennial grasses and moderate bush encroachment. Following the FAO (2016) report assessment the impact of climate change is modelled on the decrease reproduction rates (calving rates). The base case assume a calving rate of 60% whilst the calving rates are as low as 10% for the impact analysis. The resultant Financial Internal Rates of Return as well as Economic Rates of Returns are tabled below: For the base case we have assumed a relatively high calving rate at 60% although in communal areas it can be as lower than 50%. However, during drought periods calving rates reduces drastically unless intervention strategies are deployed.

Table 4: Effects of Climate Change on the financial and economic values associated with communal land smallholder cattle keeping in Kunene (N$ 2016)

Values	Base case (unchanged)	Climate Change
		Calving Rate Factor
Parameter changes		
Calving rate (%)	60%	10%
Private/ economic value changes		
Financial Net Present Value (N$)	48,792	-12,500
Private Internal rate of return over 10 years (%)	19.9%	4.4%
Economic Net Present Value (N$)	69,066	827
Economic Internal rate of return over 10 years (%)	21.7%	7.5%

123. The results clearly shows that the effect of climate change on a small scale cattle keeping leads to high financial vulnerability, as the Financial Net Present Value (FNPV) is negative N$12,500. The Financial Internal Rate of Return to a small-scale farmer is 4.4%, less than the hurdle rate of 10%. The economic assessment-or benefit to society is still meager at N$827 but positive, indicating the need to finance the support of such interventions through grant mechanisms as financial markets will not finance small-scale farmers operations surely. **BASED ON THE OUTCOMES ABOVE, GCF CONCENSSIONALITY IS OF PARAMOUNT IMPORTANCE, AS THE FINANCIAL VULNERABILITY OF A SMALLHOLDER FARMER DOES NOT LEND ITSELF TO PRIVATE SECTOR FINANCING. THE ISSUE OF INADEQUATE FINANCING FOR THE MICRO, SMALL AND MEDIUM ENTERPRISES (MSMES) IN NAMIBIA IS STRONGLY HIGHLIGHTED IN KEY NATIONAL DOCUMENTS SUCH AS THE MSME NATIONAL POLICY OF 2016, NATIONAL AGRICULTURAL POLICY OF 2015 AND THE SMALL MEDIUM ENTERPRISE (SME) FINANCING STRATEGY OF 2017. ALL THESE DOCUMENTS CLEARLY INDICATE THE EXISTING FINANCING GAPS FOR MSMES (OF WHICH SMALLHOLDERS FARMERS ARE A CRITICAL SEGMENT OF) AND THAT LIMITED ACCESS TO FINANCE ARE KEY PRIORITY AREAS TO BE ADDRESSED IN VISION 2030 AND THE FIVE-YEAR NATIONAL DEVELOPMENT PLANS (NDPS). THE EXTREME VULNERABILITY OF SMALL SCALE FARMERS OPERATIONS AS DEPICTED IN TABLE 4 ABOVE CLEARLY INDICATE THAT THEY WILL FACE HURDLES IN ACCESSING COMMERCIAL BANKING FACILITIES AND SUPPORT. THESE INTERVENTIONS ARE BEST SUPPORTED THROUGH GRANT MECHANISMS. THE AGRICULTURAL SECTOR IN NAMIBIA AS A WHOLE, HARDLY RECEIVE MORE THAN 5% OF ALL COMMERCIAL BANKING CREDIT FLOWS, AS OPPOSED TO MORTGAGE LENDING WHICH STANDS AT MORE THAN 65% OF ALL CREDIT FLOWS.**

F.2. Technical Evaluation

124. Most of the practices and technologies to be promoted, adopted and applied through the project are most appropriate and suitable based on the climate risks and effects to be addressed. They will be addressing the following adaptive capacity aspects, targeted at the communities and groups that are most vulnerable to climate impacts:

- Access (availability and affordability of) to technology and different farming methods
- Access (availability and affordability of) to crop varieties and farming inputs
- Access (availability and affordability of) to water (efficient use, conservation, harvesting, storage)
- Access (availability and affordability of) to land and soil conservation measures
- Access (and applicability of) to research, training and skills development

125. From a technical scientific viewpoint, the pursuance of sustainable agriculture with good agricultural practices (GAP) including integrating biodiversity management into production landscapes [for example agricultural (agro-ecosystems)] is an important objective of land sharing as opposing to land sparing assumption of the then green revolution. Namibian landscapes (such as conservancies and community forests) are multifunctional (with multiple land uses) thus provides examples where agricultural production and for example biodiversity conservation are not antagonistic due to their heterogeneity features. Beyond biodiversity (wildlife) itself, the protection function of multifunctional landscapes serves a series of ecosystem services, such as, carbon sequestration, water conservation, soil erosion control, provision of raw materials and genetic or medicinal resources, sites of cultural value, all contributing to improved livelihoods.
126. These technologies have been assessed to be the most appropriate in view of: (i) the extent of the climate shock and its impact on vulnerable communities in Ethiopia; (ii) the experience gained from similar interventions in the past and (iii) their consequences on ecosystems, current practices (considering in particular the inadequacy of current production techniques) and the economic context (most starkly evident through the deterioration in the living conditions of vulnerable communities). These considerations suggest that the selected technologies are the most relevant ones and, crucially, that is the combination of these that is necessary if effective economic, financial, and technical responses to drought are to result in improved living conditions and increased resilience of communities.
127. At the sectoral level, the project focuses on building the resilience of agriculture, including livestock, forest and water resources. In the agriculture sector, investments in small-scale irrigation schemes can have a transformational impact on climate-vulnerable communities. Initial results show that these irrigation systems have considerable impact in terms of enhancing crop productivity, as well as encouraging adoption of high-value horticultural crops. The effectiveness of micro schemes, which are relatively inexpensive and technically straightforward to implement, has been particularly high. To ensure sustainability of irrigation schemes, management capacity development programmes are embedded both within the user associations and within public support services.
128. Numerous past and present successes in the Namibian biodiversity sector demonstrate that investments in ecosystem and accompanying value chains are transformational in building the resilience of vulnerable communities and ecosystems to climate change impacts. Most of the reforestation and sustainable natural resource management activities have long been implemented across different agro-ecologies of Namibia, in the process having undergone rigorous improvement and refinement over the years. Given that the country is endowed with an ideal climate for selected forest species and low-cost labour, the chosen technologies/practices in the forest sector (for example, afforestation and reforestation and solar technologies) are appropriate technologies/practices for adaptation (and, incidentally, mitigation). Afforestation/reforestation will be achieved through mobilizing local resources, including labour.

