Meeting of the Board
12 – 14 October 2016
Songdo, Incheon, Republic of Korea
Provisional agenda item 11(f)

GCF/B.14/07/Add.06

27 September 2016

Consideration of funding proposals – Addendum VI

Funding proposal package for FP023

Summary

This addendum contains the following three parts:

a) A funding proposal titled "Climate Resilient Agriculture in three of the Vulnerable Extreme northern crop-growing regions (CRAVE)" submitted by Environment Investment Fund of Namibia (EIF);
b) A no-objection letter issued by the national designated authority or focal point; and
c) Environmental and social report(s) disclosure.

The documents are presented as submitted by the accredited entity, and national designated authority or focal point, respectively.

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GREEN
CLIMATE
FUND

Funding Proposal

Version 1.0

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.

GREEN CLIMATE FUND

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 use their discretion on 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 the project appraisal document. The total number of pages for the funding proposal (excluding annexes) is should not exceed 50.

Please submit the completed form to:

fundingproposal@gcfund.org

Please use the following name convention for the file name:

"[FP]-[EIF]-[04.03.16]-[0000001]"

A.1. Brief Project/Programme Information			
A.1.1. Project/programme title		Climate Resilient Agriculture in three of the Vulnerable Extreme northern crop-growing regions (CRAVE)	
A.1.2. Project or programme		ProjectProject	
A.1.3. Country(ies)/region		Namibia	
A.1.4. National designated authority(ies)		Ministry of Environment and Tourism (MET)	
A.1.5. Accredited entity		Environment Investment Fund of Namibia (EIF)	
A.1.5.a. Access modality		☒ Direct ☐ International	
A.1.6. Executing entity/beneficiary		Executing Entity: Ministry of Agriculture, Water and Forestry (MAWF) Critical Sustainability Stakeholders/Partners: Agro Marketing & Technology Agency (AMTA); AgriBank; & Agric Business Development Agency (AgriBusDev); University of Namibia (UNAM) – Faculty of Agriculture, NASRIA & NAMIBRE. Beneficiary: Small-scale crop & vegetable farming communities (i.e. female and male members) in the vulnerable extreme northern regions of Kavango West, Kavango East and Zambezi – Government of the Republic of Namibia (GRN).	
A.1.7. Project size category (total investment, million USD)		X 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		25. 08. 2016	
A.1.10. Project contact details	Contact person, position	Mr. Benedict Moore Libanda, Chief Executive Officer (CEO)	
	Organization	Environment Investment Fund of Namibia (EIF)	
	Email address	blibanda@eifnamibia.com	
	Telephone number	+ 264 61 431 7700 (+ 264 811 491 944)	
	Mailing address	PO Box 28157, Auas Valley	

A.1.11. Results areas (mark all that apply)
Reduced emissions from:
☐ Energy access and power generation (For example on-grid, micro-grid or off-grid solar, wind, geothermal, etc.)
☐ Low emission transport (For example on-grid, micro-grid or off-grid solar, wind, geothermal, etc.)

☐ Buildings, cities and industries and appliances
(For example new and retrofitted energy-efficient buildings, energy-efficient equipment for companies and supply chain management, etc.)

☐ Forestry and land use
(For example forest conservation and management, agroforestry, agricultural irrigation, water treatment and management, etc.)

Increased resilience of:

☒ Most vulnerable people and communities
(For example 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
(For example climate-resilient crops, efficient irrigation systems, etc.)

☐ Infrastructure and built environment
(For example sea walls, resilient road networks, etc.)

☐ Ecosystem and ecosystem services
(For example ecosystem conservation and management, ecotourism, etc.)

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

1. Namibia is divided into 14 regional administrative zones. Of the 14, the Zambezi (90 596), Kavango East and West (223 352) are among the poorest regions in Namibia[i]. Greatest increases in incidences of severe poverty have been registered in constituencies of these regions – that is, that is, Sibinda, Linyanti, Kongola and Kapako (ibid.). The greatest vulnerabilities due to negative climate change impacts have been predicted within Namibia's agricultural sector[ii]. 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[1].

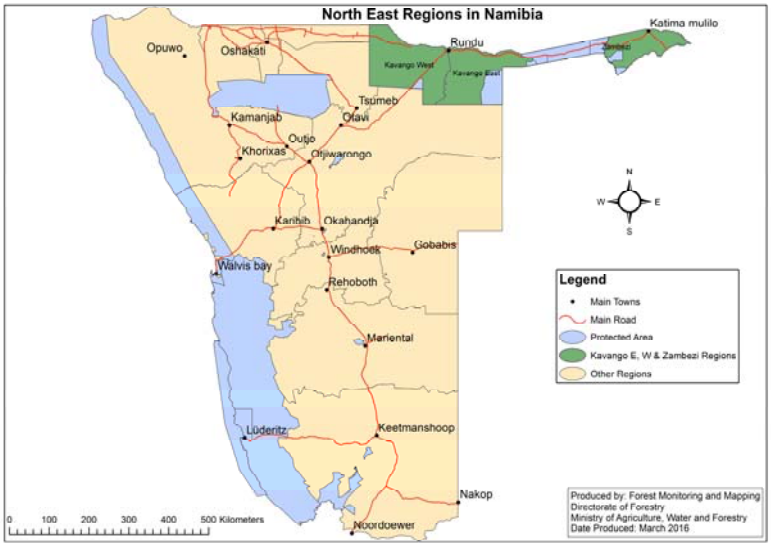


Figure 1: Namibian Map indicating the three CRAVE regions in the north east

Landscape production level on the existing modelled semi-arid regions of Southern Africa and micro-climate related threats for semi-arid 'hotspots' in which the three regions, are: characterised by high rainfall variability, frequent droughts, low soil moisture and extreme events such as flash floods. These conditions are the foundation of vulnerability of the communities in the regions. The communities in Zambezi, Kavango East and West are dependent on primary production and natural resources, rely on rain-fed (dry land crop production) agriculture, have limited livelihood options and employment opportunities. The targeted communities depend on production activities that are highly exposed and sensitive to the impacts of climate change. They also face high levels of poverty, are exposed to high levels of HIV/AIDS, and have limited infrastructure and services. Their resilience is negatively impacted by

[1]For instance, as of 17 June 2016 -the world day to combat drought and desertification- the President has declared another drought emergency situation in Namibia, out of which the three targeted regions are amongst the most affected needing immediate food relief.

limited institutional capacity especially at regional and local levels. The expected impacts of future climate in the three regions include:

- Reduced crop yields and risk of failure in livestock production, impacting economic development, food security, health and sanitation
- Loss of ecosystem services (such as water purification and filtration, medicinal plants and biomass energy), loss of soil fertility and accentuated soil erosion.
- Decline in global climate services due to ecosystem degradation.

Out of the total regional population of 313 948 about 35 604 in Zambezi and 118 823 in Kavango are categorised as poor (ibid). Majority of the poor are rural small-scale farmers, who directly depend on agriculture for their livelihood, therefore are considerably very poor in reality. Their poverty is worsened by deficiencies in their adaptive capacities and agro-farming practices that are not resilient. Hence, the project distinctively focuses on the most vulnerable farming communities and groups, including women, in three of the poorest regions (that is, Zambezi, Kavango West and Kavango East) in Namibia, especially subsistence small-scale farmers (women and men). The project would ensure that beneficiaries (women and men) acquire abilities to adopt conservation agriculture (CA) and climate-resilient agricultural (CRA) practices to produce food; and that severely poor vulnerable families have access to renewable energy and are using productive resources and services for food and nutrition security[2] and sustainable livelihoods improvement. (*Refer to Section 3.2.4 of the Feasibility Study*).

2. The CRAVE project aims to reduce rural human population's vulnerability and food insecurity to climate risks and threats while increasing the adaptive capacity, well-being and resilience of the vulnerable small-scale farming communities in crop production landscapes that are threatened by climate variability and change. The project is built on the government strong baseline investment made in light of the Namibia Comprehensive Conservation Agriculture Programme (NCCAP) and revised Namibia Agriculture Policy of 2015. It will run over a period of 60 months consisting of three components with five separate (for administration purposes) but directly indivisible interlinked outcomes to be attained, which are fully elaborated in section C. CRAVE has two sub-objectives:

a) To strengthen the adaptive capacity, scale up adoption of effective coping mechanisms and measures (for example comprehensive conservation agriculture and micro drip irrigation), and implement on-the-ground adaptation actions and practices that assist vulnerable subsistence farmers[3] (i.e. females and males) to reduce vulnerabilities to climate change, erratic weather patterns, seasonal rainfall shifts, heat and drought.
b) To provide rural crop males and females farmers with alternative sustainable access to off-grid solar energy technologies (water pumping for small-scale micro horticultural systems, and refrigeration for harvested food) and reduce the dependency of increasingly expensive (and environmentally unfriendly) imported fuels by promoting solar water pumping in the agricultural sector.

3. The CRAVE project will contribute to two of the **GCF Results Framework and Fund level impacts:**

- A1.0 Increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions; and
- A2.0 Increased resilience of health and well-being, and food and water security, along with the outcome A7.0 Strengthened adaptive capacity and reduced exposure to climate risks.

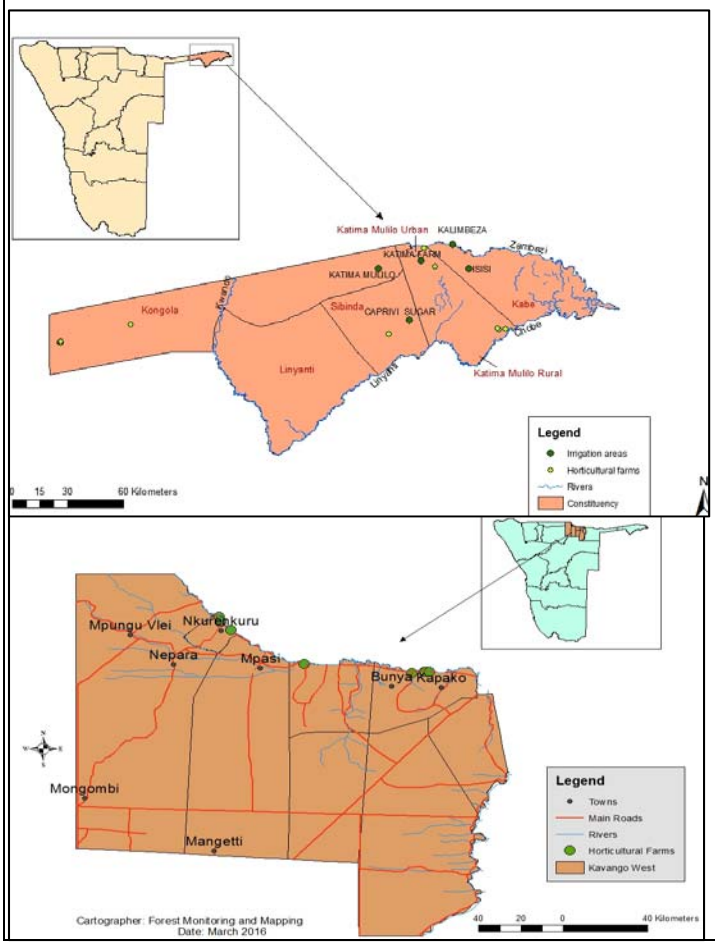
4. Fundamentally, the entire CRAVE business model (that is, paradigm shift) is to enable vulnerable SSF to penetrate the local and national agricultural economy from a purely subsistence production model towards full market penetration. This is premised on creating value chains by using existing systems and institutional infrastructures (for example AMTA, AgriBusDev, MAWF) to ensure scale-up, future uptake and sustainability of the results. Thus a full shift in the value chain is anticipated, with long-term transformational results that include:

[2] The general perceptions of the Namibian experiences with regards to intra-households food security, seems to be indicating that this issue is not yet paramount or brought to the fore prominently. However to avoid maladaptation and extra gender (women are disproportionately disadvantaged), the project studies that will be done by the UNAM GTRU will include these aspects of Intra-HH food security systems in the survey. This will help to guide some of the project activities to ensure that gender aspects at intra–household food security systems are addressed in a balanced manner.

[3] Throughout the CRAVE Funding Proposal and Feasibility Study, reference to vulnerable farmers (either SSFs or SSHFs) includes both males and females.

- Increased systemic, institutional and individual adaptive capacity through climate resilient agricultural centre of excellence (MCRACE);
- Reduced exposure to climate risks and strengthened adaptive capacity of small-scale horticultural and rain-fed farmers, growers and producers - and setting up of a crop insurance incentive scheme (CIIS); and
- Vertically and horizontally diversified livelihoods, jobs and income-generating streams and opportunities for targeted beneficiaries (SSF).

5. There are, however, a number of barriers and constraints preventing the achievement of the above-mentioned objectives and desired results. These are narrated in the Feasibility Study (small-scale farmer's vulnerability) as well as in section C.



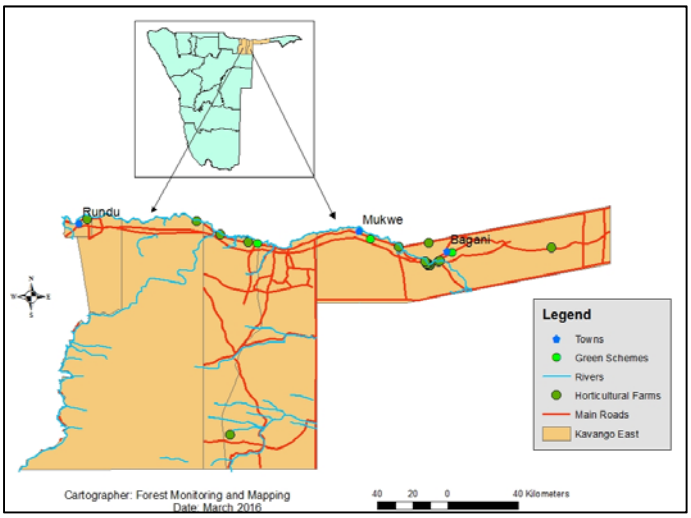


Figure 2: Maps indicating the CRAVE project sites for Small Scale Horticulture and Conservation Agriculture sites in the Zambezi, Kavango east and West regions.

A.3. Project/Programme Milestone	
Expected approval from accredited entity's Board (if applicable)	23 September 2015
Expected financial close (if applicable)	03/10/2022
Estimated implementation start and end date	Start: 01/03/2017 End: 30/04/2022
Project/programme lifespan	Five years

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

6. A grant-financing instrument is used for this project seeking maximum concessionality to undertake the proposed adaptation investments. 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 episodes, is estimated to amount to US$3.04 billion (or about N$40 billion) by 2030.

Table 1 Financial Budget for CRAVE and Sequencing of Components

Component	Sequence	Sub-component (if applicable)	Amount (GCF)	Currency of disbursement	Amount (MAWF)
Component 1 Increased adaptive capacity and enhanced climate change resilience 3,220,000	2	Sub-component/Output 1.1 Mashare Climate Resilient Agriculture Centre of Excellence (MCRACE) Operationalized	2 280 000	million USD ($)	
	3	Sub-component/Output 1.2 /Field research, trial and demonstration sites (guano) and organic fertilisers	790 000	million USD ($)	150 000
Component 2 Reduced exposure to risks and strengthened adaptive capacity to climate change adaptation 4,625,000	1	Sub-component 2.1/Output SSHF-Farmers (irrigation) cropping practices and production technologies strengthened	1 615 000	million USD ($)	
	2	Sub-component 2.2/Output SSF- Farmers (rain-fed) training, capacity building and development	1 920 000	million USD ($)	
	3	Sub-component 2.3 Crop Insurance Scheme	830 000	million USD ($)	260 000
Component 3 Solar Energy Technologies & Solar Water Pumping promoted and widely adopted 760,000	1	Sub-component 3.1 Solar water pumping for agriculture	670 000	million USD ($)	90 000
	3	Sub-component 3.2 Diversification & adaptation alternative sustainable livelihoods		million USD ($)	
Cross Cutting: Knowledge Management and Learning 595,000			595 000	million USD ($)	
Project Management Unit 800,000			800 000	million USD ($)	
	Total		**9 500 000**	**Million USD ($)**	**500 000**

- *Please expand the table if needed.*

Table 2 Indicative disbursement schedule (procurement plan foresees USD 2,573,500 in Year 1)

Component	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL
Component 1	17%	12%	2%	1%	0%	**32%**
Component 2	9%	21%	7%	5%	3%	**46%**
Component 3	6%	5%	4%	3%	4%	**22%**

NB1. *Expeditious and timely approval of the project and budget provision from GFC-EIF-Executing Entities will be a crucial factor in enabling the achievement of the anticipated objectives.*

B.2. Project Financing Information

	Financial Instrument	Amount	Currency	Tenor	Pricing
(a) Total project financing	**(a) = (b) + (c)**	10 000,000	million USD ($)		
(b) Requested GCF amount	(i) Senior Loans	.....	Options	( ) years	( ) %
	(ii) Subordinated Loans	.....	Options	( ) years	( ) %
	(iii) Equity	.....	Options		( ) % IRR
	(iv) Guarantees	.....	Options		
	(v) Reimbursable grants *	.....	Options		
	(vi) Grants *	9 500 000	million USD ($)		
	* *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)	9 500 000	million USD ($)		

	Financial Instrument	Amount	Currency	Name of Institution	Tenor	Pricing	Seniority
(c) Co-							

financing	Grant Options Options Options	500,000[4] …… …… ……	million USD ($) Options Options Options	MAWF …… …… ……	(5) years ( ) years	( ) % ( ) % ( ) % IRR	senior Options Options Options
	Lead financing institution: GCF						
	** Please provide a confirmation letter or a letter of commitment in section I issued by the co-financing institution. A co-financing letter by MAWF (donor 2 with code 40001) is attached.*						

B.3. Fee Arrangement (if applicable)

7. Fee arrangement for the CRAVE project requested is net of the Accredited Entity fee, which is ten per cent (10%) of the GCF funding for micro scale projects. This will cover direct costs of management and administration related to the project, which includes: (i) oversight of project start-up; (ii) supervision and oversight of project implementation; and (iii) oversee project closure.

B.4. Financial Market Overview (if applicable)

N/A

C.1. Strategic Context

8. 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 the 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.

9. 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). The NCCSAP has four strategic objectives and themes; theme on food security and sustainable resource base is the highest under Agenda A (which is Adaptation) and has a number of proposed strategic aims, the majority are in full alignment with this project. These are:

- **Strategic Aim 1:** Climate change understanding and related policy responses in food security are further improved.
- **Strategic Aim 2:** Develop, identify and disseminate climate resilient crop farming practices.
- **Strategic Aim 5:** Best sustainable land management (SLM) and suitable land use practices are tested and implemented at both national and local level.
- **Strategic Aim 6:** Early Warning System (EWS) and Climate Risk Management (CRM) systems are developed/improved and implemented.

[4] The MAWF has committed to co-finance this amount as part of the USD10, 000,000 resource envelope. This will cover costs such as transport, S&T for MAWF staff, and office space. Thus the GCF is requested for USD9, 500,000.

- **Strategic Aim 7:** Adaptation strategies are improved by monitoring and establishing baseline data on extreme events.
- **Strategic Aim 12:** Conservation, utilisation and development of biological resources and maintenance of resilient ecosystems to ensure climate resilience and environmental sustainability.

10. Namibia, to date, 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. The Country Climate Smart Agriculture (CSA) Programme aims 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[5] (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 CRAVE Project.

11. However, most of the desired outcomes as expressed in, for instance, policy documents and strategies, developed to date, have not yet been realised and remain policy intentions. Largely, this is due to lack of adequate, scalable resources (financial and technological) that can transform the economy[iii]. Compounding this is also limited application of comprehensive conservation agriculture among the most vulnerable groups, notably the rural subsistence small-scale farmers (SSF)[iv]. Although MAWF had established the AgriBusDev and AMTA, which are the main private sector partners, at government level, there was no unified crop production approach to support SSF. Consequently, prospective to robustly change the national agricultural production remained untapped. Thus in 2015, the revised National Agriculture Policy was approved by Cabinet, to provide additional guidance for creating agricultural value chains.

12. Finally, during the time these earlier initiatives (that is, programmes) were being formulated for piloting, there were not yet coherent and consistent evidence for the nature and scale of the climate vulnerabilities, an information gap which was recently filled by the 2015 V&A report and (V&A chapter of the TNC)[v]. In line with the NCCSAP and lessons from the above-mentioned pilots, the Namibia Cabinet finally approved the first NCCAP in October 2015 whose is to counter and reverse land degradation, adapt to climate change vulnerability through adoption of CCA[6] as a basis for sustainable crop production and improved food security, at both national and farm (including smallholder) levels. Namibia's total baseline investments in developing conducive inclusive climate policies, strategies and plans are deemed sufficient foundations for supporting the incremental adaptation cost needs, estimated to be roughly US$590 million, of which US$430 million covers the need period 2005-2030[vi].

13. There has been a decreasing trend in national cereal production from both the commercial[7] and communal[8] sectors (fig. 1&2). 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 CRAVE project will support the other crops such as Okashana, which is a drought-tolerant crops and early maturing

[5] The Green Scheme is one of the main baselines for the CRAVE Project. The revised Green Scheme Policy provides for different models like private development in communal areas, commercial irrigation development in communal areas, State development in communal and commercial areas and private development in commercial areas. The GS stipulates that private entrepreneurs in communal areas are not obliged to, but could support smallholder farmers in the proximity of their properties. Hence the targeted beneficiaries under CRAVE are the vulnerable SSF who are not getting support.

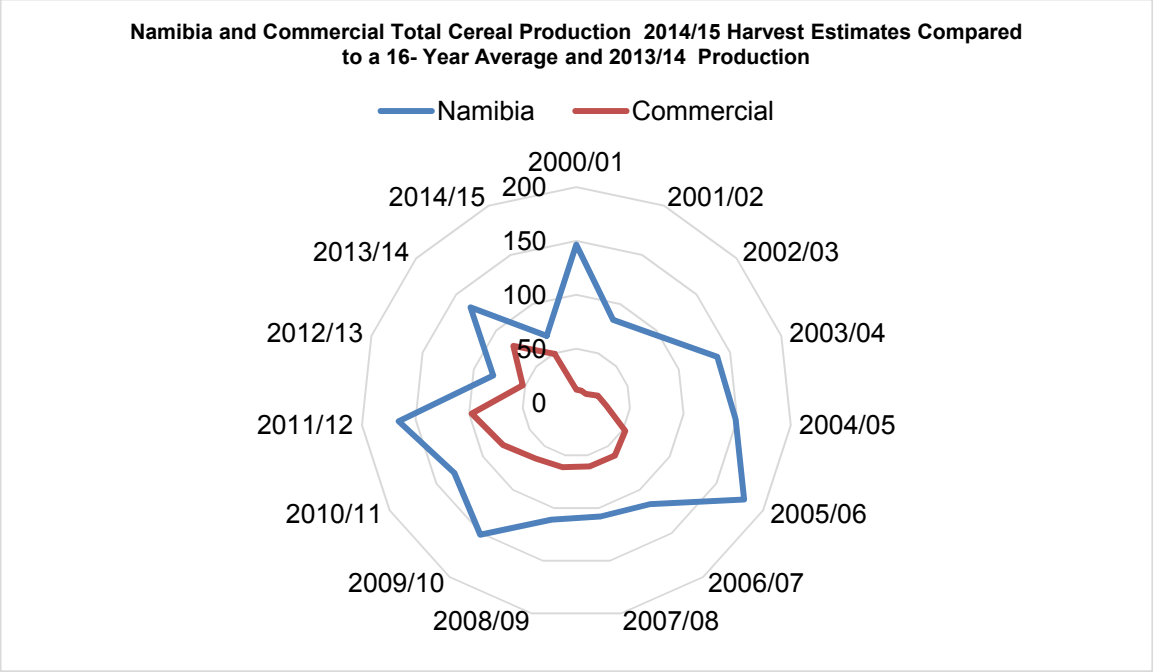
[6] CCA-Comprehensive Conservation Agriculture

[7] Commercial sector includes primarily private/freeholder landowners with abilities to access national financial instruments and capacities to adapt to changes.

[8] Communal sector incudes mainly subsistence farmers without adequate means to access financial instruments thus limiting their potential to penetrate the markets without any paradigm shift.

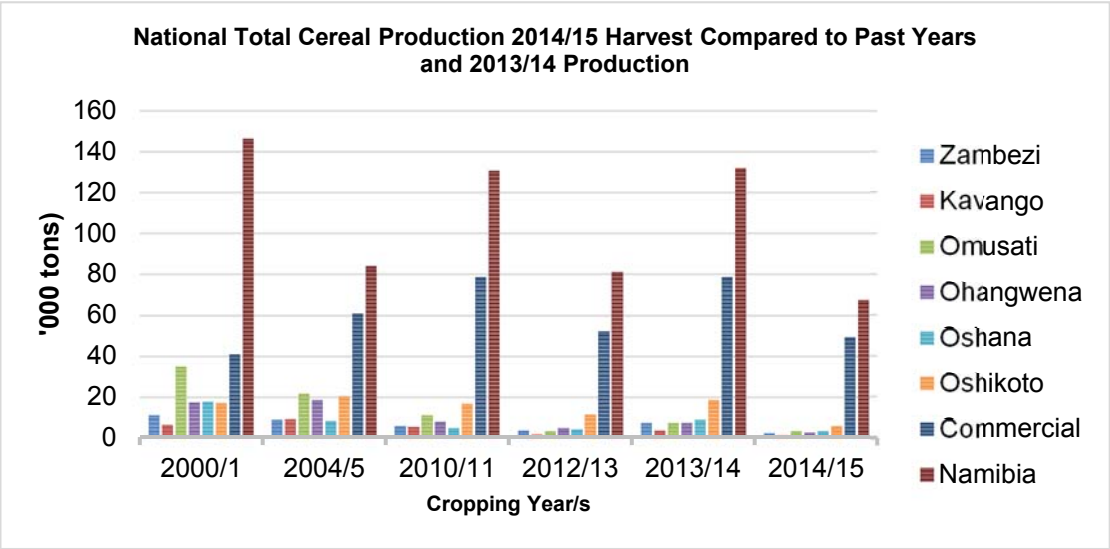
variety. Further the introduction of intercropping with cowpeas and other legumes/nitrogen fixing spp. will be adopted by the SSF. At the same time these will be linked to the training and research activities at the MCRACE.

Figure 3. Namibia Commercial Total Cereal Production 2014/15 Harvest Over a 16-Year Average



14. 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)[vii] and high unemployment rates (41%)[viii]; are worsened by crop failures and decreasing outputs due to reduced rainfall and increasing temperatures and extreme drought conditions (fig 4-5)[ix], 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



15. There is a lack of market information for other crops in Namibia, hence the policy focus uses the cereals (data on

these are available). Wherein in the crop modelling, the market information were aggregated to demonstrate potential composite benefits of cereals and other crops for diversification (with cereals treated as a proxy for all crops). It is expected that the other crops mainly for diversification their market prices will also be within a range of composite modelling. In addition to cereals, the CRAVE project will support other crops such as Okashana, baramba beans, melons, spinach, pumpkins, etc. Okashana is a drought-tolerant crops and early maturing variety. Further the introduction of intercropping with cowpeas and other legumes/nitrogen fixing species will be adopted by the SSF to enhance soil condition and diversify livelihoods. At the same time these will be linked to the training and research activities at the MCRACE.

16. Namibia electrification rate is 34% and the population without electricity is 1.4 million. Through the Energy White Paper of 1998, the Government has committed itself to introducing renewable energy sources, however this has been at a much slower pace than needed. In this the Government has committed to promote the use of economically viable renewable energy technologies (e.g. solar, hydro and wind) to improve energy access in rural areas, as a complementary supply option to grid electrification, and enhance productive of use of energy. However, under current pricing the cost of using renewable energy is initially still higher than alternatives for rural customers. The Ministry of Mines and Energy of Namibia has introduced a revolving fund to support solar energy usage for off-grid purposes to lower the threshold for RE investments. Furthermore, all imports of solar equipment has been relieved from import duties. About 80% of all rural households in Namibia rely on wood fuel as their main source of energy (FAO). This means that only 20% have access to reliable sources of clean energy. The population in Namibia is small and dispersed with the more densely populated areas in the north, in which the three target regions are situated. Consequently grid extension is limited and very costly. Considering the situation of deforestation in Namibia and limited possibilities for grid extension, energy efficiency improvement and alternative rural renewable energy solutions are needed. Some piloting activities have already been carried out with government support, such as at Tsumkwe with off-grid solar village connection. To date, there are no major renewable energy pilots in the CRAVE project targeted areas. In the three target regions, there is a huge need to improve SSF access to clean energy sources to enable them to improve their production activities, especially for agricultural water pumping services.

C.2. Project / Programme Objective against Baseline

17. 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 (41%). This is worsened by the on-going crop failures and decreasing outputs due to reduced rainfall and increasing temperatures and extreme drought conditions (fig 4-5), 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 (see Feasibility Study Analysis). Thus small-scale farming (SSF) is 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.

18. **Project objective: Reduce rural human population's vulnerability and food insecurity to climate risks and threats while increasing the adaptive capacity, well-being and resilience of the vulnerable small-scale farming communities in crop production landscapes that are threatened by climate variability and change.**

Three main activities are:

a) Establishment of the Mashare Climate Resilient Agriculture Centre of Excellence (MCRACE) including the Demonstration pilots-, Fertilizer mixing plant, organic manure and guano trials
b) Farmers Training and Adoption of Comprehensive Conservation Agric plus Good Agricultural Practices (GAP)
    i. Small scale farmer's horticultural pre, production & post production
    ii. Small scale farmer's comprehensive conservation agriculture pre, production (rain fed/dry land crop production) & post production
    iii. Micro incentive-based Crop Insurance Scheme (piloting and scaling up)
c) Solar Energy Technologies for adapted agricultural diversification and water pumping

19. Consequently, the CRAVE Project will be implemented through three components, 1. Increased adaptive capacity and enhanced climate change resilience, 2. Reduced exposure to risks and strengthened adaptive capacity to climate change adaptation, and 3 Solar energy technologies & solar water pumping promoted and widely adopted. Lessons learned and best practices are considered a crosscutting issue to be unearthed within all the three components, yet, for administrative purposes a fourth element is construed. Interventions for a paradigm shift in a subsistence economy include rain-fed and horticultural production with diversification of seed varieties for summer crops, winter crops and all-year crops. As well as organic fertiliser inputs, and alternative technologies. *The subsequent section in C2 are narrated from the Component Baseline and Component Adaptation alternatives and options, then in Section C3, the Outcomes, Outputs and Activities are captured in depth.*

Component 1: Increased adaptive capacity and enhanced climate change resilience: Baseline

20. The major inputs in farming, besides a) land and soil quality, are b) access to water, c) ownership of implements, d) farming knowledge, e) labour availability, f) fertiliser use and g) access to official producer services including extension education. In Namibia, sorghum, maize and pearl millet (*mahangu*) are the major staple crops. Although, farmers try to intercrop these with agricultural products of interest such as beans, cowpeas, bambara nuts, groundnuts, water melons, pumpkins, and vegetables, including spinach and cabbage, the success rates have not been adequate due to limited transformation focused development. Hence, especially for the coming generations and crop-farming product, diversification of these will be crucial.

21. Along the Okavango River, small-scale farmers will be supported to undertake horticultural production, fresh vegetables, using climate-resilient agricultural practices (CRA), for example conservation agriculture, low tillage, crop rotation /intercropping and maximum permanent soil cover, and micro drip irrigation to conserve water and use water efficiently. The pumping of the water will be done using solar pumps to ensure that there is reduction in the use of diesel and petrol generation that is not part of a climate-resilient Namibia. The latter is a vital co-benefit for mitigation. Climate-resilient agriculture will be ensured through the creation of a centre of excellence and the market development facility for the supply of organic manure value chain, a major limitation for farmers, growers and producers to improve soil nutrients, leading to increased yields that can contribute to agricultural growth of up to 4% over the next five years (that is, 2016-2020). The suppliers of manure or organic fertiliser will be SMEs, that is, through FBO[9]s (newly creation of the CRAVE/GCF) to be facilitated by AgriBusDev, AMTA; and MAWF will provide subsidised inputs and services to a) vegetable farmers along the Okavango; and b) crop farmers in the inlands of Kavango and Zambezi regions.

22. **Lessons:** MAWF used to manage the green scheme (GS) project but recognised that it was not efficient. Thus MAWF established two agencies to address agricultural business management and marketing barriers. These are AMTA and AgriBusDev. This is incorporating an entire value chain, from small-scale farmers (called producers - individually or as part of the FBOs). This value chain is inclusive of training and development, coaching and production, and storage and marketing management, AgriBusDev deals mainly with the first two, while AMTA deals mainly with the last. The Agronomic Board regulates maize and *mahangu* excluding beans, and fresh vegetables. All three complement the MAWF's dryland crop production, rain-fed agriculture, green scheme and NCCAP, thus encouraging local farmers (producers and growers) to produce for the local market and beyond when in ample surplus. The Agricultural Bank, set up to support farmers' focussed efforts on commercial production (private farmers), which has negatively impacted national food security now needs to bring communal farmers' subsistence production activities in the mainstream national market economy.

[9] Farmer-Based Organisations

Component 1: Increased adaptive capacity and enhanced climate change resilience: Adaptation Alternatives and Options

23. Overall, the CRAVE is set against rising food prices globally, regionally and growing crop deficits (decreases in output of 46% below average and 49% lower than previous season's production[x]) in Namibia. Agriculture (livestock and crop), fishery and forestry are Namibia's main food baskets, with 70% of the country's farmers largely relying heavily on agricultural production for their subsistence and livelihoods. The support to be provided will be divided across the individual farmers using the institutional infrastructure and systems set up through the MAWF, AgriBusDev, AMTA, AgriBank, Farmers Cooperative and CBNRM, agricultural development centres, agricultural technology centres, and regional DAPEES extension technicians). This set up is deliberately designed to enable immediate results and long-term sustainability within existing institutions, by altering existing skills, knowledge and capabilities to proactively respond to, and support, farmers with climate adaptation knowledge and information. Research and development through application will be piloted on a number of projects, which all have good CCA at demonstration sites. For instance, researching on sites that have been fertilised with inorganic fertilisers - in case they have less soil organic carbon (SOC) than those that are applied with cattle dung and vice versa. Chicken droppings are also good but require treatment due to the chicken feed, thus Namibia is more inclined to go for cattle and bird manure. To improve crop (food) production by building resilient practices, CRAVE will be using locally available organic manure and establishing market opportunities, for business entities and organisations (FBO[10]s), to enable the diversification of livelihoods, employment creation and value chain. The fundamental rationale for a paradigm shift that can alter, for example, a subsistence sector, requires a comprehensive approach for modifying an economic activity (such as crop production). To avoid maladaptation, the R&D with trials are directly linked to the Centre of Excellence for long-term monitoring while creating opportunities for full-scale uptake countrywide. The basis of this component is indivisible from the other two components as CRAVE considers the entire value chain from pre-production, production and post-production practices thoroughly.

Component: 2 Reduced exposure to risks and strengthened adaptive capacity to climate change adaptation: Baseline

24. In general, Namibia's agriculture is divided into two main production systems, based on large private commercial farms (14.5 million ha) and smallholder subsistence farming in the communal land (17 million ha) areas, respectively. Communal crop farming is confined mainly to the Zambezi, Kavango East, Kavango West, Ohangwena, Oshikoto, Omusati and Oshana regions, while commercial crop farming is largely concentrated in the "Maize Triangle" around the towns of Grootfontein, Otavi and Tsumeb, with maize as the most important crop grown both under rain-fed and irrigated conditions, although wheat is grown under irrigation on about 2 400 ha annually at various irrigated sites around the country[xi]. Despite the fact that the communal areas of Namibia have the highest, albeit, variable due to drought episodes, rainfall in the country, crop yields in communal agriculture are very low compared to those obtained in the commercial sector, mainly due to lower use of improved seed and fertilisers, inappropriate farming practices and management in the communal subsistence sector[xii].

25. In the project sites, the sizes of holding or areas cultivated by each household, generally varies (1.4 ha to 6.7 ha) with several factors including rainfall, household's assets and wealth, including cash incomes and number of cattle owned, impacting on the type and quality of farming inputs (seeds, fertiliser, labour, implements)[xiii]. In the CPP Baseline Study (2008), it was observed that households with cash income cultivated areas 25% bigger than those without any cash income, while those families owning oxen or ploughs cultivated double the area of those having no draught power and equipment. Further, inland households cultivate about 30% more than those along the river, which was also found to be true for male-headed households who cultivate 25% more than female-headed households. Farmers have a problem to access a range of information, including suitable climate-related risks and farming production technologies, post-harvest processes and markets. Market constraints include a range of services, but more pertinent are credit and business development[xiv]. To enable improved production, MAWF provides incentives to farmers (producers and growers), for example, in the form of a) inputs – seeds, b) fertilisers – manure or artificial and c) land preparation services.

26. Because soils are very poor, artificial fertilisers are provided, nevertheless, organic fertiliser, including manure or compost is most preferred. However, due to key barriers (accessibility and affordability of organic fertiliser), many small-scale farmers are unable to sustainably use them on a continuous basis mainly because the manure is either located far

[10] Farmer's Based Organisations, including existing cooperatives and unions that represent the interests of SSF.

from where people farm at places such as cattle posts or in commercial farming areas, or in resettlement areas. As a result, the majority of the rural poor small-scale farmers are neither able to afford nor access the manure. Accessibility and affordability to purchase, transport, and adequately apply manure across a large size of the cropland further impacts on the production, leading to inadequate crop harvests. Even where the manure may be available, it needs to be treated to meet environmental and social standards and safeguards. Namibia's aridity, drought-proneness, rainfall variability and poor soils further exacerbate the situation, resulting in inadequate national crop outputs. These further exacerbate the vulnerabilities of the rural poor farmers, leading to food insecurities, mostly observable at household level, as they are unable to meet basic needs. Namibia has access to two types of fertilisers, organic and inorganic to deal with the problem for poor soils. The potential sources are:

a) **Inorganic fertilisers (NPK)** can be good under stringent environmental safety guards, however, they are not good for soil and land conditions in the long run.
b) While either **manure** or **cattle dung** is available in ample supply, it is not being adequately used because the location (source) where the manure is found is too far and too costly for the individual small-scale poor farmers who need it most. Thus, a set up that enables the SSF to use manure/cattle dung efficiently is needed.
c) The other one (guano) is not yet being exploited as a potential source for organic manure in the country, although it is seen as one of the best adaptation options given the changes, but mainly exported to other countries. The third one is found in coastal marine areas where the coastal birds are found. It will be tested at MCRACE.

27. Whereas the MAWF is key in the first two types of sources with its agencies (that is, AMTA and AgriBusDev), the latter is more through the MFMR. Through R&D in component one, a paradigm shift of a potential market development of sub-economic activity (guano) is possible. The focus of CRAVE in northern crop-growing regions focuses only on the second and third sources, creating value chain, within the northern extreme crop-growing regions. SSF are unable to economically contribute to the agricultural economy. This is mainly due to lack of capacities as well as limited capabilities to make their production activities (at household level) economically viable. This limitation prohibits SSF to access any economic instruments without having targeted support or access to innovative funding streams, such as the GCF. The vulnerabilities of the beneficiaries make it difficult to benefit from any existing national instruments such as the loans in the AgriBank, hence, the need to strengthen their capacities and build their resilience to improve their market worth.

Component: 2 Reduced exposure to risks and strengthened adaptive capacity to climate change adaptation: Adaptation alternatives and options

28. MAWF currently only provides subsidized inputs and service support for the two main staple crops, that is, maize and millet. However, the adaptation alternative would be by supplementing these and supporting SSF with subsidized adaptation services and inputs for cowpeas, sunflowers, drought-resistant crops, etcetera, which will follow the same principles of 3ha/per farmer /per cropping season. Cowpeas, for instance, are an important crop (very nutritious provisioning services), as it also fixes nitrogen (supporting services), which is important to improve the poor soils as an important part towards building long-term soil resilience. The other crop that was piloted and has proven successful under improved CSA is sunflower. Sunflower can be intercropped or be part of crop rotation practices with inland farmers (producers). The rationale underlying this component is to alter the current SSF subsistence-focussed practices, addressing barriers to market penetration, and improve adaptive capacities and build resilience for a wider and sustained agricultural economy.

29. The adaptation alternative requires the modus operandi of the SSF to be transformed using adaptation options that can enable their market penetration. The existing climate stressors on the vulnerable farmers make it virtually impossible for them to effectively participate in any meaningful market scheme. Mostly SSF have to meet their household crop and food requirements before considering alternatives, such as selling the surplus, as they are unable (they severely lack adaptive capacities and financial means, for example, collateral to access financial instruments) to produce for both household and national economy, they need a mechanism to diversify and transform their economic activities. Such is to be provided through the GCF CRAVE. Without the support foreseen under CRAVE, the SSF will largely remain outside the agricultural economy. The alternative through this component will enable farmers to penetrate government local investments and reduce risks to accessing domestic local financial instruments. The main activities to be supported under CRAVE would enhance institutional and individual capacities of the vulnerable small-scale farmers to:

a) Deal with the drought, heat, soil and land degradation problem;
b) Adopt integrated SLM practices, notably comprehensively conservation agriculture, CSA, CRA and water conservation practices, including micro-drip irrigation;

c) Adopt SET for agricultural purposes linked to resilient, adaptation and mitigation practices;
d) Develop skills and practitioners' capacities, diversify practices to increase crop yields;
e) Scale up those activities to create local and regional markets that can create conducive environment for diversification of jobs and livelihoods;
f) Develop trading relationships with AMTA and AgriBusDev to create employment and generate income; and
g) Document, capture, share and replicate knowledge at the local, regional, national and global community levels.

30. A number of integrated inputs and technologies are foreseen, including provision of alternative seeds, crops, farming implements, and a set of equipment depending on local micro-climate such as hand tractor hoe, drippers, tanks, micro-RE PVPs, etc. Results from the site-level situation analysis are contained in the Annexes and FS. Furthermore, adaptation of farmers and practitioner's training to improve yields is also a key adaptation alternative. Under the theory of change (under the paradigm shift section E.2.1) and E.6.4 - application of best practices - the foundation for proposed practices is further explained.

31. Crop insurance is a mechanism, based on an index, to cover risks for crop losses under careful considerations. It is to be linked to local institutions such as the NASRIA and NAMIBRE, (which are both local state-owned direct insurer and re-insurer respectively). The pilot will assess the potential to utilise the Agronomic Board levies that accrue back to the farmers as mechanisms to pay for the premiums and other possibilities for government subsidies. See attached summary on the proposed scheme. The long term rationale for including this scheme is two-fold: that is, (a) to avert risks as well as (b) to reward (incentivise) farmers with good agricultural practices that are environmentally and climate smart. The latter (reward-based) will be piloted on a small- scale for scaling up with domestic facilities as well as for wider replication at continental or regional scale in the next phases of the GCF funding to the EIF and others.