F.3. Environmental, Social Assessment, including Gender Considerations

129. Following the EIF ESS Policy, the project is classified as an environmental Category C requiring screening of activities and not an ESMP. The proposed scope of activities will largely result in positive environmental and social impacts, and the minor social effects will be largely micro site-specific impacts from small-scale farming practices. These can be mitigated with integration of appropriate measures and implementation of common sense good practice measures. In line with the EIF ESIA, a screening is conducted for all Category C type of projects (attached as Annex 3.2). Following the EIF ESIA, a project specific assessment for use during the implementation is prepared. In summary the below are likely to be some of the impacts:

Positive

- No conversion of natural habitats or land will occur, because all activities will be implemented on existing agricultural landscapes with multiple uses. However reforestation will be promoted to rehabilitate degraded ecosystems and micro-drip irrigation to conserve water and use water efficiently.
- No production activities are allowed nor shall take place in any of the officially proclaimed protected areas, national parks nor zoned areas with highest globally and nationally biodiversity.

Local People access to and use of land and environmental natural resources

- No physical displacement of people will be undertaken in this project. All activities will be implemented either on existing or unproductive or degraded farming lands that are already utilised (with recognized user rights) by local people who have acquired land as part of the Traditional Authority At, Communal Land and Commercial land Resettlement Acts.
- Improvements of livelihoods and food security.
- Access to the river (for local fishing or tourists) will be provided for on existing routes thus farming activities will not cut off access roads

Park, Protected Areas or Conservancy neighbours

- Ecosystem services will positively benefit from food production activities, such that lodges will be encouraged to purchase local produces, avoiding transportation and contributing to incomes of local farmers.

Noise pollution will occur during the ploughing services especially where machinery such as tractors will be used.

- This risk is negligent as farmers already use the services during the planting and harvesting seasons.

Labour and Working Conditions

- The project targets the most vulnerable regions with highest poverty rates, hence some levels of deliberate discrimination will occur, to ensure that the most vulnerable people, households and indigenous groups benefits.
- This impact will have a positive benefit for the most vulnerable people and communities. The selection will be based on national, regional and local data and information, poverty and vulnerability levels. Local governance and traditional authorities that keep village information will be consulted and informed about the selection. Thus criteria to be used will be explained in details to the public using the M-SEPP and Project Communication Plan

Negative

Human wildlife conflict (HWC) may occur in some of the regions where small-scale crop farming occurs, for example, places bordering national parks or conservancies.

130. Gender considerations: The proposed project addresses gender dimensions within the project design and implementation in order to identify and integrate interventions to provide gender responsive and transformative results. As women are key players in managing basic household resources, as care takers, as well as participants in income generating activities, the design of the proposed project addresses the cultural, the physical, as well as the information and capacity related obstacles preventing women from being actively engaged in, supporting, promoting and maintaining the adaptation solutions that the project will be implementing. To this end, a gender analysis and action plan was prepared that accounts for gender and social inclusion implications, including the level of awareness, commitment and accountability of all stakeholders to ensure the participation by women in climate resilience processes.

F.4. Financial Management and Procurement

131. The Environmental Investment Fund of Namibia has expertise in working with donor funds and has a good track record in implementing 36 programs and projects using sound financial management practices. The Directorate of Administration and Finance adheres to policies and procedures that meet donor agencies' requirements. For this project, it will be responsible for fiduciary aspects and will be accountable for all financial and investment activities. International accounting financial reporting standards will be applied to the project. The standard accounting procedures for auditing of Project expenditure is followed by the EIF on an annual basis. The EIF assumes overall responsibility for financial management of the projects, and ensure that funds are used efficiently to support the intended activities. A certified external auditor will submit all accounts to the GCF on an annual basis. The audits are documented by a signed audit report. The public maintains the right to inspect the account on request as well as study reports, accounts, inventories and other relevant materials. The EIF Procurement Policy is closely aligned to the GCF and national laws in order to facilitate services within standardized framework. See the EIF procurement policy http://eifnamibia.com/media/PROCUREMENT_POLICY_Aug_2016.pdf

132. The EIF has a financial management system (Sage X3 Financial Accounting Software) that allows separations of accounts from other projects and that is authorized by a Board resolution. The project will therefore have a dedicated account. The system makes it easy to track and account for funding while offering financial transparency in reporting. In terms of disbursements and payments, the EIF will facilitate direct payments to suppliers or contractors upon approval of such request by the EDA Project Manager and Accountant with supporting documentations attached such as contracts, milestone reports, quotations, invoices, etc. Direct payments will make it easier to withhold or claim back tax as the EIF is exempted from tax. In terms of operational costs for grantees, an advance payment system is in place to enable mobility of project activities and implementation. Grantees are therefore required to report on their advance on a quarterly basis with supporting documentations submitted. The Project Accountant and the M&E will thereafter

reconcile the financial report with the agreed milestone and recommends subsequent payments. Site visits are also undertaken to verify the expenditures and activities on the ground. An Operational Manual on Grant Management was submitted to the GCF detailing this proves. See the Financial Policy http://eifnamibia.com/media/FINANCIAL_MANAGEMENT_POLICY_July_2016.pdf. Further financial and prudential polices for the fraud and whistleblower can be downloaded at http://www.eifnamibia.com/index.php/downloads/documents/policies-acts