Component: 3 Solar energy technologies & solar water pumping promoted and widely adopted: Baseline

32. Namibia has developed its Off Grid Energisation Master Plan (OGEMP) to complement the White Paper on Energy policy of 2007, which was reviewed in 2012. Although not mandatory, Namibia also formulated a robust INDC and NAMA in 2015. Namibia will need the support of the international community to overcome existing barriers, for the appropriation of technologies for both mitigation and adaptation, a sustained capacity building programme in the prioritized areas, technical support and funding to the tune of some US$33 billion at 2015 prices. The setting up of an appropriate climate observation system and the Mashare Climate Resilient Agriculture Centre of Excellence (MCRACE) is of prime importance, as.

- Research development and demonstration will be essential to develop and project climate change scenarios at higher resolutions for the different regions of the country;
- It enables precise evaluation and development of vulnerability indices for successful adaptation in the different economic sectors; and
- Assess and adapt technologies[11] for adoption under the national circumstances and develop indigenous technologies to support resilience building.

33. Key research areas for mitigation are forest inventories to improve assessment of the loss in sink capacity, refine emissions and removals estimates and the development of national emission and stock factors. For adaptation, the identification, development and dissemination - adoption to replication (full scaling up and nationwide adoption) - of climate-resilient crop varieties and livestock breeds including alternative conservation agricultural farming practices, as well as the best sustainable land management and suitable land use practices need not only to be tested, but replicated for transformative impacts. In the long-term, sufficient sustained support for capacity and funding will be needed to implement the NAMA and NAP once they are finalized. However seeing that there is ample political will and national commitment as demonstrated in the NAMA and INDC, the main barrier to transforming the national agriculture sector towards adaptation and resilient of a low emission development is lack of sufficient financial resources. Hence, this proposal is amongst the top priorities in the country for AFOLU. Namibia's resilience-building and vulnerability reduction efforts for food security mainly lie with climate-smart land uses that are inclusive of comprehensive conservation

[11] Gender–friendly agriculture technology and practices would be considered for the CRAVE project as such technologies and innovations are needed to bridge the gender gap in agriculture productivity and food security. The CRAVE procurement activities will mandate all technologies to undergo a gender screening to ensure that gender-friendly agricultural technologies are promoted.

agriculture, GAP, water harvesting and conservation measures as well as renewable energy for productive uses.

Component: 3 Solar energy technologies & solar water pumping promoted and widely adopted: Adaptation alternatives and options

34. The adaptation alternatives available in agriculture will be made robust by generating synergistic and complementary mitigation benefits, by actions such as providing access and promoting adoption of renewable energy technologies in agriculture for water pumping, refrigeration and productive uses. These are possible within the off-grid rural areas mainly inhabited by small-scale farmers. The main rationale for this support is two-fold, that is, to enable SSF to penetrate the market sustainably and to diversify their livelihoods through productive uses of energy. Once the SSF risks are reduced and adaptive capacities are built, they will still need to meet certain requirements and standards for AMTA and AgriBusDev local instruments. Without meeting such standards and quality, the SSF are likely to remain subsistence - thus capable to produce- but unable to penetrate the wider agricultural national economy, which is the main paradigm shift under the CRAVE. As a results access to energy is part of the support that is indivisible from the other two components. The rationale for the adaptation alternative is to provide for instance cool storage facilities and protect (that is, keep temperatures down) for horticultural produce in line with the required standards by AMTA. Having such elements built in CRAVE will enable the entire value chain to be developed and enable direct market penetration without additional barriers, such as alternative technologies to keep produce fresh (for a specified number of days) prior to them being transported to, for example, the Food Banks, National Food Strategic Reserves and Hubs for regional and national market needs. Further, ensuring energy access will also diversify local and community-based livelihood economic activities, such as mini-processing and other post-harvest production and value-addition economic activities. Hence, the adaptation alternative has considered maladaptive practices, such as supporting vulnerable small-scale farmers to produce enough plus surplus without having the means (technologies) nor access (facilities) to other markets.

35. The economic viability is demonstrated in the FS, thus the proposed paradigm shift is highly likely to be achieved. Consequently, it is necessary to have a well thought-out plan, including provision of access to energy, as part of the support. As part of the CRAVE gender assessment, it is recommended that disaggregated gender needs are addressed. Thus the last justification for this component is also to provide adaptation alternatives that are gender responsive. It will enable provision of solar lighting equipment (main major routes) to enable adequate lighting for farmers (especially women) when transporting their produces to the main hubs and or when working at field sites that makes them more vulnerable, for example dark locations.

Output 4: Cross cutting elements, including Learning, Best Practice, Replication and Knowledge Management

36. Although this is reflected as separate output, the main rationale for it is to provide a clear section for knowledge management, but it is cross-cutting in all project activities at all levels. CRAVE is a business approach to Crop Adaptation in Namibia thus it is a vital indivisible element. This component will enable the codification and documentation of processes, practices as well as sharing of results through the direct implementation of the CRAVE project. The rationale is to capture knowledge management elements in relation to: adaptation programming processes (GCF project formulation), applied methodologies (tools and instruments), practices (GAP, CSA, CCA) and results (through M&E).

C.3. Project / Programme Description

37. The main Outputs and Activities, according to each of the outcomes, in responding to the adaptation alternatives and baseline situation, are further detailed below.

Outcome 1 Mashare Climate Resilient Agriculture Centre of Excellence (MCRACE)
Output 1.1 Mashare Climate Resilient Agriculture Centre of Excellence (MCRACE)

- **Activity 1.1.1:** Develop the business model (production and post-production) and concept of a CRACE and establish a fully operational CE for the whole country. [Institutional Set up]
- **Activity 1.1.2:** Identify potential technology (which are gender appropriate) needed to address adaptation, including technology transfer through financial market based mechanisms (e.g. CDM, PES, REDD+, Biocarbon Fund, etc.). [Research and Development Activity]
- **Activity 1.1.3:** Conduct research activities to monitor ecosystem and landscape services and changes, systematically observing impacts related to climate change, including remote sensing.
- **Activity 1.1.4:** Provide relevant information, advice, w.r.t CCA/GAP practices, best cases, planting adaptability, land use practices, SLM techniques. [Awareness raising, Advisory role, Stakeholder engagement]

- **Activity 1.1.5:** Seed production (MCRACE & Research) and seed multiplication (SSF growers)
- **Activity 1.1.6:** Feasibility of a fertilizer mixing plant (Feasibility Study, EIA)
- **Activity 1.1.7:** Procure the inputs, equipment and services

Output 1.2 Field Research, Trial and Demonstration Sites (guano) and organic fertilisers

- **Activity 1.2.1:** Promote exchange and promote participation of scientific experts and practitioners including secondment on climate-resilient agriculture institutes. [Knowledge exchange & Mgt]
- **Activity 1.2.2:** Establish three demo sites (for example, one for crop insurance, one for seed multiplication, one for crop diversification, intercropping with legumes and others (such as sunflower intercropping) in the three target regions. These pilot areas will be closely managed and monitored with the activities at the MCRACE, as they are linked to the MCRACE activities.
- **Activity 1.2.3:** Develop, update and upgrade the piloted CA Train the Farmer - Training of Trainers materials - based on lead farmers' concept (Development of CCA Train the Farmer Manual)
- **Activity 1.2.4:** Empower both men and women to participate meaningfully in demonstration activities (including research and development) and roll out of CCA adaptation practices (increased number of women) [Leadership, training, empowerment]
- **Activity 1.2.5:** Establish three demo sites in each of the three target regions in line with sub-component 2.1 and 2.2
- **Activity 1.2.6:** Demonstration centres (with entire value chain) in partnership with the South-South Co-operation [Knowledge exchange & Mgt]
- **Activity 1.2.7:** Procure the inputs, equipment and services

Outcome 2.1 Small-scale farmer's exposure and vulnerability to climate risks and effects (to water scarcity, heat, and drought, soil degradation) reduced; and 2.3 crop insurance scheme set up.
(SSHF[12] and SSF)

Output 2.1 SSHF -Farmers (horticultural) cropping practices and production technologies

- **Activity 2.1.1:** Train, mentor and engage the farmers to improve their cropping practices. [Adopt and implement comprehensive conservation agriculture (CCA) and climate resilient agricultural (CRA) practices to produce/process/store food, including drought and heat resistant crop varieties and mentor the SSHF]. [Skills transfers, training, mentoring on-farm]
- **Activity 2.1.2:** Diversify job and income-generating opportunities to secure long-term livelihoods and food security (develop value chain and marketing practices) [implement the alternative livelihood adaptation strategies and options]
- **Activity 2.1.3:** Enable adoption of alternative energy technologies to assist farmers to effectively and efficiently implement CSA -CCA, CT, drip irrigation, soil conservation & water harvesting, tunnel farming, hydroponic, etcetera, (install SET) [acquisition of appropriate technologies]
- **Activity 2.1.4**: Assist business development – marketing, storage, processing, and value-addition (support post-production)
- Procure the inputs, equipment and services

Outcome 2.2 Small-scale farmer's irrigation and adaptive capacity for scaling up and implementation of climate-resilient crop production and smart land use practices expanded and strengthened;

Output 2.2 SSF- Farmers (rain fed) Training, Capacity Building and Development

- **Activity 2.2.1:** Train, mentor and engage the farmers to improve their cropping practices. Adopt and implement comprehensive conservation agriculture (CCA) and climate resilient agricultural (CRA) practices to produce/process/store food, including drought & heat resistant crop varieties [train, mentor, advice the SSF]
- **Activity 2.2.2:** Diversify job and income-generating opportunities to secure long-term livelihoods and food security (develop value chain and marketing practices)
- **Activity 2.2.3:** Enable adoption of alternative energy technologies to assist farmers to effectively and efficiently implement CSA-CCA, CT, drip irrigation, soil conservation and water harvesting, tunnel farming, hydroponic, etc. (install SET). [acquisition of appropriate technologies]

[12] SSHF =small scale horticultural farmers

- **Activity 2.2.4:** Assist SSF to link up with AgriBank, AMTA - business development – marketing, storage, processing, and value addition (facilitate post-production)
- **Activity 2.2.5:** Develop and implement CCA Train the Farmer [training]
- **Activity 2.2.6:** Train farmers on comprehensive CA [training]
- **Activity 2.2.7:** Identify, train and recruit CRA/CSA lead farmers linked to demonstration activities – seed, manure, insurance [champions]
- **Activity 2.2.8:** Implement TOT by SSF themselves [knowledge demo & application]
- Procure the inputs, equipment and services

Outcome 2.3 Crop insurance scheme set up (SSHF and SSF)
Output 2.3 Crop Insurance Scheme

- **Activity 2.3.1**: Scope the establishment and management mechanism for a suitable micro-crop insurance scheme targeting vulnerable and small-scale farmers (private sector led through PPP). [work with NASRIA and NAMIBRE to assess final viability and pilot]
- **Activity 2.3.2:** Implement and roll out the crop insurance scheme targeting vulnerable and small-scale farmers (private sector led through PPP) [implementation]
- **Activity 2.3.3:** Upscale (scale up) and replicate the crop insurance scheme [lessons learned, adjustments, skills transfers, tool kits, guidelines for replication]
- **Activity 2.3.4:** Procure the inputs, equipment and services

38. Crop insurance is a mechanism, based on an index, to cover risks for crop losses under careful considerations. It is to be linked to local institutions such as the NASRIA and NAMIBRE, (which are both local state-owned direct insurer and re-insurer respectively). The pilot will assess the potential to utilise the Agronomic Board levies that accrue back to the farmers as mechanisms to pay for the premiums and other possibilities for government subsidies. *See attached summary on the proposed scheme*. The long term rationale for including this scheme is two-fold: that is, (a) to avert risks as well as (b) to reward (incentivise) farmers with good agricultural practices that are environmentally and climate smart. The latter (reward-based) will be piloted on a small- scale for scaling up with domestic facilities as well as for wider replication at continental or regional scale in the next phases of the GCF funding to the EIF and others.

Outcome 3.1 Alternative sustainable access for off-grid solar energy technologies widely promoted, adopted and applied (in the three targeted regions) (SSHF and SSF*)*
Output 3.1 Solar Water Pumping for Agriculture

- **Activity 3.1.1:** Provide technology and appliances access for off-grid solar energy technologies [acquisition of gender appropriate technologies].
- **Activity 3.1.2:** Facilitate farmers' access to acquire alternative energy technologies [adoption, mentorship and training, application]
- **Activity 3.1.3:** Promote extensive adoption of SET for agricultural market penetration in the three target regions [replication and scaling up]
- **Activity 3.1.4:** Design specific and targeted SSF information booklets for SET application, use and adoption as part of regional CCA practices [Awareness raising, stakeholders information, and replication]
- **Activity 3.1.5:** Procure the inputs, equipment and services

Outcome 3.2 Diversified livelihoods, jobs and income generating streams and opportunities for target beneficiaries created and effectively developed and marketed (SSHF and SSF*)Output 3.2 Diversification & Alternative Sustainable Livelihoods Adaptation*

- **Activity 3.2.1:** Develop market supply and value chains linked to AMTA – Hubs, cool storage, NFSR and national food security banks [markets development & marketing practices]
- **Activity 3.2.2:** Empower both men and women to participate meaningfully in entrepreneur marketing and roll out of adaptation (including. processing, storage and marketing/selling) [business and leadership skills development & mentorship]
- **Activity 3.2.3:** Develop tailor-made Livelihood diversification, jobs and income earning [chains [implement the alternative livelihood adaptation strategies and options]
- **Activity 3.2.4:** Facilitate institutional and individual -vertical and horizontal - integrated packages & linkages for SSF's producers, growers and sellers at local, regional and national levels

- **Activity 3.2.5:** Procure the inputs, equipment and services

Output 4: Cross cutting elements, including Learning, Best Practice, Replication and Knowledge Management
Output 1.2 Field Research, Trial and Demonstration Sites Facility (guano) and organic fertilisers

- **Activity 1.2.1**: Promote exchange and promote participation of scientific experts and practitioners including secondment on climate-resilient agriculture institutes [knowledge exchange & Mgt]
- **Activity 1.2.2:** Establish three demo sites (for example, one for crop insurance, one for seed multiplication, one for crop diversification, intercropping with legumes and others (such as sunflower intercropping) in the three target regions. These pilot areas will be closely managed and monitored with the activities at the MCRACE, as they are linked to the MCRACE activities [demonstration]
- **Activity 1.2.3:** Develop, update and upgrade the piloted CA Train the Farmer - Training of Trainers materials - based on lead farmers' concept (Development of CCA Train the Farmer Manual) [adaptive learning]
- **Activity 1.2.4:** Empower both men and women to participate meaningfully in demonstration activities (including research and development) and roll out of CCA adaptation practices (increased number of women) [leadership training and mentorship]
- **Activity 1.2.5:** Establish three demo sites in each of the three target regions in line with sub-component 2.1 and 2.2
- **Activity 1.2.6:** Demonstration centres (with entire value chain) in partnership with the South-South Co-operation [Knowledge exchange & Mgt]
- **Activity 1.2.7:** Procure the inputs, equipment and services

39. Although this is reflected as separate output, the main rationale for it is to provide a clear section for knowledge management, but it is cross-cutting in all project activities at all levels. CRAVE is a business approach to Crop Adaptation in Namibia thus it is a vital indivisible element. This component will enable the codification and documentation of processes, practices as well as sharing of results through the direct implementation of the CRAVE project. The rationale is to capture knowledge management elements in relation to: adaptation programming processes (GCF project formulation), applied methodologies (tools and instruments), practices (GAP, CSA, CCA) and results (through M&E).

- **Activity 4.1:** Conduct academic including participatory action field research and survey on impacts of climate change on crops, wellbeing (including intra household food security situation) and codify appropriate suitable adaptation measures [research and publication]
- **Activity 4.2:** Undertake inventories of best conservation productive-based practices (that is, environmentally-friendly production), document traditional knowledge and alternative practices for coping with climate variability and extreme weather [adaptation learning]
- **Activity 4.3:** Develop, replicate and upscale participatory conservation agriculture monitoring systems involving locally trained farmers and youth [participatory research & monitoring]
- **Activity 4.4:** Develop a national toolkit on implementation of CRAVE, to be up-scaled in all seven northern crop-growing regions and shared internationally [replication and scaling up]
- **Activity 4.5:** Organise conferences, seminars, symposia, farmers agricultural expo and exchanges
- **Activity 4.6:** Conduct audit, prepare reports, & carry out monitoring and evaluation (M&E) activities [M&E]
- **Activity 4.7:** Risk management (review, monitor and manage the CRAVE Risks and ESIA) [environmental and social safeguard]
- **Activity 4.8:** Procure the inputs, equipment and services.

C.4. Background Information on Project / Programme Sponsor

40. 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 CRAVE, 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.

41. The 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 Environmental Investment Fund of Namibia 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. A solid embryo for an exit strategy of the CRAVE project is, therefore, embedded in the EIF policies and management structures.

42. Since Namibia's independence in 1990, institutional structural support through CBNRM 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 Regional CCA, which are elaborated in the multi-stakeholder engagement and participation plan. EIF will enter into contractual agreements with executing agencies 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)

43. Agriculture is Namibia's second largest primary industry after mining. Approximately 48% of Namibia's rural households directly depend on subsistence agriculture. Over the period surveyed, 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.[13] 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.[14] Namibia continues to import more than 50% of cereals and horticultural products consumed locally.

44. 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.[15] Namibia's agricultural production is presented in Table 5. 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.

45. The Namibia Statistics Agency and the Ministry of Agriculture, Water and Forestry are conducting an Agricultural Census of both communal[16] and commercial areas, the first since 1994/95. The Communal Area survey was recently

[13] FAOSTAT.
[14] FAOSTAT.
[15] FAO Country Programming Framework for Namibia 2014-2018, undated, Rome.
[16] The Namibia agriculture sector consists of two types of land ownership, namely a) freehold titles (commercial) which covers about 44% and accommodates only 10% of the population; and b) non-title deed (i.e communal), which covers 41% of the land with 60% of the population. Communal is a type of land ownership that is managed in commonage, where the majority of subsistence small scale farmers produce.

released in November 2015 and reveals that maize recorded the highest sales (1 520 tonnes) whilst millet/*mahangu* recorded the second highest at 1 342 tonnes.

Table 6 Communal Areas' quantity of crop product sold by type of crop, total value, receiving clients (2015 Agric Census)

Crop Name	Quantity Sold (in tonnes)	Value sold (N$)	Govt. org	Private trader local market	Private trade constituency	Consumer at market	Neighbour/relative	Other
Wheat	2	5 264	-	2	-	-	-	-
Maize	1 520	3 391 081	137	466	404	316	123	73
Sorghum	158	445 261	1	10	6	34	67	27
Millet/Mahangu	1 342	3 537 706	110	125	48	189	744	122
Cabbage	2	7 923	-	-	-	-	2	-
Water melon	100	25 179	-	-	-	100	-	-
Pumpkin	13	8 339	-	-	3	-	1	9
Carrots	-	10 513	-	-	-	-	-	-
Other vegetables	2	14 734	-	-	-	-	1	1
Soya beans	7	16 408	4	1	-	2	-	-
Ground nuts	13	86 030	-	-	-	6	3	4
Sweet potatoes	1	7 937	-	-	-	1	-	-
Beans	97	110 371	-	1	3	12	74	-

46. The Namibian Market Share Promotion (MSP) Programme run by the Namibia Agronomics Board requires all importers of horticulture fresh produce to buy a certain minimum percentage of fresh produce cultivated in Namibia before a permit is granted for imports. This programme is aimed at encouraging local production of fruits and vegetables. When the programme was established in 2005, the compulsory percentage was 5%, but this has been progressively increased to 39% for the 2013/2014 financial year and had reached 45% by the first quarter of 2016.

47. Subsistence farmers currently do not contribute to exports, as they are solely producing for domestic food security. Hence, the CRAVE interventions and paradigm shift through building resilience and improving food security for farmers aim to make SSF part of this entire value chain. Firstly, SSF will need to adapt to the climate risks to enable them to meet their immediate food security needs at household level; then they will be directly linked to institutions (AgriBusDev and AMTA) that will support horticultural productions to transform (enable) them to produce more than just for HH consumption. This shift is to bring the SSF production into mainstream agricultural economy, enabling them to trade surpluses to the regional (sub-national) and national hubs [these are the National Strategic Food Reserves and Food Banks]. At the same time, the government has provided for a Market Product Share that is capped at 42% since not all produce are produced in Namibia. First, to meet local consumption needs for horticultural produces, AgriBusDev and AMTA are required to assist farmers to produce and procure locally and once the local market is fully absorbed then export can be considered. The paradigm shift through CRAVE is to bring the vulnerable SSF (production) into this existing market, which has marketing instruments but due to the SSF vulnerability they are not able to penetrate it without deliberate adaptation efforts.

Table 7 Horticulture Performance of local vs Imported tonnage and total value (N$ mil)

Tonnage	**2011**	**2012**	**2013**	**2014**	Tonnage	**2011**	**2012**	**2013**	**2014**
Local	27 781	28 834	36 775	28 242	Local	43%	45%	45%	38%
Import	36 791	35 753	44 124	46 790	Import	57%	55%	68%	62%

Total	64 572	64 587	80 899	75 032	Total	100%	100%	125%	100%
Value N$	**2011**	**2012**	**2013**	**2014**	Value N$	**2011**	**2012**	**2013**	**2014**
Local	72	92	134	100	Local	25%	27%	40%	27%
Import	218	255	205	264	Import	75%	73%	60%	73%
Total	290	347	339	364	Total	100%	100%	100%	100%

48. 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.

49. In February 2015, the MAWF announced increases in the general levies applicable to imports of pearl millet, wheat and white maize seed (5% plus VAT on the landed cost, up from the 2012 rate of 0.95%). Levies on all such products are to be collected by AMTA appointed by the NAB. The general levies applicable to horticulture products were increased as of December 2014. Producers, purchasers and sellers of horticultural products pay a levy of 1.4% on the selling price (up from the 2002 rate of 1.2%), while importers pay a levy of 5% (up from 1.2%). Levies on all such products are to be collected by the Agro Marketing and Trade Agency (AMTA) appointed by the Namibia Agronomic Board. Through the crop insurance scheme, this levy will be used to supplement crop cover.

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

50. The Environmental Investment Fund of Namibia is exempted from tax. The CRAVE 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 Labour 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[17] US$200,000) to medium (for example CPP/US$7 000 000). For CRAVE, it is foreseen that a micro-crop insurance scheme will be initiated to insure the immediate losses **th**at may occur, in case of shocks during the project timeframe, nevertheless with a long-term deliberate risk avert element to continue as an incentive-based scheme afterwards, so as to ensure an exit strategy that provides sustainable security against future losses.

C.7. Institutional/Implementation Arrangements

51. The CRAVE Project will be implemented by EIF, in partnership with the executing agencies aforementioned. These partners and stakeholders are 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 executing and on-the-ground implementing agencies/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. On-demand partnerships for effective service delivery with strategic institutions will also be catered for through the MCRACE[18] to enable technical exchanges. The operational costs for the partners/agencies/stakeholders are contained within the baseline investment costs (estimated at US$30 million), with a direct US$505,000 supplementary budget (that is, co-financing by MAWF) thus CRAVE will not cover for transaction costs or their operations but purely to collaborate and coordinate to ensure sustainability.

[17] Initial National Communication/Second National Communication.
[18] Mashare Climate Resilient Agriculture Centre of Excellence.

52. For the Crop Insurance Scheme, the two partners will be the National Special Risk Insurance Association (NASRIA) and NAMIBRE. NASRIA is a body responsible for certain special risks (e.g. war damage, riot and civil commotion). The Act (i.e. Second Finance Act 27 of 1987) for NASRIA is being revised to include special other risks such as drought and climate related risks. It will work in complement with NAMIBRE. Crop insurance is a mechanism, based on an index, to cover risks for crop losses under careful considerations. It is to be linked to local institutions such as the NASRIA and NAMIBRE, (which are both local state-owned direct insurer and re-insurer respectively). The pilot will assess the potential to utilise the Agronomic Board levies that accrue back to the farmers as mechanisms to pay for the premiums and other possibilities for government subsidies. See attached summary on the proposed scheme. The long term rationale for including this scheme is two-fold: that is, (a) to avert risks as well as (b) to reward (incentivise) farmers with good agricultural practices that are environmentally and climate smart. The latter (reward-based) will be piloted on a small- scale for scaling up with domestic facilities as well as for wider replication at continental or regional scale in the next phases of the GCF funding to the EIF and others. Both NASRIA and NAMIBRE will not serve as an EE in this regard, but it are financial instruments owned by the government, thus they will serve as enablers for the scaling-up of the insurance scheme after the pilot testing. The experience of setting up agricultural index based insurance for micro and small farmers (SSF) has been that government and their institutions play a major role in terms of de-risking the sector before full private sector penetration.

53. The PIU will be 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, CRAVE 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. The management of CRAVE 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. The CRAVE Management Body (Board) that will be based in Windhoek, and a project steering committee (regional CCA fora), which is to be based at the regional level. The Project Implementing Unit complements the two. 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.

54. Thus 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 CRAVE Board. 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 CRAVE Management Board. 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 CRAVE 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 Board, stakeholders and media outreach; and implement decision of the Project Board;
- Facilitate communication, reporting and networking among key stakeholders, project beneficiaries, executing entities and the Project Board;

- Supervise CRAVE staff;
- Support the implementation of the M-SEPP[19] to ensure that all key and relevant stakeholders are engaged and involved with the CRAVE project.
- Negotiate contracting terms and performance measures in accordance with the EIF rules as pertaining to the Funded Activity Agreement (FAA).

55. The **CRAVE PIU** will be mainly comprised of professionals with seven dedicated staff members remunerated through the project. Three of which will be fully dedicated to the regional activities for localised and decentralised project support as part of project implementation on the ground. The following positions are envisaged: National Project Manager (1); Project Accountant[20] (1); Professional Apprentices[21] (2) for capacity building and sustainability purposes; Monitoring and Evaluation Officer[22]; Communication, Outreach and Media Officer[23]; 3 x Regional DAPEES CASO[24] (MAWF mainstream to be attached to the project); 3 x Regional Project Technical Officers (for example with BA/BSc in Agriculture – agronomy/CCA). 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 CRAVE PIU, National Project Manager and PA will handle the day-to-day administration of CRAVE.

[19] Multi Stakeholder Engagement Participation Plan

[20] 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.

[21] The project apprentices will be recruited at Graduate level in the agriculture, economics and marketing fields. They will support the CRAVE project 'research and development, marketing analysis, business development and livelihood product diversification strategy development. The main results will contribute to the capacity building efforts in the field of climate resilient agriculture. They will be attached to the practical learning through the various surveys that will be supported under the project.

[22] The CRAVE Project M&E officer would have qualifications such as a four-year Honours degree with the minimum experiences of five years. S/he will be responsible for both internal and external independent evaluation frameworks, set up the project day to day monitoring and reporting requirements. S/he will manage the M&E Plan, including regular updates and reporting milestones.

[23] The Communication Officer would be recruited at Graduate Level. S/he will be responsible for both internal and external communication strategy of the CRAVE Project, and act as the media liaison officer, ensuring proper branding and raising awareness to targeted audiences, especially local language diversity.

[24] MAWF CASO are government officials who will be responsible for backstopping and ensuring that the CRAVE activities are co-implemented and aligned within the overall MAWF NCCA programme and Ministerial' mandates.

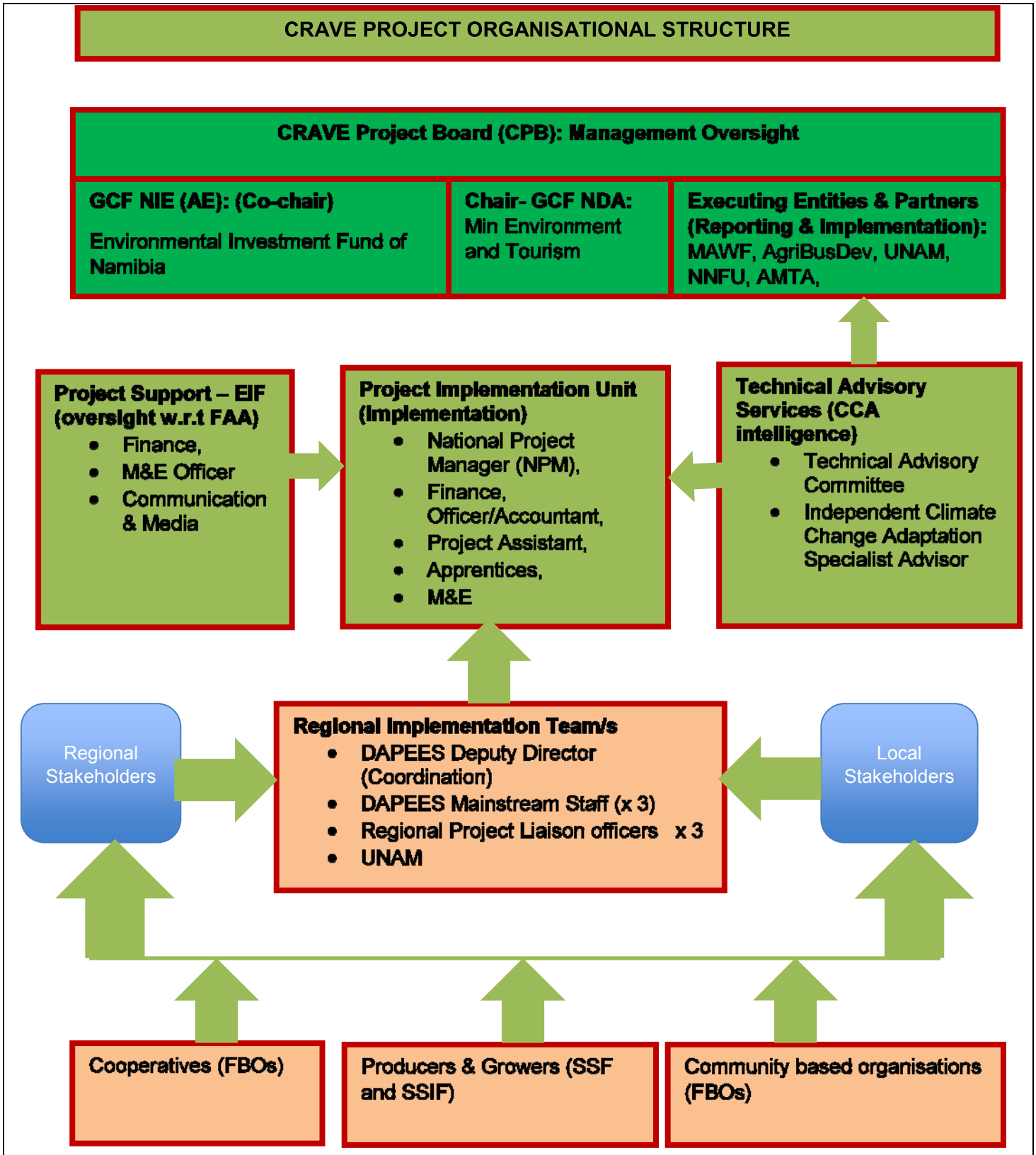


Figure 5 CRAVE Project Organogram

56. The EIF as an accredited entity of the GCF will take overall fiduciary responsibility for entering into contracts with all service providers. EIF will ensure that the GCF guidelines are strictly followed and adhered to in line with its accreditation conditions. All legal agreements in Namibia are enforceable as governed by Namibian contract law, hence counterparty risks, a core element of all legal agreements in Namibia, provide legal cover for the EIF to cover risks. The Namibian justice system, uphold by the Constitution - to which the EIF is obligated, is robust with adequate recourse mechanisms all the way to the Supreme Courts. There are no construction works envisaged in the proposed project, except adjustments and refurbishments to the Mashare Agricultural Centre to enable it to function as a centre of excellence for Climate Resilient Agriculture. For the RET/SET we envisage the installation of solar pumps and panels, which will be set up at the existing farming lands used for SSF and horticultural activities. The EIF procurement and financial procedure manual will be the guiding document for the internal project implementation unit (that is, CRAVE PIU). Figure 3 depicts better the information flow and reporting lines among key entities.

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	Q21	Q22	Q23	Q24
Output 1. Mashare Climate Resilient Agriculture Centre of Excellence (MCRACE) Facility																								
Activity 1.1. Develop the business model (production & post-production) and concept of a CRACE and Establish a fully operational CE for the whole country																								
Activity 1.2. Identify potential technology needed to address adaptation, including technology transfer through CDM, PES, REDD+, Biocarbon Fund																								
Activity 1.3. Monitor Ecosystem and Landscape Services and Changes, systematically observing impacts related to climate change																								
Activity 1.4. Provide relevant information, advice, etc., w.r.t CCA/GAP practices, best cases, planting																								

adaptability, land use practices, SLM techniques																							
Activity 1.5. Seed production (MCRACE & Research) and Seed multiplication (SSF growers)																							
Activity 1.6. Feasibility of a Fertilizer Mixing Plant (Feasibility Study, EIA)																							
Procure the inputs, equipment and services																							
Output 2. SSHF - Farmers (Horticultural) cropping practices, production & post Production Business Devt & technologies Facility																							
Activity 2.1. (mentor the SSHF) Adopt and implement comprehensive conservation agriculture (CCA) and climate resilient agricultural (CRA) practices to produce/process/store food, including drought & heat resistant crop																							

varieties																							
Activity 2.2. (develop value chain) Diversify job and income generating opportunities to secure long-term livelihoods and food security																							
Activity 2.3. (install SET) Enable adoption of alternative energy technologies to assist farmers to effectively and efficiently implement CSA -CCA, CT, Drip irrigation, Soil Conservation & Water Harvesting, Tunnel Farming, Hydroponic, etc.																							
Activity 2.1.4 (support post production) Assist business development – marketing, storage, processing, & value addition																							
Procure the inputs, equipment and services																							
Output 2.2 SSF-Farmers (rain fed)Training,																							

Capacity Building and Development Facility																							
Activity 2.2.1 (train the SSF) Adopt and implement comprehensive conservation agriculture (CCA) and climate resilient agricultural (CRA) practices to produce/process/store food, including drought & heat resistant crop varieties																							
Activity 2.2.2. (develop value chain) Diversify job and income generating opportunities to secure long-term livelihoods and food security.																							
Activity 2.2.3. (install SET) Enable adoption of alternative energy technologies to assist farmers to effectively and efficiently implement CSA -CCA, CT, Drip irrigation, Soil Conservation & Water Harvesting, Tunnel Farming, Hydroponic, etc.																							

Activity 2.2.4 (facilitate post production) Assist SSF to link up with AgriBank, AMTA - business development – marketing, storage, processing, & value addition																							
Activity 2.2.5 Develop and implement CCA Train the Farmer																							
Activity 2.2.6 Train farmers on comprehensive CA																							
Activity 2.2.7. Identify, Train and Recruit CRA/CSA Lead Farmers linked to demonstration activities –seed, manure, insurance																							
Activity 2.2.8 Implement TOT by SSF themselves (demo)																							
Procure the inputs, equipment and services																							
Output 2.3 Crop Insurance Scheme																							
Activity 2.3.1. Scope the establishment and management mechanism for a suitable micro crop insurance scheme																							

targeting vulnerable & small scale farmers (private sector led through PPP)																							
Activity 2.3.2. Implement and roll out the crop insurance scheme targeting vulnerable and small scale farmers (private sector led through PPP)																							
Activity 2.3.3 Upscale & replicate the crop insurance scheme																							
Procure the inputs, equipment and services																							
Output 3.1 Solar Water Pumping for Agriculture Facility																							
Activity 3.1.1 Provide technology and appliances access for off-grid solar energy technologies																							
Activity 3.1.2 Facilitate farmers to acquire alternative energy technologies																							
Activity 3.1.3 Promote extensive																							

adoption of SET for agricultural adaptation in the three target regions																								
Activity 3.1.4 Design specific and targeted SSF information booklets for SET application, use and adoption as part of regional CCA practices																								
Procure the inputs, equipment and services																								
Output 3.2 Diversification & Alternative Sustainable Livelihoods Adaptation Facility																								
Activity 3.2.1 Develop market supply and value chains linked to AMTA – Hubs, cool storage, NFSR & national food security banks																								
Activity 3.2.2. Empower both men and women to participate meaningfully in entrepreneur marketing & roll out of adaptation (inlcd. processing, storage & marketing/selling)																								

Activity 3.2.3 Develop tailor-made Livelihood diversification, jobs and income earning chains																							
Activity 3.2.4 Facilitate institutional and individual -vertical & horizontal - integrated packages & linkages for SSF's producers, growers and sellers at local, regional and national levels																							
Procure the inputs, equipment and services																							
Output 4. Cross cutting elements, including Learning, Best Practice, Replication and Knowledge Management																							
Activity 4.1. Conduct Academic including Participatory Action Field Research on impacts of climate change on crops, wellbeing & codify appropriate suitable adaptation measures																							
Activity 4.2. Undertake																							

inventories of best conservation-productive based practices, document traditional knowledge & alternative practices for coping with climate variability and extreme weather																							
Activity 4.3. Develop, Replicate and Upscale Participatory Conservation Agriculture Monitoring Systems involving locally trained farmers and youth																							
Activity 4.4 Develop a national toolkit on implementation of the CRAVE, to be up-scaled in all seven northern crop growing regions & shared internationally																							
Activity 4.5 Organise Conferences, Seminars, Symposia, Farmers Agricultural Expo & Exchanges																							
Activity 4.6 Conduct Audit, Prepare Reports, & Carryout Monitoring and Evaluation (M&E)																							

Activity 4.7 Risk management (Review, Monitor and Manage the CRAVE Risks and ESIA)																								
Procure the inputs, equipment and services.																								

D.1. Value Added for GCF Involvement

57. Without GCF involvement to complement ongoing efforts and address gaps, CRAVE cannot take adequate steps to help vulnerable communities adapt to climate-related risks and impacts, making them more susceptible to food insecurity and hunger. Namibia, one of the driest countries in sub-Saharan Africa, is largely dependent on development sectors that are highly sensitive to climate. The country's primary economic sectors are natural resource-based - agriculture, fisheries and mining - which account for about one-third of the total GDP. Income distribution in Namibia is extremely inequitable, the Gini-coefficient is about 0.6 (2015 CIA World Factbook), and thus Namibia has one of the most inequitable income distributions in the world. Almost three quarters (70%) of the population depends on subsistence agriculture, a very climate-sensitive sector. Thus, for example, in drought years, food and water shortages are a major problem in rural areas, where the majority of the poor and vulnerable groups live.

58. Namibia is amongst the most vulnerable countries to climate change. The predicted temperature rise and evaporation increase as well as higher rainfall variability will exacerbate the existing vulnerabilities and challenges that Namibia is facing as the driest country south of the Sahara. The potential effects of these climatic changes could prove catastrophic to the communities, population and economy at large, directly likely to impact the most vulnerable groups of the economy, which are the poor, women, disabled and unemployed youth. To do the global common good voluntarily while concurrently tackling national challenges has proven a major challenge due **to limited financial, technical and technological choices and options** availed to the country. Thus Namibia aspires to work in partnership with the global community through the collective resources to change the national economic development trajectory without neglecting national efforts that are aimed at alleviating poverty and food insecurity; eliminating societal and gender inequalities; guaranteeing 100% access to safe water; ensuring human health; educating the young and empowering all citizens. 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:

59. **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.

60. **Capacity building and value chains:** CRAVE 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.

61. **Research for Development and Innovations for scaling up Conservation Agriculture:** The role of research is integral part of the project and reoriented to support innovations such as climate insurance schemes that 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 farmers' adaptive capacities and support the national vision of achieving food security.

62. 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.

63. Without the support and direct involvement of the GCF, to transform the agricultural sector, the largest portion of the Namibia's entire economy is likely to suffer huge losses, rendering the poor more vulnerability to climate risks. GCF offers an opportunity to address food insecurity within the poorest regions in the country, thus scaling up successful piloted practices to maximise the impacts in targeted communities. As part of the INDC, the support from the GCF is highlighted as imperative to enable the country to transform towards a low emission economic development path. Lastly, although this project is on a very small scale (small project) it directly addresses the decision taken by the GCF Board, thus will serve as one of the good demos for GCF-funded projects, as this project will assist the GCF in meeting its investment strategic and portfolio targets per decision B.06/06. *See table below.*

64. Namibia is committed to achieving **a 1.5°C global goal**. This requires policies that involve unprecedented economic, social and technological transformation, as economies shift towards **low-carbon and climate change-resilient infrastructure investments.** Namibia is willing and strongly committed to contribute its fair share to reach the global objective. Despite the fact that **the country is already operating with low emissions compared to the developed countries**, Namibia continues to aspire to take great leadership, commitment and has demonstrated political willingness to realise the UNFCCC objective. For instance, Namibia actively participates and contributes to the global reforms and shared agreements at the UNFCCC level. It has, without fail, **kept to the Convention's mandatory obligations and commitments and transparently reported its status on the GHG emissions** through the (a) national communications (INC and SNC) plus Namibia was the first developing country to fulfil the (b) biennial update requirements by submitting the BUR1 in 2014. It has undertaken many voluntary initiatives to address this, yet it is facing many challenges and barriers to realising the long-term objectives. This is so because Namibia is aspiring to become an industrialised country by the year 2030 without necessarily following the paths taken by developed countries. Hence, Namibia hopes to receive fair support to sustain its good political will, government efforts and community practices to tackle the country climate driven challenges and continue its development to improve the welfare of the Namibian people by addressing regional and global development inequalities.

D.2. Exit Strategy

65. **Project sustainability design:** The proposed project has been designed through extensive consultations and involvement of government, public sector, private sector, NGOs, and CSOs to ensure ownership of the interventions and effectiveness of their impact. Relevant government departments (national and sub-national level), as well as local communities, have been involved in the proposed design and will be leading on implementation of project interventions. This participatory approach has been initiated through collaboration on developing the Feasibility Assessment (Annex 2) as well as design of the proposed measures. Stakeholders Consultation Report is also attached as an Annex 3.4. Building on this foundation, the project ensures that the investments as well as the results are sustained beyond the project duration and for the long-term through the following:

66**. The economic and investment feasibility of the project is positive:** The economic and financial models provide for both the micro and macro perspectives and corroborate the viability of the CRAVE GCF investment that is considered sustainable beyond the project life cycle. The design of the CRAVE has fully considered an exit strategy that strongly relies on the existing institutional infrastructures (AgriBank, AMTA, UNAM, NNFU, AgriBusDev), and instruments and structures, mainly the EIF, a dedicated national funding and investment instrument that has for for example Green Soft Loans. Building on the community consultations held during the project design period while conducting the site-level situation analysis, there will be information meetings with beneficiaries and stakeholders commencing again with the project inception phase and throughout the implementation. This will ensure that local, traditional and scientific knowledge, and capacity building activities are horizontally and vertically integrated at all levels.