133. The EIF, working with the governance structure of the project will ensure: (i) the substantive quality of the project implementation, (ii) the effective use of both international and national resources allocated to it, (iii) the availability of time for national contributions to support project implementation, and (iv) the proper coordination among all project stakeholders, in particular national, sub-national and local partners. Government has indicated its wishes to escalate efficient and effective project management and delivery, thus has agreed for the EIF (as an accredited entity of the GCF) within the approval of the EIF Board, to procure certain services by means of signing Memorandum of Agreement (MoA) where, for instance, additional and extra specialised national or global services providers may be required. The MoAs will govern the contract arrangements, thus will clearly spell out the responsibilities and roles regarding the delivery of the project outputs and the judicious use of the project resources allocated to them. To expedite project implementation, the EIF will sub-contract civil society as deemed appropriate and feasible within this project.

134. Projects funded through Environmental Investment Fund of Namibia are submitted to the Ministry of Finance with the aim to monitor financial transactions of the project. Furthermore, all project bank accounts are authorized by the Ministry of Finance before been opened by the Bank of Namibia. All GCF accounts are held at the Bank of Namibia. Furthermore, the Bank of Namibia established the Financial Intelligence Centre, which is the Financial Intelligence Unit of the Government of the Republic of Namibia and it is designed to:

- Combat money laundering, financing of terrorism activities and other financial crimes within the borders of Namibia, and
- Protect the integrity and stability of the financial system, by monitoring and supervising the anti-money laundering and anti-financing of terrorism controls and systems implemented by businesses that are vulnerable to money laundering or terrorist financing and by producing intelligence products that incorporates the analysis of relevant classified information. Please see this link for more information https://www.fic.na.

135. Furthermore, the Namibian Government established the Anti-Corruption Commission an independent agency created through an Act of Parliament, the Anti-Corruption Act, 2003 (Act No. 8 of 2003) to combat and prevent corruption in Namibia. As the leading agency in Namibia that investigates corruption offences. The agency is also responsible for taking measures for the prevention of corruption in public bodies and private bodies including revision of practices, systems and procedures which may be prone or conducive to corrupt practices, advising such bodies on ways to prevent corruption and educating the public on the evils and dangers of corruption. See the following website for more information: https://www.accnamibia.org/index.php/home/

136. The Environmental Investment Fund of Namibia developed a policy on Anti Corruption in line with the national provisions for monitoring corruption in the country and devised several ways for reporting corruption incidents and allegations. Among others, the Environmental Investment Fund of Namibia has developed a process to receive oral or written complaints from members of the public and other institutions. Complaints may be submitted in person to any of the offices of the Environmental Investment Fund of Namibia, or telephonically or by post, email, fax or by registering a complaint on this website. In turn, the Environmental Investment Fund of Namibia assesses the nature of the complaints and reports to the Anti-Corruption Commission for further investigation.

G.1. Risk Assessment Summary

137. During programming, an assessment was undertaken to measure the risk levels of the project inline with the GCF policies and requirements using the guidelines below:

- **Category 1:** Preventable Risks – internal risks that are controllable or avoidable, and that ought to be eliminated or avoided. This risk category is best managed through active prevention: monitoring operational processes, and guiding people's behaviours and decisions toward desired norms;
- **Category 2:** Strategy Risks, which are different from preventable risks because they are not inherently undesirable. These represent the risks inherent in the project to achieve the transformative results being sought. This category needs a risk-management system designed to reduce the probability that the assumed risks materialize and to improve the ability to manage or contain the risk events should they occur; and
- **Category 3:** External Risks, arising from events outside the project and beyond its influence or control. Sources of these risks include natural and political disasters and major macroeconomic shifts. Because such risks cannot be prevented from occurring, their management must focus on rapid identification and mitigation of their impact.

138. By applying this approach, the risk assessment has concluded that the proposed project is **CATEGORY 3.** During the project formulation phase, a number of risks to the successful achievement of the project objectives were identified. These are tabulated under G.2, together with an assessment of the degree of each risk, and the mitigation measures identified to mitigate against the risks. It is assumed that all project risks are —owned by both EIF, as the Implementing Entity, and the Ministry of Agriculture, Water and Forestry, as the Executing Entity, although the EIF has the ultimate responsibility with regard to all financial risks, and the right of cessation of activities, or withdrawal of funding in the event of risks that cannot be otherwise managed.

G.2. Risk Factors and Mitigation Measures

Please describe financial, technical and operational, social and environmental and other risks that might prevent the project/programme objectives from being achieved. Also describe the proposed risk mitigation measures.

Selected Risk Factor 1

	Risk category	Level of impact	Probability of risk occurring
Severe drought or other extreme weather events	Preventable, Technical Risk	Medium	Medium

Mitigation Measure(s)

139. Particularly severe drought and linked temperature increases will result in higher evapotranspiration levels; while greater rainfall variability could result in higher soil erosion rates and reduced ground water recharge. Higher wind speed could lead to dust storms, especially in the dry season. While the project interventions are designed specifically to address the effects of increasing climate variability, such extreme weather events could negate project benefits in some years. In order to mitigate this, updated and improved climate change projections will be developed and used to fine-tune technical aspects of programme activities, such as specific design of soil and water conservation measures. The project will have an ongoing learning-by-doing component that will allow for iterative and adaptive management. Lessons learned will be generated to inform sustainability and replicability of similar interventions elsewhere in the region and in the country.