67. **Building on existing systems and initiatives:** Where it will provide guidance on integrating risk reduction and climate change responses into national planning and development processes. Rather than develop new initiatives from scratch, the project will build on, strengthen and scale up relevant existing initiatives to facilitate adaptation. In

this regard, the government has prepared national policies, strategies and instruments with specific programmes that are aimed at ensuring that support through development funds (bilateral/multilateral) are sustained. NCCSAP, NCCP and NAP are part of these. CRAVE is developed by the MAWF with its partners. And the Government with partners have developed the NCCAP of 2016, which is fully budgeted for in the Medium Term Expenditure Framework (MTEF), a three-year rolling budget instrument - and is part of the committed co-financing resources by government.
The programme will strengthen institutional ties among the different CCA stakeholders to ensure the project's sustainability and will mobilise local resources during implementation. Building on local experience, indigenous knowledge is essential for the avoidance of mistakes, and sustainability of CC adaptation measures. Hence, CRAVE is crafted to complement Government baseline investment initiatives such as the CSA, NCCAP, NCCSAP, to mention but only three. Incorporating local knowledge, by working directly with local farmers, ensures sustainability and fosters continuity and buy-in to achieve the desired outcomes and impacts, and is more sustainable.

68. **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, SSFs' 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 and that facilities to for for example provide security and safety for the produce are run effectively.

69. **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 SSF are catered for. Thus CRAVE directly include MAWF CASO, FBOs, MAWF ADC as target institutions. CRAVE considers the paradigm shift to the crop production practices in three regions, focussing on dryland crop production (MAWF& UNAM), horticultural production (AgriBusDev) and post-production practices (AMTA & AgriBank & EIF), and lastly linking these to the centre of excellence (MCRACE) that will provide support to long-term research, training and development needs, specifically crop and seed better suited for adaptation. A levy built in the AMTA operations that is reinvested into the SSF is to provide long-term training support.

70. **Technology sustainability:** Technologies - to be initially granted freely to vulnerable SSF - will be used to diversify the productive uses associated with energy access, for example the provision of cool storage facilities to keep horticultural produces fresh; the pumping of the water to water the crops using RET/SET 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 SSF, 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-SME Bank 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. For the CRAVE beneficiaries, the vulnerabilities of the SSF makes it virtually impossible to acquire them, however, once they are in a position to produce for domestic consumption and market the surplus to national strategic food reserves then they will cover fully their own operational costs for the SET/RET, which have a life cycle of 15 years or so, as these ones are suitable for the micro weather conditions, etcetera. Sustainability is secured with the financial instruments, for example EIF Green Soft Loans; OGEMP and Solar Revolving Fund.

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

71. CRAVE impacts are within adaptation directly towards GCF ***A1.0 Increased resilience and enhanced livelihoods of the most vulnerable people, communities and regions***; and ***A2.0 Increased resilience of health and well-being, and food and water security, along with the outcome A7.0 Strengthened adaptive capacity and reduced exposure to climate risks***. The immediate results, that is, a) improving food security at household level; b) creating businesses, that is, for fresh produce and for organic fertiliser; and c) post-harvest development and marketing for different crop varieties including supplying the surplus to the National Strategic Food Reserves (NSFR) and Food Banks that are aimed at alleviating poverty. The main impact will be felt within the overall agricultural growth from the current 3% to 4%, which is very likely as output of crop per hectare is higher than livestock. Improved services and inputs, access to alternative energy technologies (SET) and farming implements and creating employment and jobs through the SME manure and post-harvest development. These impacts are linked to institutions such as the AMTA and AgriBusDev for sustainability during and post-project. By changing some key operations, the approach has also an impact on agricultural mechanisation and the equipment choices and hence influences in the long-term the agricultural machinery supply sector. Dealers and sales points in rural areas will likely be encouraged to adjust their outlets once increased demand for CA-relevant equipment becomes evident.

72. One of the most noticeable changes for the farmer, as a result of introducing conservation agriculture, is the reduced requirement for farm power and labour. Conservation agriculture can reduce the overall requirement for farm power and energy for field production by up to 60 % compared to conventional farming. This is due to the fact that the most power-intensive operations, such as tillage, are eliminated. Additionally, equipment investment, particularly the number and size of tractors, is significantly reduced. This effect applies equally to small-scale farmer using only hand labour or animal traction.

73. The energy cost of tractor–powered crop production with conventional tillage and direct seeding total inputs are 40-50% lower for conservation agriculture. This is primarily caused by reduced absolute amounts of input: herbicide and fuel. Machinery energy inputs are generally 20-40% lower with conservation agriculture, which is logically due to the elimination of the need to plough. The systems studied showed reductions of over 60% in fuel consumption and this would be an equivalent figure for both human-powered and DAP systems. This saving in energy will be of particular interest to small-holder farmers looking to invest less time in agricultural production and more in pursuit of off-farm jobs; or wishing to expand the planted areas.

74. The effects of conservation agriculture described above such as higher and more stable yields with lower input costs and a better adaptation to dangers of climate change clearly have a positive impact on farmers' livelihoods. But there are also more direct impacts, which have potential to turn around the daily and seasonal calendar and, in the long-term, change the rhythm of farmers' family because of the reduced labour requirements for tillage, land preparation and weeding likely to occur. Especially women may be released from weeding tasks that traditionally were a 'woman's task'. More time availability offers real opportunities for diversification options such as poultry farming or on-farm sales of produce, or other off-farm small enterprise developments that now (with time available) are a 'real' opportunity.

75. The Impact Potential: The CRAVE impacts will be towards GCF A1.0 and A2.0. The direct immediate results include: a) improving food security at household level; b) creating businesses, that is, for fresh produces and for organic fertilizer; and c) post-harvest development and marketing for different crop varieties including supplying the surplus to the National Strategic Food Reserves (NSFR) and Food Banks that are aimed at alleviating poverty. The main impact will be felt within the overall agricultural growth from the current 3% to 4%, which is very likely as output of crops per hectare is higher than livestock. This proposal is supporting the crop production sector, which has potential for increased adoption of CCA and CSA practices nationwide; improved agricultural extension services; increased participations of a number of SSF within the mainstream agricultural economy, as opposed to subsistence farming; access to alternative technologies, that is, solar and farming implements; and creating employment and jobs through

the SME, organic manure and post-harvest developments. All of these have great potential, which is built in, for replication and up-scaling leading up to transformational impacts in institutions, such as the AMTA and AgriBusDev. In short, the direct impacts (with their replication and scaling up potential) are:

- Family food self-sufficiency (regional and national food security)
- Household poverty eradication (contributions through Food Banks and NSFR)
- Household Job creation (Regional and National)
- Household and regional livelihood diversification
- Land restoration and soil nutrients fixation (on-farm and landscape)
- Capacities and productivity enhanced

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 (reduced vulnerability or increased resilience); number of beneficiaries relative to total population (adaptation only)	*Total*	3 000 SSF (direct) + 5 000 trainees (direct) + 13 000 (indirect)= 21 000 beneficiaries
		Percentage (%)	50% females 50% males
Other relevant indicators	• Expected strengthening of adaptive capacity and reduced exposure to climate risks • % Increase yields per hectare • % Increase in the horticulture market share • Expected impact contributions to the national SD targets (for example food security, poverty eradication, social and gender equity, peace and prosperity)		

76. Initially the programme aims to directly target 3 000 SSF, with about 5 000 ha of land under CRAVE; while creating a centre of excellence (MCRACE) that will build, in the long-term, the capacities of additional 13 000 SSF (on 50 000 ha) to adopt, adapt and uptake both the practices and alternative technologies associated with following CRA, for example, minimum tillage, maximum soil cover, crop rotation and or intercropping, combined with improved access to sustainable water and renewable energy. Throughout pre-, production and post-production, activities are directly linked to private sector-driven agri-marketing facilities (that is, AMTA and the AgriBusDev) to develop entrepreneurship to combat food insecurity, create employment with income-generating opportunities through transformed agricultural green production. The long-term scaling up contribution of this project is based on the national INDC, which is economy-wide and addresses the IPCC sectors energy, IPPU, AFOLU and waste. The reference is the Business As Usual (BAU) scenario to the 2030 time horizon based on the GHG inventory of 2010 and socio-economic projections detailed in the Feasibility Study.

77. Zambezi (90 596), Kavango East and Kavango (223 352) are amongst the poorest regions in Namibia (National Poverty Mapping of 2015), they are also the regions with Constituencies that registered the greatest increases in the incidences of severe poverty – that is, Sibinda, Linyanti, Kongola and Kapako. For instance, although the country's absolute poverty currently stands at only 28%, for Kavango this is extremely high about 53.2%, and high in Zambezi about 39.3 %[xv]. Out of the total regional population of 313 948, about 35 604 in Zambezi are poor, of which the direct beneficiary will be 500; while the Kavango will be 2 500, out of the 118 823 poor. Out of these, about half of the small-scale farmers were assessed to be extremely vulnerable due to crop failures and poor crop harvests resulting from severe drought conditions following a very poor and below average rainfall performance experienced in the last cropping seasons (2014/2015)[xvi]. The Namibia Index of Multiple Deprivation (NIMD) of 2015, produced by the National Planning Commission, contains the highest number of mostly deprived constituencies in the following domains: NIMD

78. Thus considering the most vulnerable groups within the three regions, about 50% of most deprived constituencies will be indirectly benefiting from this project as part of Component 1. This impacts about 3 000 small-scale farmers by reducing their climate change risks to crop failures, increasing their resilience to drought and water scarcity and building their adaptive capacities to produce food and diversify their livelihood basis. While the replication value (that is, spin-off impacts) will be manifold, that is, triple the number of direct beneficiaries. This is based on the methodology that considers the net benefit of the MCRACE[25] and all associated sustainable development co-benefits (Section E3)

E.2. Paradigm Shift Potential

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

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

79. The rationale for the Theory of Change (TOC) is to change the subsistence economic activity (SSF crop production) and enable market penetration in the wider agricultural market share economy: The CRAVE 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 SSFs are unable to penetrate the market without support, the entire TOC is premised on this, to first meet household crop and food needs then demonstrate viability to support crop demands nationally. The CRAVE TOC (Annex 4) offers, for example adaptive capacity strengthening, resilience building, risk coverage (crop insurance), alternative energy access, diversification and entrepreneurial benefits. It is broken up into different components clustered to better facilitate different parts, which cannot be done separately but in unison. The TOC will be delivered through three components covering interlinked outputs concerning the pre-production, production and post-production crop activities. The main objective is to reduce climate vulnerability, increase the adaptive capacity, and resilience of vulnerable small-scale farming communities in production landscapes that are threatened by climate variability and change. The theory of change (TOC) as illustrated in Annex 4 is to be realised amongst the extreme vulnerable northern dryland crop-growing landscapes of Namibia, classified from arid (north western) to semi-arid (north central) to hyper arid (north eastern). These landscapes are inhabited by both pastoralist and agro-pastoralist, who practice subsistence farming on degraded soils. To adapt to natural variability within dryland landscapes, the SSF employ multiple land use practices to achieve multiple objectives, that is, (a) to meet daily food needs, (b) sustain their livelihoods, and (c) enhance their natural settings to sustain future generations. However, due to a variety of challenges (social, environmental and economic) they are unable to meet their food requirements thus have become more vulnerable to external shocks and risks. Compounding these vulnerabilities are further risks due to climate shocks and associated hazards, for example, droughts, floods, fire, which lead to crop and livestock failures, as well as inabilities to make a living. See Annex 4 – TOC and section A for sequencing. As a result CRAVE offers a business model that will enable SSF to graduate from a subsistence economy towards market penetration to meet household needs and build up income and employment in the agricultural market.

80. The project may be used to validate on the ground the insurance index that then will be used and parameterized for other country regions for scaling/replicating. Because of the high number of drought and climate risks related incidences and failures to the farmers; the MAWF proposes (in the 2015 Namibia Agricultural Policy) to help support the introduction of crop insurances schemes in the country. The pilot will be tested in the three target regions and replicated to other regions where crop production is practiced, the scaling up will be done through the national programme in different regions. The development of the crop insurance scheme will also be linked to the national documents for financial product development for appropriate non-collateral solutions for small medium enterprises and farmers. This is to harmonize it with the financial sector strategy of 2012 -2020. If this pilot phase demonstrates the viability of the scheme, then the private sector will be catalyse to further develop it and scale up for the own products that are currently non-existing. The lessons learned will also be shared as part of the National Financial Literacy Programme, which targets various segments of the society, such as farmers, domestic workers and other vulnerable groups that are not able to easily access financial markets and products. The CRAVE project will codify these in toolkits and lessons learned guidelines.

[25] The Mashare Climate Resilient Agriculture Centre of Excellence (MCRACE)

E.2.2. Potential for knowledge and learning

81. Knowledge will be generated throughout the entire project covering all three components. a) The MCRACE, and b) the cross-cutting output 6 that is aimed at capturing information, gather data, generate knowledge and share it with/from SSF practitioners, demonstration sites, and research and development activities. 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, 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 a CRA community.

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

82. 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 post-production, and marketing management (AgriBusDev and AMTA). Enhancement of knowledge and research capacities is through MCRACE and UNAM. The public, private and civil society agencies across the entire timeframe of the project is 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 as conservation agriculture, the AMTA and AgriBusDev will support them to develop markets and create business opportunities directly linked to the national agricultural economy. Business opportunities through - inputs categories such as organic manure, seed, service categories, for example, planting, ploughing and seeding services, and equipment and machinery, such as the hoe, hand-held tractor, ripping and seeding tractors, etcetera. If the project is grossly successful, such that the farmers have crop surpluses that they can reach self-sufficiency at household level and secure national sufficiency. SSF 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.

83. An incentive-based crop insurance and market creation through value chain for small-scale horticultural produce are innovative elements considered under the CRAVE paradigm shift. Innovative elements to diversify livelihood through productive uses of energy are directly linked to the creation of small-scale markets for solar that will be catered as part of the existing market instruments currently in the country. These include the EIF Green Soft Loans with the ESME bank; as well as the policy initiatives supporting solar development and promoting access to energy in rural areas, such as the OGEMP and Solar Revolving Fund. The major limitations why SSF are not currently utilising these is their limited adaptive capacities and lack of innovative adaptation opportunities rendering them unable to meet household food requirements. MCRACE, which is a Centre of Climate Resilient Agriculture Excellence institution, is an innovation for future research and development in the agricultural sector. Amongst the CRAVE outputs are those that will also capture practices, knowledge and the research demonstration activities from trials for example, guano. Should the trials be positive, then there is potential for a new market to be created that will benefit Namibian farmers and the SADC region at large. Guano is bird manure that can be sustainably harvested from the Namibian coastal areas. Involvement of AgriBusDev and AMTA and public (DAPEES) is to ensure that the farmers' activities are linked to markets for immediate uptake. Seed production and multiplication at MCRACE is also likely to lead to a new regional (SADC) market.

E.2.4. Contribution to regulatory framework and policies

84. The proposed activities to be undertaken in CRAVE 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 (see Feasibility study). Namibia adopted its updated National Agricultural Policy in 2015 thus the contribution of the CRAVE 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 CRAVE project lies between the period of the finalisation of NDP 4 and formulation of the subsequent development plan (that is, NDP 5). Therefore, the MAWF and its partners will use it as a main contribution to NDP 5.

E.3. Sustainable Development Potential

Wider benefits and priorities

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

85. The CRAVE 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 regions, which are most vulnerable, will transform the crop/horticultural 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). Another benefit will be supporting actions that have a direct bearing on improving farmer's adaptive capacities to adapt (that is, live and adjust their community settings and cropping practices) to the negative impacts and risks of climate change, as well as those related to AFOLU (that is, building up soil fertility, tree planting or leaving trees in crop fields) that can build up landscape carbon stock on soil and standing biomass, through, for instance, reforestation activities (SDG 13). One of the most noticeable changes for the farmer, as a result of introducing conservation agriculture, is the reduced requirement for farm power and labour. Conservation agriculture can reduce the overall requirement for farm power and energy for field production by up to 60 % compared to conventional farming. This is due to the fact that the most power-intensive operations, such as tillage, are eliminated. Additionally, equipment investment, particularly the number and size of tractors, is significantly reduced. This effect applies equally to small-scale farmer using only hand labour or animal traction. The energy cost of tractor–powered crop production with conventional tillage and direct seeding total inputs are 40-50% lower for conservation agriculture. This is primarily caused by reduced absolute amounts of input: herbicide and fuel. Machinery energy inputs are generally 20-40% lower with conservation agriculture, which is logically due to the elimination of the need to plough. The systems studied showed reductions of over 60% in fuel consumption and this would be an equivalent figure for both human-powered and DAP systems. This saving in energy will be of particular interest to small-holder farmers looking to invest less time in agricultural production and more in pursuit of off-farm jobs; or wishing to expand the planted areas.

Describe environmental, social and economic co-benefits listed above, including the gender-sensitive development impact. Examples include:

- **Economic co-benefits**
  - Total number of jobs created (permanent) 500[26]
  - Seasonal (temporary) Labour hire 1 000
  - During processing, harvesting and direct selling

[26] 500 jobs of harvesters, sorters, transport logistics, etc. Some of the jobs which will be short-term are not reflected in the 500. This means that for every 1 person of the 500 supported with a job will support additional 4 dependents.

• **Social co-benefits**	
- Improved access to education - Improved access to education for children and dependents of the 3000 beneficiaries	300
- Improved regulation or cultural preservation	3 regional and traditional authorities' roles and responsibilities for CRAVE and CCA enhanced
- Improved health and safety from consumption of balanced diets, staple crops plus vegetables	3 000+ (indirect 13, 000)
• **Environmental co-benefits**	
- Improved air quality	5 000 ha[27] (reduction of dust from transporting on package manure).
- Improved soil quality - Improved biodiversity	Restoration of degraded lands, soil fertility and moisture improvements and dryland ecosystem integrity
• **Gender-sensitive development impact**	
Proportion of men and women in jobs created and participation of men and women in all productive activities. Namibia has adopted a zebra style that gives full recognition to the contribution, participation and empowerment of women at all levels and sectors of society, political social and economic spheres. A number of incidences have been reported concerning gender-based violence, with anecdotal evidence that these could be direct results of climate risks and impacts, as men are becoming more vulnerable to deal with inability to provide for family and extended relatives.	50% men and 50% women (Namibia has a zebra[28] standard).
- **Others (Happiness and Wellbeing)**	Addressing poverty will increase the happiness index for the people of Namibia (a major climate change resilient sign).

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)

86. **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[xvii]. 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**xviii** (see Feasibility Study). 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 (see Feasibility Study). 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[xix]. Climate change is likely to pose

[27] The support for organic fertilizer will contribute to reductions in dust pollution in an area estimated to cover about 5000 ha.

[28] Zebra standard denotes pursuing absolute gender parity, equity and equality, i.e. 50% women beneficiaries of any development, political appointment or intervention, in consideration with the wider population proportions.

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%.

87. 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 .

88. Landscape production level on the existing modelled semi-arid regions of Southern Africa and micro-climate related threats for semi-arid 'hotspots' in which the three regions, are: characterised by high rainfall variability, frequent droughts, low soil moisture and extreme events such as flash floods. These conditions are the foundation of vulnerability of the communities in the regions. The communities in Zambezi, Kavango East and West are dependent on primary production and natural resources, rely on rain-fed (dry land crop production) agriculture, have limited livelihood options and employment opportunities. The targeted communities depend on production activities that are highly exposed and sensitive to the impacts of climate change. They also face high levels of poverty, are exposed to high levels of HIV/AIDS, and have limited infrastructure and services. Their resilience is negatively impacted by limited institutional capacity especially at regional and local levels. The expected impacts of future climate in the three regions include:

- Reduced crop yields and risk of failure in livestock production, impacting economic development, food security, health and sanitation
- Loss of ecosystem services (such as water purification and filtration, medicinal plants and biomass energy), loss of soil fertility and accentuated soil erosion.
- Decline in global climate services due to ecosystem degradation.

89. Out of the total regional population of 313 948 about 35 604 in Zambezi and 118 823 in Kavango are categorised as poor (ibid). Majority of the poor are rural small-scale farmers, who directly depend on agriculture for their livelihood, therefore are considerably very poor in reality. Their poverty is worsened by deficiencies in their adaptive capacities and agro-farming practices that are not resilient. Hence, the project distinctively focuses on the most vulnerable farming communities and groups, including women, in three of the poorest regions (that is, Zambezi, Kavango West and Kavango East) in Namibia, especially subsistence small-scale farmers (women and men). The project would ensure that beneficiaries (women and men) acquire abilities to adopt conservation agriculture (CA) and climate-resilient agricultural (CRA) practices to produce food; and that severely poor vulnerable families have access to renewable energy and are using productive resources and services for food and nutrition security and sustainable livelihoods improvement. (Refer to Section 3.2.4 of the Feasibility Study).

90. **The adaptation assessment for agricultural SSF** was conducted under the V&A chapter of the TNC[29]. In the V&A, options for SSF to adapt to climate change were identified and evaluated in terms of criteria such as availability, benefits, costs, effectiveness, efficiency and feasibility. Site-level crop assessment and food security were conducted to determine the level of food security at household and national level. Additional site-level situation analyses were done to obtain the adaptation needs and prioritise interventions for SSF- more in Table 5. Beneficiary communities were consulted to provide on the ground adaptation measures (see detailed inputs in the FS). Namibia's long-term planning, which was done during the preparation of the NCCP and formulation of the NCCSAP helped to prepare for potential climate changes and provides information to address the uncertainty with changing conditions. For example, the NCCSAP strongly highlights that sectors such as agriculture and nature-based tourism should be designed taking into account the likely risks and effects from climate change. It further urges incorporation of alternative technologies, improved crop and seed varieties and improvements in design and maintenance of

[29] Namibia's Third National Communication Report to the UNFCCC, including detailed chapter on V&A.

infrastructural systems that can enhance life expectancy and improve resilience to climate change impacts.

91. The vulnerability and adaptation (V&A) assessment prepared for the SNC indicates that rural communities and poor people in Namibia are the most vulnerable to climate change impacts (Dirkx *et al*, 2008; MET, 2011). This high vulnerability is 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 poverty and high divergence of income levels, for example, 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 Zambezi, Kavango East and West, Omusati, Ohangwena, Oshana, Kunene, Otjozondjupa and Omaheke regions. This is also supported by the Namibia Index of Multiple Deprivation (NIMD) of 2015 that was compiled by the National Planning Commission. In these regions, the regional and household livelihood system is based on subsistence production on communal land, that is, on small crop plots that surround people's homesteads, whilst livestock largely grazed on communal pastures and woodlands (Mendelsohn, 2006). Adaptation Assessment done for Namibia thus:

a) Identified options to adapt to climate change (captured in the NCCSAP and NCs);
b) Evaluated the options in terms of criteria (detailed in the second V&A by the MET) such as availability, benefits, costs, effectiveness and efficiency, and feasibility; and
c) Situation analysis at specific sites to determine inputs requirements and on the ground adaptation needs (for example service and materials inputs – seed, implements, equipment, trainings, and etcetera.

92. An overview summary of impacts, vulnerabilities and adaptation assessments carried out in 2014-2015 by the DRFN for the Namibia Third National Communication to the UNFCCC revealed that the following sectors will be impacted with highest vulnerabilities: agriculture - staple crops and cash crop production; water - water supply; agriculture - rangeland livestock farming and restoration; and that the following two sub-sectors will have higher vulnerabilities (economic - marketing of agricultural produce, and water - surface water run-off from Angola).

Table 3 Assessment of nature, factors, issues and adaptive capacities of the Small Scale Farmers (SSF)

Elements of Assessment/s	Summary of Vulnerabilities
Nature of Risks from Climate Change – most vulnerable	• Human systems (for example SSF) – (food insecurities, reduced social wellbeing and unproductive economic activities) • Natural system - (decreasing agricultural outputs and water provisions)
Factors exacerbating the vulnerabilities of the SSF production system (agriculture)	• Development patterns (high levels of poverty, limited access to water, energy and alternative food), • The surrounding physical environment (poor and variable rainfall, poor soils, high temperatures), • The distribution of resources (high income disparities and limited access to financial means and technological advancements), and of means to enter the mainstream economy, and • Existing stressors (lack of viable economic and productive opportunities to diversify livelihoods)
Issues associated with vulnerabilities of SSF	• Entitlement (SSF/ human needs that render agricultural system more or less vulnerable), • SSF Diversity (addresses the need for redundant functions), and • Resilience (severely lack of adaptive capacities to ensure SSF bouncing back despite exposure to disturbance or stress).
Assessing the Adaptive	• SSF's system/group is unable to accommodate changes in climate

capacity of SSF	• There are institutional, individual and economic barriers to SSF (systems/groups) ability to accommodate changes in climate? • SSF's system/group is already stressed in ways that will limit the ability to accommodate changes in climate • The rate of projected climate change is likely to be faster than the adaptability of the SSF's system/group • There are national efforts (for example policy and strategy formulations) already underway to address impacts of climate change, however there is limited implementation of the proposed agricultural adaptation practices, alternative technologies

93. **Agricultural Vulnerabilities:** Notwithstanding the vulnerabilities of the beneficiaries, that is, SSF, 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. (See additional details in the FS).

94. **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 Strategy and is one of the SD 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 CRAVE Gender Assessment Report (Annex 3.3) recommends that giving women an 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. A gender action plan for CRAVE is contained in the report. 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. Targeting SSF in the three regions will directly benefit the most vulnerable groups, which are also suffering multiple deprivations, as denoted in the NIMD[xx].

95. The project will technically and economically contribute to crop farming, that is, adaptive capacities and building resilience for farmers, institutions and systems through pre-production, production and post-production outcomes (see previous programme section). The extension services were designed to provide basic agricultural services without considering the climate risks, increasing temperatures and heat, lack of rainfall, thus without proper adaptation extension services basically means no adaptation needs for SSF are catered for. Thus, CRAVE considers the paradigm shift to the crop production practices in three regions, focussing on dryland crop production (MAWF& UNAM), horticultural production (AgriBusDev) and post-production practices (AMTA, AgriBank and EIF), and lastly

linking these to the centre of excellence (MCRACE) that will provide support for long-term research, training and development needs, specifically crop and seed better suited for adaptation.

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

96. 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[30]. This is augmented by five-year medium-term plans (*the NDPs*), presently at NDP 4. Current patterns of poverty, to a larger extent, mirrors (or reflects) the then unequal distribution of land[31]; 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[32]. 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 CRAVE 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[33]. Hence, a *de facto* 'poverty - environmental degradation' situation is kept within the rural population groups.

97. 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.

98. 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 build SSF resilience without the support of the GCF, as it covers for all other types. The selected regions, which are most vulnerable, will transform the crop/horticultural sub-sector and improve national food security. While the government is doing its utmost best to reduce vulnerabilitiesby 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. Total cost (with co-financing) over the years will be US$40 million. The costs by outputs are provided in the appropriate tables elsewhere in this proposal. 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 puts a burden on the government to devote its resources to Public Investment Programmes for social development and the economic upliftment of the majority.

[30] Republic of Namibia- National Planning Commission (2004), Namibia Vision 2030.
[31] Republic of Namibia, Namibia Poverty Mapping and National Index of Multiple Deprivation, (2015).
[32] 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).
[33] Republic of Namibia –Ministry of Regional and Local Government, Housing and Rural Development (2012), *National Draft Rural Development Policy.*

99. The project will strengthen much-needed institutional capacities, such as MAWF CASO, FBOs and individual capacities for local SSF and supporting staff to enable them to implement the CCA and adopt unconventional tillage and agricultural water pumping technology. This largely includes:

- Training on the most appropriate adaptation practices, new agricultural practices and adoption of alternative technologies;
- Capacities for public and private sector to enable SSF to enter the mainstream agricultural economy as part of their incubation programme for horticultural produces;
- Extension service support that includes adaptation information, to coordinate CCA within the regional for and national CCACPF;
- Research capacities for the Mashare Agricultural Centre;
- Capacities to run a market based incentive and private sector run crop protection; and
- Communication means and information sharing.

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 NAMA, NAPAs and NAPs

100. 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 CRAVE project design is fully informed by the vulnerability assessments undertaken as part of Namibia's preparations of the INC, SNC, BUR1, 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 following guiding principles[xxi] enshrined in the NPCC and reaffirmed in the NCCSAP informed the entire project design for CRAVE:

- Principle 1: Mainstreaming climate change into policies, legal framework and development planning
- Principle 2: Sustainable development and ensuring environmental sustainability
- Principle 3: Stakeholder participation in climate change policy implementation
- Principle 4: Awareness generation, education, training and capacity building are building blocks
- Principle 5: Development should be based on notions of human rights and equity
- Principle 6: Promote and address 'adaptation' and 'mitigation' as key approaches
- Principle 7: Promote Public Private Partnerships to foster involvement of all sectors in sustainable development

101. These 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 CRAVE and INDC, especially AFOLU priority actions. The MAWF, an execution entity deliberately halted the formulation stage to enable CRAVE to be fully in line with the objectives of the Namibia Comprehensive Conservation Agriculture Programme (NCCAP). The NCCAP is a five-year guiding policy and programme, estimated to cost N$95 million. The outputs and activities of the Namibia climate resilient agriculture in three of the extremely vulnerable northern crop-growing regions (CRAVE) in Kavango West, Kavango East and Zambezi will contribute to the following six aims:

a) Increase awareness and knowledge on CA
b) Increase farmers' and extension workers' skills of practising CA
c) Conduct farmer-focussed research to develop appropriate CA technologies and packages for farming systems
d) Establish institutional arrangements for harmonised and coordinated implementation of the CA programme
e) Ensure farmers have sustained access to CA equipment, inputs, markets and services
f) Develop standards, then monitor and evaluate adoption and impact of CA

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

102. 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.

103. **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.

104. **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.

105. **The AMTA** 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.

106. **UNAM** is Namibia's national university with a Faculty of Agriculture that 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 MCRACE.

107. The careful segregation of the following budgets (**Table 5**) has taken into account the various capacities and delivery modes hence the resources will be spent across the three main entities with sub-contracts for small services

by local and civic organisations to ensure fast, effective and efficient delivery of the CRAVE project funds. The costs of the project segregated by the individual components are as follows:

Table 4 Financial Allocations per Outcome and Sub-Components

Project Sub- Components	Executing Entity/ies	Direct Management (NIE)	Amount in US dollars	Funding Agency
Sub-component /Output 1.1 Mashare Climate Resilient Agriculture Centre of Excellence (MCRACE) Facility	MAWF	EIF	2 280 000	GCF
Sub-component /Output 1.2 /Field Research, Trial and Demonstration Sites Facility (guano) and organic fertilisers	MAWF, AgriBusDev,	EIF	790 000	GCF
Sub-component 2.1 SSHF -Farmers (horticultural) cropping practices and production technologies Facility	AgriBusDev, AMTA	EIF	1 615 000	
Sub-component 2.2 SSF- Farmers (rain fed) Training, Capacity Building and Development Facility	MAWF, AMTA	EIF	1 920 000	GCF
Sub-component 2.3 Crop Insurance Scheme	MAWF	EIF	830 000	GCF
Sub-component 3.1 Solar Water Pumping for Agriculture Facility	AgriBusDev, MAWF	EIF	670 000	GCF
Sub-component 3.2 Diversification & Alternative Sustainable Livelihoods Adaptation Facility	AgriBusDev, AMTA	EIF		GCF
Knowledge Management Costs	**MAWF**	**EIF**	**595 000**	GCF
PMU Costs	**MAWF**	**EIF**	**800 000**	GCF
Total		**EIF**	**9 500 000**	GCF

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

108. Effective coordination and collaboration between and among research, extension, farmers, and other stakeholders (public, private and civic) will be critical for the successful implementation of the CRAVE project. Hence, the formulation process ensured that there were engagement and involvement of stakeholders from the initial stages. These involved a number of participatory interactive processes aimed at ensuring constant engagement. For CRAVE, these were not necessitated by the EIF accreditation but by the recognition that climate change risks and impacts were real in Namibia (see Figure 12).

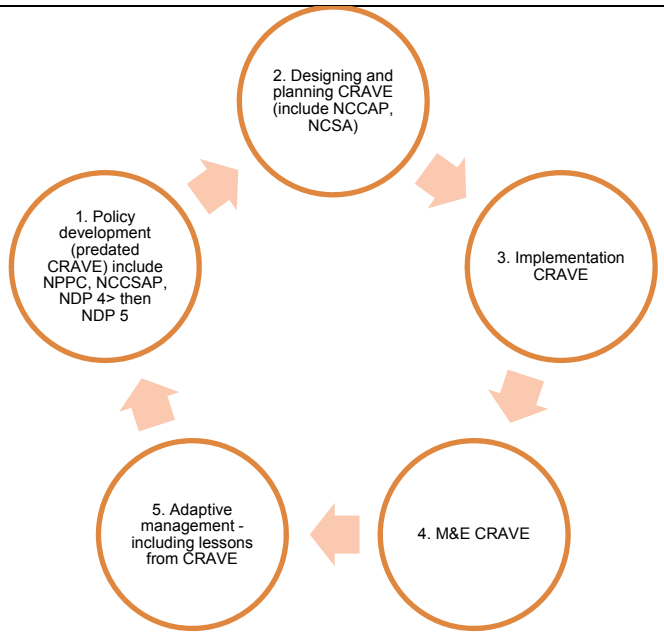


Figure 6 Multi-sector Stakeholder's Engagement Participation Plan

109. From leadership and management stakeholders' perspective, CRAVE was fully developed with direct engagement and inclusive of government ministries responsible for climate change and agriculture. These are the MET (NDA) and MAWF (execution entity). The MET, in its capacities as DA for AF and NDA for GCF has proved to be crucial, especially in ensuring that there were no duplications and overlaps in planned activities to be supported except from strategic points. The accreditation of the EIF was public announced by the Minister of Environment and Tourism at a press conference on 13 July 2015. Namibia having a national policy and strategy on climate change as well as the NAMAS and INDC proved to be advantageous and valuable as these documents helped to guide – providing overall national drive towards adaptation and mitigation options that are suitable for Namibia. Most of the relevant stakeholders and those with a stake contributed greatly through these interactive processes, setting a good baseline and foundation to formulate a well-targeted and crafted CRAVE project. Lastly, the University of Namibia's Multidisciplinary Research Centre, Germany Consulting arm GOPA, the EIF technical advisory panel provided peer reviews and critiques to ensure that the project meets international best standards.

110. CRAVE has resulted from a broad inclusive process involving all stakeholders, that is,, national government, regional and local government, traditional authorities, local farmers, representatives of on-going project initiatives for example UN supported, GEF supported, EU, GIZ and others implemented via national and local NGOs, such as NNF, NCAP, etcetera. Yet, the Programme for GCF Funding (titled Namibia Climate Resilient) has been the subject of high-level stakeholder consultations. For example a Technical Project Formulation Task Force, in which the Focal Point of the National Designated Authority (NDA) for UNFCCC and other international Multilateral Environmental Agreements is a member.

111. Furthermore, to ensure that there is public, private and civil society collaboration, the programmatic concept was presented to Namibia's Sustainable Development Advisory Council (SDAC), which is chaired by the Permanent Secretary of the MET. SDAC primary function is to ensure collaboration and coordination between and amongst entities pursuing sustainable development in Namibia. A final validation workshop (29 January 2016) for the full CRAVE project proposal has been conducted with the following entities, MAWF (as executing entity), AgriBusDev (as executing entity), AMTA (as partner); UNAM (as partner) and FAO (as peer reviewers), facilitated by the EIF (as NIE). In addition to these, an initial stakeholder's consultation workshop organised by KFW was held on 15 March 2015 to identify a long list of projects that could be supported by the GCF. 45 participants attended the workshop.

112. The workshop assisted in the assessment of project/programme proposals based on publicly available data sources (policies, plans, sector strategies and projects) as well as discussions with relevant stakeholders including ministries, regulators, public banks, private investors as well as civil society organizations. This was followed by a brainstorming session held on the 23-24 July 2015, at Gross Barmen, Okahandja, and attended by representatives from the Ministry of Agriculture, Water and Forestry (MAWF), National Planning Commission (NPC), Namibia National Farmers Union (NNFU), Ministry of Mines and Energy (MME), Ministry of Environment and Tourism (MET), and environmental consultants from civil society. The brainstorming session reduced the initially long list of projects identified during the March 2015 workshop to four sub-projects that are proposed in this programme.

113. Then the CRAVE was discussed at a national level stakeholder workshop attended by about 100 stakeholders, with representatives from all northern crop-growing regions, most NGOs, CBOs and farmers attended. This was held on the 28-29 October 2015. The target three regions were confirmed as part of this stakeholder process. Then there were diverse contributions (for example situational analyses, on the ground data verifications of sites, identification of needs, validation of land use practices, preferred crops, etcetera) from the regional and local stakeholders, which were conducted between October-December 2015. In addition, the full participation and involvement of both the MAWF DAPEES and AgriBusDev on the ground staff and technicians have contributed regional and local data and information.

114. The writing process itself was done in a number of stakeholder engagements and technical working sessions with the national, regional and local representatives of the MET, EIF, MAWF, AgriBusDev, AgriBank, NNFU, UNAM, FBOs and SSHF. Whereas the policy and strategic documents enabled the selection of objective, outcome and outputs, this process has enabled the situation analyses of the beneficiaries and target communities to inform the activities and inputs. Thus the policies and local stakeholders inputs resulted in the final agreement of the CRAVE aim and sub-objectives, Outcomes and outputs plus inputs and activities. These rounds of participation proved to be very beneficial in the design, but will also be very smart to follow through implementation, as they provide the basis for a climate change-resilient nation at national, regional and local levels. The M-SEPP and its processes as in Figure 12 will be grounded in them.

E.6. Efficiency and Effectiveness

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

E.6.1. Cost-effectiveness and efficiency

115. The three financial models modelled for each of the three target regions (Kavango West, Kavango East and Zambezi) demonstrate the economic soundness of the project, thus making the CRAVE project economically viable on both cost effectiveness and efficiency. (See attached Excel Models and Feasibility Study as part of the Annexes and more in section E.6.3). CRAVE will utilise the existing institutional infrastructure and systems that are part of a 25 million USD baseline investments, for example AMTA, AgriBusDev and MAWF. While collaboration and coordination is foreseen their involvement are to ensure scaling up and sustainability of project results.

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

N/A

E.6.3. Financial viability

116. The Funds intervention and support is vital as the economic modelling carried out shows high economic and financial viability of the interventions. Financial and economic cost-benefit analysis was carried out for the three regions using assumptions from AgriBusDev and the Namibia Census of Agriculture and AMTA. Shadow pricing estimates were derived from Humavindu (2013). For all three interventions, the projects Net Present Values (NPV) and Internal Rates of Return (IRR) are positive in terms of both private returns (Financial IRR and Financial NPV) and societal returns (Economic NPV and Economic IRR). The economic and financial results are premised on various assumptions and contextual realities. Firstly, these farmers are part of the Namibian population that are hindered by access to finance. As farmers on communal land, they are unable to utilise the land as collateral at both commercial and development banks as the land belongs to the state. The grant instrument through the CRAVE

project will enable the targeted beneficiaries to substantially at the macro level attain sustainability to ensure improved livelihoods. Secondly, we modelled the aggregate production areas, whereas at the micro-scale level, the financial and economic returns will be slightly less, hovering around 17% at individual levels. Without the grant support, the targeted beneficiaries are unlikely to attain the potential levels of sustainability as the financial markets are inaccessible to them. Even if they had to access loans, these are most likely to be at the microfinance level where interest rates are charged at rates between 45%-65% by micro lenders, rendering the whole venture unviable. The results are tabled below:

Table 7: Economic Soundness and Financial Viability for three Target Regions

Element	Kavango East	Kavango West	Zambezi
Per unit (Hectares)	86.00	45.50	22.00
Capex	15 452 963.50	7 275 052.20	5 948 704.80
Gross Income	9 632 000.00	5 096 000.00	2 464 000.00
Financial Internal Rate of Return	41%	44%	26%
Financial Net Present Value	28 705,700.10	15 512 452.59	5 459,425.26
Economic Internal Rate of Return	64%	69%	45%
Economic Net Present Value	68 393 869.16	36 333 001.85	15 213 957.12

The model is even financially viable when adjustments are made to selling price or tons per hectare of produce.

117. The recently adopted National Agricultural Policy of 2016 has amongst its core objectives the aim to further develop small-scale agricultural producers through various interventions including the Namibia Comprehensive Conservation Agriculture Programme (NCCAP). These measures, inclusive of equipment aid schemes, training and mentoring and extension services will ensure that financial viability will be maintained beyond the fund's interventions. However, the project sustainability is also secured through the exit strategy that include among others (for example privately run businesses); the EIF-SME Bank 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. For the CRAVE beneficiaries, the vulnerabilities of the SSF makes it virtually impossible to acquire them; however once they are in a position to produce for household food security and to market the surplus to national strategic food reserves then they will cover fully their own operational costs for the SET/RET, which have a life cycle of 15 years or so as these one are suitable for the micro weather conditions, etcetera.

Please describe the GCF's financial exit strategy in case of private sector operations (for example IPOs, trade sales, etc.).

N/A

E.6.4. Application of best practices

118. 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. Thus comprehensive conservation agriculture (CCA) and good agricultural practices (GAP) are deliberately adopted for this intervention. This will increase the resilience of the production practices to the effect of climate change; address the effect of low erratic rainfall through the use of practices that reduces water losses and increase infiltration and low soil nutrients status by increasing soil carbon and nitrogen through the use of organic soil cover and legumes in rotation or through intercropping. CCA will be adjusted to enable sustainable intensification of agriculture by conserving and enhancing the quality of the soil. Scaling up community resilience (SCORE) to climate variability and climate change in northern Namibia, with a special focus on women and children has provided a firm baseline and feasibility analyses to ensure that only the best technologies and methodologies are applied in the activities to be funded under the GCF in

Zambezi, Kavango East and Kavango West regions of Namibia.