Selected Risk Factor 2

Description	Risk category	Level of impact	Probability of risk occurring
Insufficient availability of necessary financial resources to upscale best practices	Preventable, Financial Risk	Medium	Low

Mitigation Measure(s)			
140. To mitigate the risk, a detailed and full project proposal will be developed and the MAWF will participate actively in the design and planning process. This will allow for integration of project outcomes into the mainstream of the government programmes and budgets. While the risk that this factor represents to project success is low, the likelihood of its occurrence will be further reduced. This reduction will be reinforced through the collaborative planning process that has been adopted, which has built the commitment of the relevant stakeholders to mobilize resources in support of the project, and in particular in relation to operational items.			
Selected Risk Factor 3			
Description	Risk category	Level of impact	Probability of risk occurring
The proposed approaches to adaptation are found to be unfeasible	Preventable, Operational Risk	Medium	Low
Mitigation Measure(s)			
141. Supporting climate resilience agricultural practices is unlikely to be easy. The project has addressed this risk through several strategies. The first is the integration of a variety of natural resource management approaches that introduce a coherent and adaptive way, have the potential to move people away from traditional methods and to create increasing demand for the new products and services being offered. The second is the rigorous approach to selection of participating communities, which ensures that the viability of the approaches has at the outset been validated in the local contexts. During project execution, action-learning mechanisms will help share information across participating communities so that the best ways of addressing specific implementation challenges can be developed and applied as appropriate.			
Selected Risk Factor 4			
Description	Risk category	Level of impact	Probability of risk occurring
Communities fail to respond to the dangers brought by climate change	Strategic, Social Risk	High	Medium
Mitigation Measure(s)			
142. At the heart of adaptation lies the need to raise community awareness of their vulnerability to climate change. Without this realization, communities cannot be expected to commit to the livelihood diversification that is required. The severity of the situation in the targeted communities should provide initial impetus for change. This will be reinforced by initiatives designed to raise awareness of, and improve access to, relevant information for the men and women in the targeted communities. At the outset, this will be used to show what options should be considered and to then guide people along the appropriate adaptation routes. Over time, the project will introduce participative mechanisms for review and use early warning and other relevant information to modify plans, in the process empowering communities, women and youth and individuals to continually adapt in the face of changing circumstances.			
Selected Risk Factor 5			
Description	Risk category	Level of impact	Probability of risk occurring
Failure of the Kunene Regional Council to institutionalize early warning system and meteorological /climate observation components	Strategic, Institutional Risk	Medium	Medium
Mitigation Measure(s)			

143. While the government has shown high levels of commitment to the project during the preparation stage, this will need to be translated into budget lines so that early warning system and meteorological/observational components are institutionalized and continue to be operational after the life of the project. Lobbying and advocacy to show the utility and value of these components for sound planning at the regional level will an ongoing project activity to promote this.

Selected Risk Factor 6

Description	Risk category	Level of impact	Probability of risk occurring
Irrigation structures, water schemes and other infrastructures might not be properly and timely maintained or fixed	Technical Risk	Medium	Low

Mitigation Measure(s)

144. Communities will be adequately familiarized with irrigation technologies, which will be introduced by the project. Operation and maintenance training manual will be prepared in the local language and training will be given to the green schemes operators that are established at each site. Furthermore, women will be involved in decision-making regarding appropriate technologies and they will take part as key-members and leaders in water committees formed for the operation and maintenance of their water and irrigation schemes. Local level farmers associations that have been established to manage water supply systems through the formation of a water committee and that make valuable contribution to planning, improving, upgrading and maintenance of water supply and irrigation schemes, will include women leaders and receive training on operation and maintenance of facilities and financial management.

Other Potential Risks in the Horizon

145. The likely emerging risks have been addressed through the risk analysis. Methodologically, the key to effective risk management will be the high degree of stakeholder participation that ensures the project can learn and adapt to circumstance as implementation progresses.

** Please expand this sub-section when needed to address all potential material and relevant risks.*

H.1. Logic Framework.

Please specify the logic framework in accordance with the GCF's Performance Measurement Framework under the Results Management Framework.

H.1.1. Paradigm Shift Objectives and Impacts at the Fund level[6]

Paradigm shift objectives						
Increased climate resilient Sustainable development	The project enhances capacity to address climate change impacts from a) social protection standpoint focusing in supporting 44,400 smallholders' farmers of which 50 per cent of will be women to strengthen adaptive capacity, and reduced exposure to climate risks of vulnerable communities, infrastructure, and ecosystems in the Kunene region.					
Expected Result	**Indicator**	**Means of Verification (MoV)**	**Baseline**	**Target**		**Assumptions**
				Mid-term (if applicable)	Final	
Fund-level impacts						
A1.0 Increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions	1.1 Extent to which lives, and livelihoods of the most vulnerable groups are enhanced and made more resilient to climate related hazards in the geographic area;	Monitoring and evaluation reports, Survey reports, project term evaluations	0	20,400 direct male and female beneficiaries (50% women – with special consideration for marginalized community and female headed household and 50% men), demonstrating improvements in adaptive capacity through access to climate information & implementation of concrete adaptation activities	30,366 direct male and female beneficiaries (50% women – with special consideration of the marginalized community and female headed household and 50% men), 14, 034 indirect male and female farmers accessing integrating climate resilience agricultural practices from the three Green Schemes in in Sesfontein, Fransfontein, and Warmquelle areas (50% women with special consideration	The adaptation measures and climate information system and services fully sustains at grassroots levels Concrete adaptation activities identified are attractive to the farmers