119. While the all-inclusive principles of climate-smart and conservation agricultural practices are fairly new in climate circles the on ground practices are quite advanced in many parts of Africa, where dryland small-scale farmers directly depend on mixed farming (that is, livestock and crop) rearing practices to make a living out of the land. The main challenges (institutional, systemic and individual) related to CA/CSA are limited wide-scale adoption and replication of successful practices, which is constrained by various factors (inadequate uptake of organic fertilisers, limited seed inputs, knowledge and skills, and alternative technology, for example no tillage implements). In line with the local adaptation and adjustment needs, the soil condition, structure and moisture contents in the three regions will inform the manner, mode and measures of the practices that will be adopted. Particularly the combination and mixture of appropriate soil, water harvesting and conservation as well as when feasible reforestation (indigenous fruit trees and windbreakers) practices will be undertaken.

120. Some of the innovative elements to be explored include integrating landscape overlays of the horticultural and rain-fed agricultural lands with provisions of water harvesting (rain/river), tree planting and connecting them to renewable energy technologies, solar, to enable the farmers to productively use energy. Specific modifications and improvements are to be made on some of the machinery, particularly the tractor, hand held hoe and hand tractor. Although there are about 13 tractors, most are either not suitable to the Namibian farming conditions or create repair and maintenance challenges. Some spare parts are either not locally available or the service providers do not have locally available mechanics to solve problems, esp. when they arise during the planting seasons. Some service providers have piloted tillage and seeding implements that are tested on Namibian soils, and adjusted to fit local conditions. For for example Baufi manufactures the Namibia specific rippers. As with most technologies and alternative practices, some other minor adjustments or innovations may be needed during the service provider's training sessions to ensure that there are local available technicians and mechanics that can support the farmers without interrupting the planting seasons.

121. The Namibia CCA programme is an approach to manage agro-ecosystems for improved and sustained productivity and food security while preserving and enhancing the resource base and the environment. It is characterised by three linked principles:

- Continuous minimum mechanical soil disturbance (minimum tillage);
- Permanent soil organic cover; and
- Diversification of crop species grown in sequences and or associations (crop rotation or intercropping).

122. In addition to CCA, and GAP, the three main pillars of CSA that informed the design of this project, that is,:

- Sustainably increasing agricultural productivity and incomes;
- Adapting and building resilience to climate change; and
- Reducing and/or removing greenhouse gases emissions, where possible.

123. In totality, these are still some of the best available options and technologies to enable farmers to adapt and develop long-term resilient to climatic change. Hence, the comprehensive CCA practices within the three main pillars of CSA will be employed fully taking into consideration the needs of the CRAVE project, which integrates the climate adaptation practices, market development, job creation and economic needs of the production practices in question, that is, cropping. To accommodate both autonomous adaptation and proactive adaptation, farmers' existing practices that proved to be resilient in the previous drought events will be adjusted and thus not totally abolished.

124. For instance, during less rainfall too much manure may increase wilting of the crops. Similarly, where the hard pan has been created due to previous inappropriate land management practices, initial breaking of such layers may be needed prior to following the low tillage through ripping. Lastly, the practices that immediately aid farmers to increase yields (that is, to meet basic food needs) will be the main activities, with the caveat that these will not be done either at the expense of ecosystem (ecological limits) or poverty (economic constraints). If these succeed by meeting household needs due to climate variability and change they will then be up-scaled, transformed into regional and national food security benefits, which are the main transformational pillars from a perspective of a climate resilient agricultural regime for Namibia. These will be complemented with mitigation actions within the agricultural

sector, that is, utilisation of SETs to diversify the livelihood basis and income-generating opportunities through alternative sustainable energy access.

E.6.5. Key efficiency and effectiveness indicators (N/A)	
GCF core indicators	Estimated cost per t CO_2 eq, defined as total investment cost / expected lifetime emission reductions (mitigation only)

F.1. Economic and Financial Analysis

125. The project's financial and economic viability is highly sound. The Fund's intervention and support is vital, as the economic modelling carried out shows high economic and financial viability of the interventions. For all three interventions, the projects Net Present Values (NPV) and Internal Rates of Return (IRR) are positive in terms of both private returns (Financial IRR and Financial NPV) and societal returns (Economic NPV and Economic IRR). The model is even financially viable when adjustments are made to selling price or tonnes per hectare of produce. Despite the positive economic and financial viability, there will and are a few critical areas to of institutional support to ensure that targeted beneficiaries sustainability is assured beyond the project. The provision of the CRAVE project intervention is of critical importance to provide the initial funding for a paradigm shift to enable market penetration. Although the existing infrastructure can in theory support the agricultural economy, the vulnerability of the SSF makes them financially risky without the GCF support, which is to deliver the results that can enable subsistence SSF to enter the wider agricultural economy. See section E 6.3 and the FS with the crop models.

F.2. Technical Evaluation

121. Most of the practices and technologies to be promoted, adopted and applied through CRAVE 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

126. 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.

127. Thus the promotion of CCA, GAP and CSA, which use various technologies including ripper implements (for minimum tillage) instead of disc fallowing farming practices; and micro-drip irrigation (for water pumping) instead of sprinklers; and solar water pumps instead of diesel or petrol generators are all proven technologies which are best suited for the agro-ecological zones of the Lowland Maize and Cattle Areas of Namibia. Furthermore, the adoption of micro-drip irrigation saves water and is most suitable in rain-fed agriculture and applicable for dryland crop farming communities where drought and water scarcity are constant occurrences. Lastly, the promotion of intercropping, fixes nitrogen while keeping indigenous trees on crop fields, for fruit/shade/wind breaker, enhances the functionality of the soil within the land. The technologies for ploughing, tilling, harvesting and conserving water are tested and can be

easily adopted by small-scale farmers with a bit of adaptation. The technologies being promoted in the CRAVE project helps with both adaptation thus have cross-cutting co-benefits, particularly solar for mitigation, thus from a technological point of view will be best suitable for a low carbon and climate resilient development.

128. The insurance scheme will be initiated as a pilot within the three target regions in order to test the viability and to build the case for private sector to operationalize it fully. In this case the initial scheme will be tailor-made to the targeted population (small scale vulnerable farmers) and replicated independently but the private sector for scaling up in the country. The pilot scheme will explore the capacity of the farmers to pay, design elements of how the Crop Insurance will work, developing the index.

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

129. Following the EIF ESS Policy, the CRAVE 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 CRAVE specific assessment for use during the implementation is prepared (Attached as Annex 3.2). 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 along the corridors, such as KAZA.

F.4. Financial Management and Procurement

130. CRAVE will be managed according to the execution and implementation procedures of the EIF. The financial arrangements and procedures for the project are governed by the EIF rules and regulations including the audit and financial management in accordance with the Environmental Management Act and associated operational and risk management procedures approved by the EIF board. EIF is accountable to the GCF. MAWF is proposed as the key government execution partner with AgriBusDev as the key private sector. These entities will be overall accountable to the GRN- MET (NDA) and the EIF (NIE) in particular to 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.

G.1. RISK ASSESSMET SUMMARY

131. Risk factors associated with the project implementation include mainly technical, operational, and institutional aspects, as equipment installation does not causes major social and environmental impacts from the project (please refer to Section G2). The risks may involve: (a) global economic slow growth may affect markets for Namibian produced products impacting the diversification of livelihoods; (b) exchange rate fluctuations between NAD and USD may negatively impact the project cost effectiveness; (c) delays in the disbursement of funds, for example, from the GCF to the EIF, and or from EIF to the executing entities and implementers on the ground may hamper project progress and delivery of services; and (d) climate variability (extreme floods, drought and water scarcity) and change may create more hazards, threats and risks that can easily exacerbate and worsen the vulnerability for the poor.

G.2. Risk Factors and Mitigation Measures

Selected Risk Factor 1

Description	Risk category	Level of risk	Probability of risk occurring
The global economic slow growth may affects markets for local products	Financial	Medium (5.1-20% of project value)	Medium

Mitigation Measure(s)

132. About 42% of the horticultural produces is set aside for the local and regional markets. However, it has to be noted that not all produces are locally produced in Namibia thus the local share can only be accommodated to the manageable percentage (that is, about 60%). The crop models have been revised to depict both the micro and macro perspectives. Diversify markets for livestock and crop production by coordinating with the Ministry of Agriculture, Water and Forestry and the Ministry of Industrialisation, Trade and SME Development. Having production and post-production activities directly linked to the engagement of AMTA will lower – if not completely eliminate - this risk.

Selected Risk Factor 2

Description	Risk category	Level of risk	Probability of risk occurring

Fluctuations in exchange rate (USD: NAD), which could affect the funding available for implementation and lead to budgetary constraints.	Financial	Medium (5.1-20% of project value)	Medium
Mitigation Measure(s)			
133. The director of financial services will closely monitor the USD: NAD exchange rate and communicate any implications to the National Programme Manager so that project management can be adaptive. The Executing Entities (EE) will collaborate closely with the NIE should exchange rates fluctuate to the extent that budget reallocations are required. In this event, budget reallocations shall be made with minimal compromise to the achievement of project outcomes.			
Selected Risk Factor 3			
Description	Risk category	Level of risk	Probability of risk occurring
Delays in the disbursement of funds, procurement and institutional inefficiencies (for example lengthy approval processes) result in delayed recruitment of project staff and hence project implementation.	Technical and operational	Low (<5% of project value)	Low
Mitigation Measure(s)			
The NIE, EE (executing entities) and Facilitating Agencies will work closely to ensure optimum conditions for timely disbursement of funds contracting, monitoring and financial reporting. Key project staff will be in place prior to the project inception meeting.			
Selected Risk Factor 4			
Description	Risk category	Level of risk	Probability of risk occurring
Project governance structures fail to perform efficiently and effectively.	Technical and operational	Low (<5% of project value)	Low
Mitigation Measure(s)			
134. Structured governance and implementation arrangements will ensure that roles and responsibilities by the EE, CRAVE Board and NIE are clear and will be carried out efficiently and effectively. Having both the NIE, NDA, MAWF and AMTA, AgriBusDev and project management serving within the Board and Regional Steering committee will significantly lower the risk factor. The EIF (NIE) will enter into MOA with each and respective entities, clearly spelling out their legal requirements, project performance targets and the MRV. The MOA as a legal agreement that is enforceable by Namibian contract law will mitigate counterparty risks.			
Selected Risk Factor 5			
Description	Risk category	Level of risk	Probability of risk occurring
Climate variability (extreme flooding) creating more ideal risks that can easily exacerbate the vulnerability for the poor	Social and environmental	Medium (5.1-20% of project value)	Medium
Mitigation Measure(s)			
135. For instance, the Zambezi region covers a total area of 14 528 square kilometres and accounts for 1.8 % of the total land area of Namibia, because the geographic zone is characterised by extreme flatness, thus it is naturally-prone to extreme flooding. In cases of severe flooding, many communities, including women, the physically challenged or impaired, children and the elderly will need urgent relocation and emergency measures to be employed, so that their safety and that of their meagre assets are secured. In this scenario, the National Disaster Risk Management Policy and			

Strategy as well as the accompanying standards and procedures will be fully employed in accordance with the Minimum Operational Procedures and Standards (MOPS). Each of the three regions targeted will aim to mitigate and lower the risks by following their specific regional standards under the Governor's offices, and further decentralised to constituency and village development committees. Since most of the lower level-tiers and administrative officers and institutions lack capacities, the CRAVE Project will also prepare and engage mock/simulated exercises, in case of flooding, to ensure that should the need arises, the project institutional environment and target beneficiaries are prepared and their vulnerabilities to climate change reduced.

Selected Risk Factor 6

Description	Risk category	Level of risk	Probability of risk occurring
Climate variability (extreme drought and water scarcity) creating more hazards, threats and risks that can easily exacerbate the vulnerability for the poor, particularly leading to severe food insecurities and higher levels of extreme poverty	Social and environmental	High (>20% of project value)	High

Mitigation Measure(s)

136. Given the focus of this project (that is, CRAVE), this risk is very high such that the country has taken deliberate efforts (drought relief measures) to assist farmers to secure their immediate food needs. These emergency relief measures are neither resilient nor adequately assisting farming with adaptation, hence the gap to be filled by the CRAVE project. However, even under the best implementation scenario cases, when the project is being implemented efficiently and effectively, there are risks that excessive drought, heat, absolute water shortages, may lead to complete crop failure (that is, 70% yield reductions) that may lead to food insecurity; hence the project has deliberately built in a crop insurance scheme that can still aid farmers to recover from the losses and provide for basic food requirements during total crop failures. Nonetheless, this risk is likely to be significantly lowered when the farmers are supported to implement adaptation actions as proposed in this project; that is, Adopt the practices, which are aimed at reducing risks, secure food and create long-term livelihood safety nets to developing resilient communities that can escape the drought climate poverty trap. The operational management risks will be minor seeing that CRAVE management and implementation arrangements are carefully crafted to allow for adaptive flexible management. The MET, EIF, MAWF and associated implementing entities will be able to sign agreements that will further allow decisions to be taken urgently should for instance the project implementation be lagging behind by a higher margin. Such arrangements are part of the M&E scope and framework.

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[34]	
Paradigm shift objectives	
Increased climate-resilient sustainable development	The main objective is to reduce climate vulnerability; increase the adaptive capacity and resilience of vulnerable small-scale farming communities in crop production landscapes that are threatened by climate variability and change. The project will ensure that beneficiaries' households acquire abilities to adopt conservation agriculture (CA) and climate resilient agricultural (CRA) practices to produce food; but that severely poor and vulnerable households have access to and are utilizing productive resources and services for household and national food security and sustainable livelihood improvement. This is premised on a paradigm shift that builds adaptive capacities and resilience to enable full market penetration by the

[34] 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.gcfund.org/fileadmin/00_customer/documents/Operations/5.3_Initial_PMF.pdf

	subsistence farmer's produces into the wider agricultural economy.

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	1.2 Number of males and females benefiting from the adoption of diversified, climate resilient livelihood options (including fisheries, agriculture, tourism, etc.) IEs	Documented project M&E reports that confirms and validates –CRA and CCA, CT practices adopted in crop lands and fields by beneficiaries disaggregated by gender; & NDP 4-5 Annual M&E Reports and Cabinet Briefings, informed by three Governors reports as required under their performance management agreements And CRAVE Annual Project Performance Reports and CRAVE Mid-term Evaluation Report	0 small scale farmers in target areas	1,500[35] small scale farmers implementing improved GAP, CCA, CRA practices and benefiting with increased crop yields/outputs/harvest and from income sales from surpluses and diversified jobs from implementing the CRAVE project s	3,000[36] small scale farmers adopting and benefiting in crop yields, outputs/harvests, and from income sales from surpluses and diversified jobs from implementing the CRAVE project	That the GCF funding will be made available on time to allow the immediate implementation of the CRAVE coinciding in the next preparation, planting, ploughing seasons and that farmers are willing to immediately adopt, practice and adjust their conventional cropping and un-resilient land use practices towards alternative CA and SLM practices. The assumption is that the design of the specialized surveys (quantitative and qualitative) will be in congruence with the NHIES and existing FSVA, and if not there will be a mechanism to adjust the tools for the specific requirements of the CRAVE project.

[35] 50% males and 50% females
[36] 50% males and 50% females

A2.0 Increased resilience of health and well-being, and food and water security	*2.2 Number of food secure households (in areas/periods at risk of climate change impacts)*	NHIES[37] - and Annual Vulnerability Reports - Namibia Rural Food Security and Livelihood Vulnerability Assessment Report disaggregated by male and female-headed households; and regional data And CRAVE Annual Project Performance Reports and CRAVE Mid-term Evaluation Report	0 households food and nutritional needs (secure) met	1,500[38] households food and nutritional needs (secure) met; and their agricultural food production capacities increased [and they are benefiting from income and jobs from sustainable livelihoods activities of the CRAVE –the baseline info will be collected]	3000[39] households food and nutritional needs (secure) met; and their agricultural food production capacities increased [and they are benefiting from income and jobs from sustainable livelihoods activities of the CRAVE –the baseline info will be collected]	As above, with the additional assumption that there will not be major droughts and or floods during the five-year period, such that the emergency related to flood relocation does not disrupt the farmers cropping seasons impacting the project time frame. The assumption is that the design of the specialized surveys (quantitative and qualitative) will be in congruence with the NHIES and existing FSVA, and if not there will be a mechanism to adjust the tools for the specific requirements of the CRAVE project.
Choose appropriate expected results						

[37] Namibia National Household Income and Expenditure Survey (NHIES).
[38] 50% males and 50% females
[39] 50% females and 50% males

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**					
A7.0 Strengthened adaptive capacity and reduced exposure to climate risks	Proposed 7.1: Use by vulnerable households, communities, businesses and public-sector services of Fund supported tools, instruments, strategies and activities to respond to climate change and variability IEs	National and Regional Comprehensive Conservation Agriculture For a And CRAVE Annual Project Performance Reports and CRAVE Mid-term Evaluation Report	0 males and females adopting/using CCA, GAP including micro-drip water conservation	1500 male and female farmers adopting/using CCA, GAP including micro-drip water conservation;	1500 male and female farmers "effectively'' adopting/using CCA, GAP including micro-drip water conservation;	As above, with the additional assumption that there will not be major economic crunches impacting the flow of climate fund to replenish the GCF, AF and support financing needs of the vulnerable countries and population groups.
	Number of males and females being mentored from through PPP of AMTA and AgriBUsDev	MAWF, AMTA and AgriBusDev Annual Reports And CRAVE Annual Project Performance Reports and CRAVE Mid-term Evaluation Report	0 male and female farmers mentored through the PPP[40] of AMTA and AgriBusDev;	1500 (50% males and 50% females) mentored through the PPP of AMTA and AgriBusDev; and	1500 (50% males and 50% females) "effectively'' mentored through the PPP of AMTA and AgriBusDev	
	Existence of a Crop Insurance Scheme	CRAVE Annual Performance Report	0 small scale Crop Insurance Scheme	1 Small-scale crop insurance scheme developed piloted	1 small scale crop insurance scheme developed and piloted	
Strengthened institutional coordination for CRAVE	Number of MAWF extension service staff trained and using the CRA product information, i.e. tools, guidelines and standards to provide CRA extension services	CRAVE Annual Project Performance Reports and CRAVE Mid-term Evaluation Report	0 MAWF extension service and technician staff using the CRA product information, i.e. tools, guidelines and standards to provide CRA	[41]50% MAWF extension and technician staff trained on the CRA product information, i.e. tools, guidelines and standards to	50% MAWF extension and technician staff trained and "using" on the CRA product information, i.e. tools, guidelines and standards to provide CRA extension services	That the MAWF co-financing amounts are timely allocated and MAWF mainstream staffs are willing to attend trainings and apply the knowledge gained and skills obtained.