[6] Information on the Fund's expected results and indicators can be found in its Performance Measurement Frameworks available at the following link (Please note that some indicators are under refinement):
http://www.greenclimate.fund/documents/20182/239759/5.3_-_Performance_Measurement_Frameworks__PMF_.pdf/60941cef-7c87-475f-809e-4ebf1acbb3f4

					of the marginalized community, 50% men)	
	1.2 Percentage of population (and relative disaggregation of women and men) adopting climate-resilient livelihood practices / options (including fisheries, agriculture, tourism, etc.)	Monitoring and evaluation reports, Survey reports, project term evaluations	0	20% of the population use climate information in their decision making household	Direct access to early warning information to 7,230 agricultural reliant households representing 75% of the household in the region (50% women with special consideration of marginalized community & female headed households and 50% men)	Households have the technologies required to receive early warning information
A2.0 Improved resilience of ecosystems and ecosystem services	4.2 Number and area of agroforestry projects, forest - pastoral systems, or ecosystem -based adaptation systems established or enhanced.	Midterm evaluation and final evaluation reports	The baseline in the project area is 100,942 ha of ecosystems under grazing management	20,600 ha to be added to the baseline (leading to a total of 129, 042 h)	52,800 ha to be added to the baseline (leading to a total of 181,842)	Awareness raising activities foster smallholders farmers to implement appropriate ecosystem management practices
	2.4 Area (ha) of agricultural land made more resilient to climate change through changed agricultural practices (e.g. planting times, new and resilient native varieties, efficient irrigation systems adopted)	Periodic surveys, terminal evaluation report	190, 000 ha of degraded land	50,000 ha of degraded land protected & managed	80,000 ha of degraded land protected & managed	

H.1.2. Outcomes, Outputs, Activities and Inputs at Project/Programme level

Expected Result	Indicator	Means of Verification (MoV)	Baseline	Target		Assumptions
				Mid-term (if applicable)	Final	
Project/programme Outcomes	**Outcomes that contribute to Fund-level impacts**					
5.0 Strengthened institutional and regulatory systems for climate-responsive planning and development	5.1 Degree of integration/ mainstreaming of climate change in national and sector planning and coordination in information sharing and project implementation	Local development plans; Annual plans, Project periodic reports; Monitoring and Evaluation reports	0	60% rate achieved on the integration of climate change plan in the Kunene Regional Council and implemented against the project activities;	80% rate of Implementation of the integration of climate change and resilience developed and introduced in 10 farmers associations and Kunene Regional Council.	Government implement integrated approaches to drought management at national, regional, and local levels.
6.0 Increased generation and use of climate information in decision- making	6.1 Evidence that climate data is collected, analysed and applied to decision-making in climate-sensitive sectors at critical times by the government, private sector and men/women.	Monitoring-evaluation reports	0	20% of project stakeholders use climate information in their decision making of which 50% are women and 50% men with special consideration of the marginalized community women	70% of project stakeholders use climate information in their decisions of which 50% are women and 50% men with special consideration of the marginalized community women	There is a functional early warning system that generates climate information; Increased awareness of climate change impacts by communities favors greater use of climate information
	6.2 Perception of men, women, vulnerable populations, and emergency response agencies of the timeliness, content and reach of early warning systems	Monitoring-evaluation reports, Survey	0	20% rate of Implementation of early warning system for the Kunene Region	At least 70% of the population in the Kunene region prone to droughts protected through implantation of early warning information split into 50% women and 50% men)	

7.0 Strengthened adaptive capacity and reduced exposure to climate risks	7.1 Extent to which vulnerable households, communities, businesses, and public sector services use improved tools, instruments, strategies and activities (including those supported by the Fund) to respond to climate variability and climate change	Monitoring-evaluation report	0	4,300 households are direct beneficiaries (50% women and 50% men) With special consideration of the marginalized community	7,230 households are direct beneficiaries (50% women and 50% men) With special consideration of the marginalized community	There is an improved practice of using the information generated and distributed Concrete adaptation interventions are implemented by farmers in the area of water access, and climate resilience farming practices for both crops and livestock
	7.2 Number of males and females reached by climate-related early warning systems and other risk- reduction measures established/ strengthened	Household surveys; monitoring and evaluation reports	0	4,000 households (M= 2 000 F= 2 000) demonstrating improvements in both adaptive capacity & livelihood productivity	7,230 households (M= 3,615 & F= 3,615), demonstrating improvements in both adaptive capacity & productivity	Early warning system is functional and that mobile network is available in the Kunene. Vulnerable smallholder farmers have improved access to use climate information and technology
A8.0 Strengthened awareness of climate threats and risk-reduction processes and regulatory systems for climate-responsive planning and development	8.1 Percent of target population aware of the potential impacts of climate change and range of possible responses	Household surveys; monitoring and evaluation reports	0	20,000 direct & indirect male and female beneficiaries (F= 10,500 M=10,000) demonstrating improvements in both adaptive capacity - (With special consideration of the marginalized community in the region)	44, 400 direct male and female beneficiaries (M= 20,000 & F= 24,400), demonstrating improvements in both adaptive capacity	Regional, local level institutions and smallholder farmers will be able to make use of the climate information provided to improve the responsive planning
Project/programme outputs	**Outputs that contribute to outcomes**					
Output 1.1: Early warning systems established for observation, data collection and	1.1.1 disaster risk reduction and community-based early warning system in place	Surveys; monitoring and evaluation reports	0	4,000 direct male and female beneficiaries (50% women	8,000 direct male and female beneficiaries (50% women and 50% men)	Communities enhance there preparedness through adoption

information management and dissemination	1.1.2 Number of stakeholders participating in awareness raising events, disaggregated according to gender and age where possible			and 50% men) benefiting from improved use of climate change information	benefiting from improved use of climate change information	of early warning system
Output 1.2: Established institutional linkages for preparedness and response plan for disaster risk reduction	1.2.1 Number of community-based disaster risk management plans and guidelines designed and operational	Surveys; monitoring and evaluation reports	0	Two disaster management plans and guidelines developed for the regional council and community members	Two disaster management plans and guidelines developed for the regional council and community members	Farming community in the project will own the disaster risk management plan for effective implementation
	1.2.2. 'Number of farmers associations implementing disaster risk management plans	Surveys; monitoring and evaluation reports	0	The Kunene Regional Council and 10 farmers associations implementing disaster risk management plans;	The Kunene Regional Council and 10 farmers associations implementing disaster risk management plans;	Stakeholders institutions in the project will integrate preparedness and response plan within their operations
Output 2.1: Concrete and innovative drought adaptation actions supported for smallholder farmers	2.1.1 Number of smallholder farmers adopting new agricultural practices and alternative livelihoods	Surveys; monitoring and evaluation reports	0	8,300 smallholder farmers (50% women and 50% men) directing benefiting from adaptation interventions (Special consideration for the marginalized community)	11,000 smallholder farmers (50% women and 50% men) directing benefiting from adaptation interventions	Farmers will be willing to shift to climate resilient farming practices using the improved technologies.
	2.1.2 Percentage increase in agricultural production through climate resilient farming practices	Household surveys and assessment of farmers' change in approach and income level	0	60% production increase in different agricultural commodities	80% agricultural production increase in the region	Capacity of smallholder farmers and regional support systems will be developed to implement climate technologies and practices effectively
Output 2.2: Climate resilient ecosystem management practices that supports agricultural production	2.2.1 Rehabilitated salinized land in ha 2.2.2 Protected areas under community management in ha	Monitoring & evaluation reports	The baseline in the project area is 100,942	30,000 ha of land restoration through rangeland management practices such as rotational	50,600 ha of land restoration through rangeland management practices such as rotational grazing	Local level organizations will integrate ecosystem management approaches into

				grazing and recovery periods	and recovery periods	their land use plans
Output 3.1: Strengthened capacities of smallholder farmers to mainstream climate change responses and effective support to adaptation effort	3.1.1 Number of farmers and institutions regularly using climate information produced by the project to make decisions to enhance agricultural production 3.1.2 Number of lessons learned about natural resource management in the context of climate change as a result of the project	Monitoring & evaluation reports	0	7,000 smallholder farmers (50% women and 50% men) mainstreams climate change planning in their farming practices At least two lessons learned codified ad disseminated	10,000 smallholder farmers (50% women and 50% men) mainstreams climate change planning in their farming practices At least five lessons learned codified ad disseminated	Knowledge management products will be developed and mainstreamed by smallholder farmers in their practices Lessons learned documents will be transformed into policies by decision makers

Output 1.1: Early warning systems established for observation, data collection and information management and dissemination

Activities	Description	Inputs	Description
Activity 1.1.1 Enter into agreement with the Namibia Meteorological Services to support data collection and distribution to decision-makers and communities at risk and to monitor the evolution of detected climate risks. **Activity 1.1.2:** Develop an early warning system through stakeholder's participatory approach for the Kunene Region. **Action 1.1.3:** Undertake training to ten Farmers Associations to integrate early warning systems within the Kunene Regional Council and support community preparedness and ability to respond to climate change related disasters. **Activity 1.1.4:** Training of the Kunene Regional Council, extension services and 10 participating CBOs on early warning system and integration. **Activity 1.1.5:** Design and implement a multi-media communication method for early warning system. **Activity 1.1.6:** Produce awareness materials on early warning system to enhance prevention, preparedness, response and mitigation	This systemic-level activity will focus on improving disaster risk management by improving early warning systems so that smallholder farmers are better able to assess the implications, scale, and severity of climate shocks by providing weather information that can help farmers account for climate and rainfall variation. There will be collaboration between the metrological services, radio networks, broadcasting entities and cellphone communication entities	• Service Contract to establish EWS and provide weather service in Kunene; • Develop EWS-Alert and other products and communication channels • Design and produce tailored messages on extreme weather, safety at sea, preparedness and response • Awareness raising and training for end users on use of information • Establish dissemination systems and communication channels • Service contract for training of community members and extension services on EWS and effective use	These inputs will help in generating EWS information and preparedness; (assess the Kunene region communication network system, and train the regional council on the use of EWS in their operations. Furthermore the inputs such as entering into agreements with the metrological services and MAWF will be helpful to formalize the activities); Promoting learning and documentation of lessons, developing a mechanism for scaling-up in the future; and Through community participation, co-design and develop tailored weather/climate information; carry out training, awareness, and outreach activities to support diffusion.

strategies through education programs using participative solutions. **Activity 1.1.7:** Collate weather data and link to Namibia Meteorogical Services to support production planning. **Activity 1.1.8:** Design and implement a disaster risk reduction and community-based early warning system			
Output 1.2: Established institutional linkages for preparedness and response plan for disaster risk reduction			
Activities	**Description**	**Inputs**	**Description**
Activity 1.2.1: Integrate disaster risk management into the existing regional structures such as the Kunene Regional Development Committee under the Ministry of Rural and Urban Development, and local farmers associations. **Activity 1.2.2:** Undertake a detailed analysis of climate-driven vulnerabilities and cost effective adaptation options for target ecosystems **Activity 1.2.3:** Develop and implement operating guidelines for mainstreaming disaster risk management at regional and local levels (10 farmers associations) **Activity 1.2.4:** Initiate 6 community-based planning exercises to design the community-based disaster risk reduction and management plans, using a sustainable livelihoods approach to update and expand existing livelihoods maps and to clarify priority climate and related risks. **Activity 1.2.5:** Train 10 farmers associations and 200 community members (farmers association, communal conservancies, water point committees, etc.) in data and establish community-based response plans for disaster risk reduction. **Activity 1.2.6:** Train local, national and regional institutions (including meteorological sectors) on risk management and have a clear comprehension of their role and coordination mechanisms. **Activity 1.2.7:** Provide training to 82 extension services to enable them respond to livestock management and early warnings of bad weather.	The activity aims to mainstream and sustain the activities through integration into regional and local level plans.	• Develop regional and local level contingency management plans for disaster risk management • Service Contract to undertake training workshops on EWS suitable for regional planners, smallholder irrigation farmers and livestock farmers • Service contract to produce resource manual to train on tailor-made EWS modules for small-scale irrigation and livestock farmers	These inputs will ensure increasing institutional and individual capacities to manage and implement climate-related risk data, vulnerability and hazard information. The aim is to enable informed planning and investment decisions about appropriate risk reduction measures, and communicate actions that can be taken in advance of impending climate hazards to reduce human, material and livestock losses from slow and sudden onset of extreme events.

Output 2.1: Concrete and innovative drought adaptation actions supported for smallholder farmers			
Activities	**Description**	**Inputs**	**Description**
Activity 2.1.1: Strengthen the capacity of 10 farmers associations in Kunene to integrate disaster and drought management into planning and implementation; **Activity 2.1.2:** Develop drought and disaster risk management framework that protect ecosystem degradation from climate impacts for ten farmers associations; **Activity 2.1.3:** Establish small-scale fodder plantations and storage facilities at the Fransfontein, Sesfontein and Warmquelle. These will be small plantations that will be developed on 20 hectares of land that is currently unproductive because of persisted land degradation and bush encroachment; **Activity 2.1.4:** Introduce a scheme to support drought resilient livestock breeds, with focus on small livestock farming practices **Activity 2.1.5:** Construct storage facility of fodder and promote its adoption across sites; **Activity 2.1.6:** Strengthen local institutions on drought management through training – target institutions includes farmers associations, capacity building and awareness raising for local institutions; **Activity 2.1.7:** Integrate drought and disaster management	A number of measures will be supported to contribute towards reorienting agricultural practices to respond more effectively to farmers' priority needs and demands with the aim to enhance their adaptive capacities.	• Service contract support the construction of micro water storage facilities and agricultural production units at Sesfontein, Fransfontein, and Warmquelle • Procurement of micro irrigation schemes for horticulture production • Service contract to establish small scale fodder production facilities as an emergency coping strategy for dry season grazing • Design a scheme that promotes drought resistant livestock breads • Promote small livestock farming practices • Service contract to undertake training for smallholders irrigation farmers • Prepare manual on operation and	Under changing climatic condition frequent crop failures and livestock mortalities happen due to increased frequency of extreme weather events. Growing crops and animal (goat/sheep/dairy/poultry) together will help in increasing the adaptive capacity of the community by raising the productivity, profitability and sustainability of the farm. Integrated farming system will help in efficient recycling of by-products from one component to another which will lead to environmental safety. Capacity building inputs will be key to strengthen the ability of smallholder farmers to make informed decisions about climate change-driven hazards affecting their specific locations.

practices into local level institutions; **Activity 2.1.8:** Implement a grass-reseeding programme that maintains perennial grass and soil cover; **Activity 2.1.9:** Support the rehabilitation of 20 hectares of land for Green Scheme facilities at Fransfontein and Warmquelle; **Activity 2.1.10** Establish a 15 hectare community based small scale irrigation scheme at Sesfontein and a cooperative; **Activity 2.1.11:** Support 1000 smallholder farmers with implements for backyard drip irrigation system; **Activity 2.1.12:** Implement a fuel-efficient programme for the Kunene region to benefit over 6,000 households; **Activity 2.1.13:** Procure and distribute certified seeds of drought tolerant and orphaned/high value crops for 2,000 farmers **Activity 2.1.14:** Procure, distribute and set up drip irrigation kits to 1,000 selected groups of farmers in Kunene region to support agricultural productivity. **Activity 2.1.15:** Procure and distribute drought resistant seeds to 7,000 farmers to support agricultural productivity. **Activity 2.1.16:** Rehabilitation of at least 35 livestock watering points such as water trough to ensure adequate water supply for the livestock during the dry period		• maintenance of the irrigation technology • Identify beneficiaries to implement backyard irrigation schemes • Support value chains establishments with the private sector • Mainstream project activities at regional and national level • Organize sessions and trainings targeting on relevant know-how and technological means to manage the system • Organize awareness raising events and community members on climate risks, resilient water use, and participatory management of the water systems and irrigation management.	
Output 2.2: Climate resilient ecosystem management practices that supports agricultural production			
Activities	**Description**	**Inputs**	**Description**
Activity 2.2.1: Support the implementation of rangeland and grazing management to 10 farmers associations. **Activity 2.2.2:** Restore priority degraded areas covering 80,000 hectares in Kunene region through appropriate rangeland management practices that includes rotational grazing, ecosystem recovery, and grass seeding; **Activity 2.2.3:** Implement backyard biodiversity agroforestry	To address the climate change challenges facing rural farmers in Namibia, there is a need for a paradigm shift from unsustainable natural resource management practices and climate-vulnerable subsistence that is evidence-based in the management of natural resources	• Support a efficient stoves to reduce pressure on wood for energy • Implementation conservation management measures across 80,000 hectares of land • Support 10 farmers association to implement biodiversity and	These inputs will be able to draw proper and practical ecosystem resilient approaches; the project will support rangeland management plans that will also identify appropriate indicators for monitoring. It is therefore important to carry out assessment of the pastureland areas at local level

and 'home gardens' of herbs, shrubs and trees to 300 farmers. **Activity 2.2.4:** Support the development of integrated natural resource management plan ate regional level as well as implementation of such plans to enhance ecosystem goods and services. **Activity 2.2.5:** Establish green zones for pasture production through purchase of grass seeds among selected farmer groups especially on exhausted rangeland fields covering 200 heaters.		• pasture management plans • Integrate and mainstream biodiversity monitoring indicators at both regional and local development plans (10 farmers associations) • Introduce rangeland management practices that are based on rotational grazing approaches • Service contract to training of farmers on rangeland monitoring • Support establishment biodiversity agroforestry and home gardens for herbs, shrubs and trees	
Output 3.1 Strengthened capacities of smallholder farmers to mainstream climate change responses and effective support to adaptation efforts			
Activities	**Description**	**Inputs**	**Description**
Activity 3.1.1: Develop appropriate knowledge products, including photo stories, presentations and briefing notes, for use in policy advocacy activities **Activity 3.1.2:** Conduct annual policy advocacy activities throughout the life of the project, including at relevant national and regional events. **Activity 3.1.3:** Undertake media coverage events for project activities and to disseminate knowledge products, targeting outlets that are relevant for policy makers. **Activity 3.1.4:** Organize annual local level forums to review and integrate climate risk reduction strategies and measures. **Activity 3.1.5**: Produce lessons learned through research **Activity 3.1.6:** Supporting better research – such as on-farm links to new or improved crops including drought-tolerant	Scale up best practices and ongoing efforts to enhance community readiness	• Undertake annual lessons learned workshops with broader stakeholders participation • Recruitment of a knowledge management consultant to undertake annual lessons learned and best practices • Organize workshops, events and awareness creation forums • Synthesize, prepare, and disseminate knowledge materials	These inputs invest in awareness building, exchange visits, and knowledge generation and sharing to promote targeted communities resilience.

varieties, and other conducive and adaptive technologies			

H.2. Arrangements for Monitoring, Reporting and Evaluation

146. Monitoring and evaluation (M&E) is one of several implementation and management tools that support successful delivery of this project. Without careful monitoring, the necessary data are not collected; hence learning cannot be achieved and evaluation cannot be done well. Monitoring and evaluation is one of the core responsibilities of the Environmental Investment Fund of Namibia. The Project Implementation Unit, Project Steering Committee, MAWF, and other key stakeholders will conduct regular monitoring and supervision of this project. The monitoring and reporting system of the proposed project will be gender sensitive and will follow guidance from the GCF and comply with GCF M&E policy, ensuring that the project maintains a simple and interactive monitoring system allowing for regular reporting and learning at all levels. It is expected that it will be based on the following core activities:

147. Activity Recording/Process Documentation: Progress monitoring will provide evidence on accomplishment of the core activities planned under each Output and Activity, which will be scrutinized by assigning milestones and implementation timelines. This will help the strategic and operational managers to identify which activities are ahead, behind or on schedule. The Accredited Entity and executing entities will be responsible for ensuring routine monitoring on the use of inputs (including finances) and implementation of activities.

148. Quarterly Progress Report: The Executing entities will submit aggregated quarterly physical progress reports to the NCCC, which will coordinate the overall implementation and delivery of the project. The Environmental Investment Fund of Namibia will aggregate and submit a consolidated report (both financial and physical) to GCF. Quarterly reporting will capture activity and output-level information. The narrative section of the quarterly report, therefore, will include a summary of activities and outputs contributing to expected outcomes.

149. Annual Institutional Learning Events: The EE's will undertake an annual learning event to reflect on the changes being observed and to take stock of progress made. These learning events will help sharing of experiences and lesson-learning among the participating entities (including regional entities, as relevant).

150. Annual Performance Assessment: The Executing entities will submit an annual Performance Assessment Report (PAR) on the project Outputs. The PARs inform two monitoring activities at the project coordination level – annual monitoring missions and annual reviews/reports – and will leverage the lessons and insights from responses to the M&E. The reporting process is similar to that for quarterly reports. Executing entities will aggregate component reports before submission to their respective Project Management Unit. The report combines national and GCF reporting requirements, which include but are not limited to, reporting on:

- Progress made towards project Objective and project Outcomes – each with indicators, baseline data and end-of-project targets (cumulative);
- Project Outputs delivered per project Outcome (annual);
- Financial reports;
- Lesson learned/good practice; and
- Annual Work Plan (for the following year).

151. Mid-Term Review: An independent mid-term review process will be undertaken and the findings and responses outlined in the management response will be incorporated as recommendations for enhanced implementation during the final half of the project's duration. The terms of reference, the review process and the final Mid-Term Review report will follow the standard templates of the Environmental Investment Fund of Namibia. The final Mid-Term Review report will be cleared by the Environmental Investment Fund of Namibia and the Ministry of Agriculture, Water and Forestry, and will be approved by the Project Steering Committee.

152. End of project review: An independent terminal evaluation will take place no later than three months prior to operational closure of the project. The terms of reference, the review process and the final terminal evaluation report will follow the standard templates of the Environmental Investment Fund of Namibia. The final terminal evaluation report will be cleared by the Environmental Investment Fund of Namibia and the Ministry of Agriculture, Water and Forestry, and will be approved by the Project Steering Committee.

I. SUPPORTING DOCUMENTS FOR FUNDING PROPOSAL

☒	NDA No-objection Letter
☐	Feasibility Study
☒	Integrated Financial Model that provides sensitivity analysis of critical elements (xls format, if applicable)
☐	Confirmation letter or letter of commitment for co-financing commitment (If applicable)
☐	Project/Programme Confirmation/Term Sheet (including cost/budget breakdown, disbursement schedule, etc.) – *see the Accreditation Master Agreement, Annex I*
☐	Environmental and Social Impact Assessment (ESIA) or Environmental and Social Management Plan (If applicable)
☐	Appraisal Report or Due Diligence Report with recommendations (If applicable)
☐	Evaluation Report of the baseline project (If applicable)
☒	Map indicating the location of the project/programme
☒	Timetable of project/programme implementation

** Please note that a funding proposal will be considered complete only upon receipt of all the applicable supporting documents.*