[40] Public Private Partnership
[41] At mid-term the assessment will focus on the percentage trained, whereas at end of the project the assessment will focus on the percentage trained and using/applying the knowledge obtained from the training

			extension services	provide CRA extension services		
	Indicator	**Means of Verification (MoV)**	**Baseline**	**Mid-Target**	**Final**	**Assumptions**
Project/programme outputs	**Outputs that contribute to outcomes**					
1.1 Mashare Climate Resilient Agriculture Centre of Excellence (MCRACE)	Existence of a Climate Resilient Agriculture Centre of Excellence with research, training and trials activities	CRAVE Annual Project Performance Report, Trainees 'Certificates; Seminar and Conferences' Reports and Publications;	0 Centre of Excellence in place.	N/A	1 MCRACE in place and is fully operational with research, training and trials activities being implemented	That the MCRACE will be effectively used for research, demonstration and training purposes and that there is continued willingness by researchers and academic professionals to utilize it
1.2. Field Research, Trial and Demonstration Sites Facility (guano) and organic fertilizers	Size (ha) of demonstration plots/land with seed production using organic fertilizer	Field research findings; CRAVE Publications, Reports	0 ha demonstration plots with seed production using organic fertilizer	60 ha demonstration plots with seed production using organic fertilizer	100ha demonstration plots with seed production using organic fertilizer	Availability of inputs (seeds, labour), technology and equipment and researchers and farmers willingness, commitment and passion towards improving productivity
2.1 Small scale farmer's irrigation and adaptive capacity for scaling up and implementation of climate resilient crop production and smart land use practices expanded and strengthened: SSHF - Farmers (horticultural) cropping practices and production technologies	Number of vulnerable male and female SSHFs adopting sustainable crop production practices	CRAVE Annual Project Performances Report and CRAVE Mid-term Evaluation	0 vulnerable male and female SSHFs adopting sustainable crop production practices	250 vulnerable male and female SSHFs adopting sustainable crop production practices	500 vulnerable male and female SSHFs adopting sustainable crop production practices	Availability of inputs (seeds, labour), technology and equipment and farmers willingness, commitment and passion towards improving productivity
	Number of male and female SSHFs contributing to	CRAVE Annual Project Performances Report and CRAVE Mid-term	0 vulnerable male and female SSHFs contributing to the national	250 vulnerable male and female SSHFs	500 vulnerable male and female SSHFs contributing to the national	

	the national agricultural market economy	Evaluation	agricultural market economy	contributing to the national agricultural market economy	agricultural market economy	
2.2 Small scale farmer's adaptive capacity for scaling up and implementation of climate resilient crop production and smart land use practices expanded and strengthened: SSF- Farmers (rain fed) Training, Capacity Building and Development	Number of vulnerable male and female beneficiaries trained on Namibia Comprehensive Conservation Agriculture Programme	CRAVE Annual Project Performances Report and CRAVE Mid-term Evaluation	0 vulnerable male and female beneficiaries trained on Namibia Comprehensive Conservation Agriculture Programme	1 500 (50% male and 50% female) vulnerable male and female beneficiaries trained on Namibia Comprehensive Conservation Agriculture Programme	3000 (50% male and 50% female) vulnerable male and female beneficiaries trained on Namibia Comprehensive Conservation Agriculture Programme	Availability of inputs (seeds, labour), technology and equipment and farmers willingness, commitment and passion towards improving productivity
	Number of vulnerable male and female beneficiaries implementing Namibia Comprehensive Conservation Agriculture Programme	CRAVE Annual Project Performances Report and CRAVE Mid-term Evaluation	0 vulnerable male and female beneficiaries implementing Namibia Comprehensive Conservation Agriculture Programme	1500 (50% male, i.e. 750 and 50% female, i.e. 750) vulnerable male and female beneficiaries implementing Namibia Comprehensive Conservation Agriculture Programme	1500 (50% male and 50% female) vulnerable male and female beneficiaries implementing Namibia Comprehensive Conservation Agriculture Programme	
	Number of vulnerable SSFs (males and females) benefiting from introduced adaptation measures to respond to climate-shocks	CRAVE Annual Project Performances Report and CRAVE Mid-term Evaluation	0 vulnerable SSFs (males and females) benefiting from introduced adaptation measures to respond to climate-shocks	1500 vulnerable SSFs (males and females) benefiting from introduced adaptation measures to respond to climate-shocks	1500 vulnerable SSFs (males and females) benefiting from introduced adaptation measures to respond to climate-shocks	Availability of inputs (seeds, labour), technology and equipment and farmers commitment and passion towards improving productivity

2.3 Crop Insurance Scheme	Existence of a Crop Insurance Scheme	CRAVE Annual Project Performance Report; and Mid-term Evaluation Report	0 Crop Insurance Scheme in place	Not applicable[42] (0)	1 Crop Insurance Scheme in place	Continued willingness and commitment for private sector to engage in public private partnerships
	Number of vulnerable males and females SSFs accessing the Crop Insurance Scheme	CRAVE Annual Project Performance Report; and Mid-term Evaluation Report	0 vulnerable males and females SSFs accessing the Crop Insurance Scheme	Not applicable (0)	1 Crop Insurance Scheme accessed by vulnerable 250 males and 250 females SSFs	Continued willingness and commitment for private sector to engage in public private partnerships
3.1 Solar Water Pumping (SWP) for Agriculture	Number of vulnerable male and female SSFs connected with SWP	CRAVE Annual Project Performances Report and CRAVE Mid-term Evaluation Regional Electricity Distributor records for off-grid electricity connections	0 vulnerable males and female SSFs	250 vulnerable males and female SSFs	500 vulnerable males and female SSFs	Assumption that the availability and affordability of SETs[43] in the Namibian market
	Number of vulnerable male and female SSFs utilizing renewable energy for productive uses	CRAVE Annual Project Performances Report and CRAVE Mid-term Evaluation	0 vulnerable males and female SSFs	250 vulnerable males and female SSFs	500 vulnerable males and female SSFs	Assumption that there are willing Suppliers and Installers of SET to provide maintenance services in the Namibian rural market
3.2 Diversification & adaptation alternative sustainable livelihoods	Number of vulnerable male and female small scale farmers (SSFs) accessing the AMTA and AgriBusDev facilities and services	MAWF, AMTA and AgriBusDev Annual Reports CRAVE Annual Project Performances Report and CRAVE Mid-term Evaluation	0 vulnerable male and female small scale farmers (SSFs) accessing the AMTA and AgriBusDev facilities and services	250 vulnerable male and female small scale farmers (SSFs) accessing the AMTA and AgriBusDev facilities and services	500 vulnerable male and female small scale farmers (SSFs) accessing the AMTA and AgriBusDev facilities and services	Willingness of SSFs and SSHF[44] to adopt the CCA[45] practices and to alter subsistence behaviors that can accommodate alternative livelihood means
4. Cross cutting elements, including Learning, Best Practice, Replication	Number of good practices guides captured, lessons documented and adaptation results being	CRAVE Annual Project Performances Report and CRAVE Mid-term Evaluation Academic Journals; and	0 good practices guides captured, lessons documented and adaptation results being	5 good practices guides captured, lessons documented and adaptation	10 good practices guides captured, lessons documented and adaptation results being shared in the national, regional and	Willingness for academic researchers and professors to study/survey and analyze the results and present them at Academic Conferences

[42] There is no target for the mid-term
[43] Solar Energy Technologies
[44] Small Scale Horticultural Farmers
[45] Comprehensive Conservation Agriculture

and Knowledge Management	academically shared in the national, regional and global platforms and conferences	Conference Proceedings	shared in the national, regional and global platforms	results being shared in the national, regional and global platforms	global platforms	

Table 8 Table Indicating Activities, Inputs and Description

Outcome	Output	Activities	Inputs	Description
Outcome 1 Mashare Climate Resilient Agriculture Centre of Excellence (MCRACE)	***Output 1.1 Mashare Climate Resilient Agriculture Centre of Excellence (MCRACE)***	**Activity 1.1.1:** Develop the business model (production and post-production) and concept of a CRACE and establish a fully operational CE for the whole country. [Institutional Set up] **Activity 1.1.2:** Identify potential technology (which are gender appropriate) needed to address adaptation, including technology transfer through financial market based mechanisms (e.g. CDM, PES, REDD+, Biocarbon Fund, etc.). [Research and Development Activity] **Activity 1.1.3:** Conduct research activities to monitor ecosystem and landscape services and changes, systematically observing impacts related to climate change, including remote sensing. **Activity 1.1.4:** Provide relevant information, advice, w.r.t CCA/GAP practices, best cases, planting adaptability, land use practices, SLM techniques. [Awareness raising, Advisory role, Stakeholder engagement] **Activity 1.1.5:** Seed production (MCRACE & Research) and seed multiplication (SSF growers) **Activity 1.1.6:** Feasibility of a fertilizer mixing plant (Feasibility Study, EIA) **Activity 1.1.7:** Procure the inputs, equipment and services	• Technical and Advisory Services • Materials • Equipment's • Training • Venue • Land (demo fields) • Materials • Inputs	• Provision of Technical, Business, Financial Advisory Services • Provision of Materials & Equipment's • Training Services • Research Services • Extension Services • Academic Researchers • Technical Advisory Services • Tools and Guideline • Provision of Technical, Business, Financial Advisory Services • Business Advisory Services • Transportation Services • Workshops • Participatory and Community Facilitation Services • Women Adaptation Mentorship and Business Advisory Services
	Output 1.2 Field Research, Trial and Demonstration Sites (guano) and organic fertilisers	**Activity 1.2.1:** Promote exchange and promote participation of scientific experts and practitioners including secondment on climate-resilient agriculture institutes. [Knowledge exchange & Mgt] **Activity 1.2.2:** Establish three demo sites (for example, one for crop insurance, one for seed multiplication, one for crop diversification, intercropping with legumes and others (such as sunflower intercropping) in the three target regions. These pilot areas will be closely managed and monitored with the activities at the MCRACE, as they are linked to the	• Brochures • Materials • Demonstration Tools • Demonstration Inputs • Survey Results • Demonstration materials and equipment • Farming Inputs • Materials and Equipment • Technical	Technical, Practical, and Theoretical Advisory Services

		MCRACE activities. **Activity 1.2.3:** Develop, update and upgrade the piloted CA Train the Farmer - Training of Trainers materials - based on lead farmers' concept (Development of CCA Train the Farmer Manual) **Activity 1.2.4:** Empower both men and women to participate meaningfully in demonstration activities (including research and development) and roll out of CCA adaptation practices (increased number of women) [Leadership, training, empowerment] **Activity 1.2.5:** Establish three demo sites in each of the three target regions in line with sub-component 2.1 and 2.2 **Activity 1.2.6:** Demonstration centres (with entire value chain) in partnership with the South-South Co-operation [Knowledge exchange & Mgt] **Activity 1.2.7:** Procure the inputs, equipment and services	Services • Research inputs • Tree Fences (live fences)	
Outcome 2.1 Small-scale farmer's exposure and vulnerability to climate risks and effects (to water scarcity, heat, and drought, soil degradation) reduced; and 2.3 crop insurance scheme set up. (SSHF [46] and SSF)	***Output 2.1 SSHF - Farmers (horticultural) cropping practices and production technologies***	**Activity 2.1.1:** Train, mentor and engage the farmers to improve their cropping practices. [Adopt and implement comprehensive conservation agriculture (CCA) and climate resilient agricultural (CRA) practices to produce/process/store food, including drought and heat resistant crop varieties and mentor the SSHF]. [Skills transfers, training, mentoring on-farm] **Activity 2.1.2:** Diversify job and income-generating opportunities to secure long-term livelihoods and food security (develop value chain and marketing practices) [implement the alternative livelihood adaptation strategies and options] **Activity 2.1.3:** Enable adoption of alternative energy technologies to assist farmers to effectively and efficiently implement CSA -CCA, CT, drip irrigation, soil conservation & water harvesting, tunnel farming, hydroponic, etcetera, (install SET) [acquisition of appropriate technologies] **Activity 2.1.4**: Assist business development – marketing, storage, processing, and value-addition (support post-production) **Activity 2.1.5**: Procure the inputs, equipment and services	• Farming Inputs • Materials and Equipment • Business Advisory Services • Research inputs • Training • Shade Nets • Pipes • Mentorship • Post Production Services • Cool Hubs • Business Mentorship Services • Materials • Pipes • Shade Nets	• Workshops • Training of Trainers • Climate Change Adaptation Advisory Services • CCA Advisory Services • CRA Advisory and Mentorship • Provision of Technical, Business, Financial Advisory Services • Provision of Materials & Equipment's • Business Advisory Services • Transportation Services • Workshops • Business Advisory Services • Transportation Services • Workshops • Participatory and Community Facilitation Services • Women Adaptation Mentorship and Business Advisory Services
Outcome 2.2	***Output 2.2***	**Activity 2.2.1:** Train, mentor and engage	• Brochures	• Workshops

[46] SSHF =small scale horticultural farmers

Small-scale farmer's irrigation and adaptive capacity for scaling up and implementation of climate-resilient crop production and smart land use practices expanded and strengthened;	***SSF- Farmers (rain fed) Training, Capacity Building and Development***	the farmers to improve their cropping practices. Adopt and implement comprehensive conservation agriculture (CCA) and climate resilient agricultural (CRA) practices to produce/process/store food, including drought & heat resistant crop varieties [train, mentor, advice the SSF] **Activity 2.2.2:** Diversify job and income-generating opportunities to secure long-term livelihoods and food security (develop value chain and marketing practices) **Activity 2.2.3:** Enable adoption of alternative energy technologies to assist farmers to effectively and efficiently implement CSA-CCA, CT, drip irrigation, soil conservation and water harvesting, tunnel farming, hydroponic, etc. (install SET). [Acquisition of appropriate technologies] **Activity 2.2.4:** Assist SSF to link up with Agribank, AMTA - business development – marketing, storage, processing, and value addition (facilitate post-production) **Activity 2.2.5:** Develop and implement CCA Train the Farmer [training] **Activity 2.2.6:** Train farmers on comprehensive CA [training] **Activity 2.2.7:** Identify, train and recruit CRA/CSA lead farmers linked to demonstration activities – seed, manure, insurance [champions] **Activity 2.2.8:** Implement TOT by SSF themselves [knowledge demo & application] Procure the inputs, equipment and services	• Materials • Demonstration Tools • Demonstration Inputs • Survey Results • Demonstration materials and equipment • Farming Inputs • Materials and Equipment • Technical Services • Research inputs • Tree Fences (live fences) • Farming Inputs • Materials and Equipment • Business Advisory Services • Research inputs • Training • Shade Nets • Pipes • Mentorship • Post Production Services • Cool Hubs • Business Mentorship Services • Materials • Pipes • Shade Nets	• Training of Trainers • Climate Change Adaptation Advisory Services • CCA Advisory Services • CRA Advisory and Mentorship • Provision of Technical, Business, Financial Advisory Services • Provision of Materials & Equipment's • Business Advisory Services • Transportation Services • Workshops • Participatory and Community Facilitation Services • Women Adaptation Mentorship and Business Advisory Services
Outcome 2.3 Crop insurance scheme set up (SSHF and SSF)	***Output 2.3 Crop Insurance Scheme***	**Activity 2.3.1**: Scope the establishment and management mechanism for a suitable micro-crop insurance scheme targeting vulnerable and small-scale farmers (private sector led through PPP). [Work with NASRIA and NAMIBRE to assess final viability and pilot] **Activity 2.3.2:** Implement and roll out the crop insurance scheme targeting vulnerable and small-scale farmers (private sector led through PPP) [implementation] **Activity 2.3.3:** Upscale (scale up) and replicate the crop insurance scheme [lessons learned, adjustments, skills transfers, tool kits, guidelines for replication] **Activity 2.3.4:** Procure the inputs, equipment and services	Product development Guidelines	• Provision of Technical, Business, and Financial Advisory Services

Outcome 3.1 Alternative sustainable access for off-grid solar energy technologies widely promoted, adopted and applied (in the three targeted regions) (SSHF and SSF*)*	***Output 3.1 Solar Water Pumping for Agriculture***	**Activity 3.1.1:** Provide technology and appliances access for off-grid solar energy technologies [acquisition of gender appropriate technologies]. **Activity 3.1.2:** Facilitate farmers' access to acquire alternative energy technologies [adoption, mentorship and training, application] **Activity 3.1.3:** Promote extensive adoption of SET for agricultural market penetration in the three target regions [replication and scaling up] **Activity 3.1.4:** Design specific and targeted SSF information booklets for SET application, use and adoption as part of regional CCA practices [Awareness raising, stakeholders information, and replication] **Activity 3.1.5:** Procure the inputs, equipment and services	Micro drippers Solar Systems and PVP Shade Nets Cool Storage	Provision of RET Advisory Services Provision of Materials & Equipment's Business Advisory Services Transportation Services Workshops
			• Cool Tanks • Storage equipment • Materials • SET • Processing • Storage • Value addition	• Business Advisory Services • Transportation Services • Business Advisory Services • Transportation Services • Workshops
Outcome 4: Cross cutting elements, including Learning, Best Practice, Replication and Knowledge Management	**Output 4: Cross cutting elements, including Learning, Best Practice, Replication and Knowledge Management**	**Activity 4.1:** Conduct academic including participatory action field research and survey on impacts of climate change on crops, wellbeing (including intra household food security situation) and codify appropriate suitable adaptation measures [research and publication] **Activity 4.2:** Undertake inventories of best conservation productive-based practices (that is, environmentally-friendly production), document traditional knowledge and alternative practices for coping with climate variability and extreme weather [adaptation learning] **Activity 4.3:** Develop, replicate and upscale participatory conservation agriculture monitoring systems involving locally trained farmers and youth [participatory research & monitoring] **Activity 4.4:** Develop a national toolkit on implementation of CRAVE, to be up-scaled in all seven northern crop-growing regions and shared internationally [replication and scaling up] **Activity 4.5:** Organise conferences, seminars, symposia, farmers agricultural expo and exchanges	• Materials • Academic Papers • Practitioners and Policy Papers	• Technical, Research and Academic Services • Document and Capture Knowledge

		Activity 4.6: Conduct audit, prepare reports, & carry out monitoring and evaluation (M&E) activities [M&E] **Activity 4.7:** Risk management (review, monitor and manage the CRAVE Risks and ESIA) [environmental and social safeguard] **Activity 4.8:** Procure the inputs, equipment and services.		

Table 9: Previous Table, which was attached to the log frame, in summary form

Activities	Description	Inputs	Description	Activities	Description
1.1 Business Model Development	Develop the business model and concept of a CRACE	Technical and Advisory Services Materials Equipment's	Provision of Technical, Business, Financial Advisory Services Provision of Materials & Equipment's	1.1 Business Model Development	Develop the business model and concept of a CRACE
Implement adaptation activities at MCRACE	Establish a fully operational CE for the whole country	Training Venue Land (demo fields) Materials Inputs	Training Services Research Services Extension Services Academic Researchers	Implement adaptation activities at MCRACE	Establish a fully operational CE for the whole country
1.1, 2.1, 2.2 Technology Identification	Identify potential technology needed to address adaptation, including technology transfer through CDM, PES, REDD+, Biocarbon fund	Technical Advisory Services Tools and Guidelines	Provision of Technical, Business, Financial Advisory Services	1.1, 2.1, 2.2 Technology Identification	Identify potential technology needed to address adaptation, including technology transfer through CDM, PES, REDD+, Biocarbon fund
4 and 1.1 Ecosystem Services monitoring	Monitor Ecosystem and Landscape Services and Changes, systematically observing impacts related to climate change	Technical Advisory Services Assessment Tools	Sub-Research Observatory Academic Researchers	4 and 1.1 Ecosystem Services monitoring	Monitor Ecosystem and Landscape Services and Changes, systematically observing impacts related to climate change
1.1 Information and knowledge	Provide relevant information, advice, etc., w.r.t CCA practices, best cases, planting adaptability, land use practices, SLM techniques, Specific qualitative studies will be conducted through the UNAM Gender Training and Research Unit of the MRC	Brochures Materials Demonstration Tools Demonstration Inputs Survey Results	Training Technical Services Materials Seeds Equipment Horticultural demo equipment Store/Cool Room demo Questionnaires and Reports	1.1 Information and knowledge	Provide relevant information, advice, etc., w.r.t CCA practices, best cases, planting adaptability, land use practices, SLM techniques, Specific qualitative studies will be conducted through the

					UNAM Gender Training and Research Unit of the MRC
1.1 Scientific and Practitioners Exchanges	Promote exchange and promote participation of scientific experts and practitioners including secondment on climate resilient agriculture institutes	Demonstration materials and equipment	Technical Services Knowledge Products Exchange practitioners	1.1 Scientific and Practitioners Exchanges	Promote exchange and promote participation of scientific experts and practitioners including secondment on climate resilient agriculture institutes
1.1 Demonstration sites' establishment	Establish 3 demo sites (for example, crop insurance, crop and seed varieties in the 3 target regions linked to the MCRACE activities	Farming Inputs Materials and Equipment Technical Services Research inputs Tree Fences (live fences)	Technical, Practical, and Theoretical Advisory Services	1.1 Demonstration sites' establishment	Establish 3 demo sites (for example, crop insurance, crop and seed varieties in the 3 target regions linked to the MCRACE activities
2.1 and 2.2 Facilitate Women's participation in demos	Empower both men and women to participate meaningfully in demonstration activities (including research and development) and roll out of adaptation practices	Farming Inputs Materials and Equipment Business Advisory Services Research inputs Tree Fences (live fences) Store/Cool Rooms Post Production Services	Participatory and Community Facilitation Services Women Adaptation Mentorship and Business Advisory Services	2.1 and 2.2 Facilitate Women's participation in demos	Empower both men and women to participate meaningfully in demonstration activities (including research and development) and roll out of adaptation practices
2.1 and 2.2 Implementation of Comprehensive Conservation Agriculture	Adopt and implement conservation agriculture (CA) and climate resilient agricultural (CRA) practices to produce food, including drought and heat resistant crop varieties	Farming Inputs Materials and Equipment Business Advisory Services Research inputs Training Shade Nets Pipes	Workshops Training of Trainers Climate Change Adaptation Advisory Services CCA Advisory Services CRA Advisory and Mentorship	2.1 and 2.2 Implementation of Comprehensive Conservation Agriculture	Adopt and implement conservation agriculture (CA) and climate resilient agricultural (CRA) practices to produce food, including drought and heat resistant crop varieties
3.2 Establish value chains with regional and national agro marketing processing facilities	Diversify job and income generating opportunities to secure long-term livelihoods and food security.	Mentorship Post Production Services Cool Hubs Business Mentorship Services Materials Pipes Shade Nets	Provision of Technical, Business, Financial Advisory Services Provision of Materials & Equipment's	3.2 Establish value chains with regional and national agro marketing processing facilities	Diversify job and income generating opportunities to secure long-term livelihoods and food security.
3.1 Install SET	Enable alternative	Micro drippers	Provision of RET Advisory	3.1 Install SET	Enable

	energy technologies to assist farmers to effectively and efficiently implement CSA, CA, CT, Drip irrigation, Soil Conservation and Water Harvesting, Tunnel Farming, Hydroponic, etc.	Solar PVP Shade Nets Cool Storage	Services Provision of Materials & Equipment's		alternative energy technologies to assist farmers to effectively and efficiently implement CSA, CA, CT, Drip irrigation, Soil Conservation and Water Harvesting, Tunnel Farming, Hydroponic, etc.
3.1 and 3.2 Establish Market Supply Chains	Develop market supply chains linked to AMTA - cool storage and national food security banks, for example national strategic food reserves	Cool Tanks Storage equipment Materials SET	Business Advisory Services Transportation Services	3.1 and 3.2 Establish Market Supply Chains	Develop market supply chains linked to AMTA - cool storage and national food security banks, for example national strategic food reserves
3.2 Facilitate Farmers Based Organization	Develop SSF business skills for post-production or post harvesting	Processing Storage Value addition	Business Advisory Services Transportation Services Workshops	3.2 Facilitate Farmers Based Organization	Develop SSF business skills for post-production or post harvesting
4. Document and Capture Knowledge	Organize seminars, conferences, workshops for different audiences, such as national, regional and international to share, learn and codify adaptation knowledge	Materials Academic Papers Practitioners and Policy Papers	Technical and Academic Services	4. Document and Capture Knowledge	Organize seminars, conferences, workshops for different audiences, such as national, regional and international to share, learn and codify adaptation knowledge

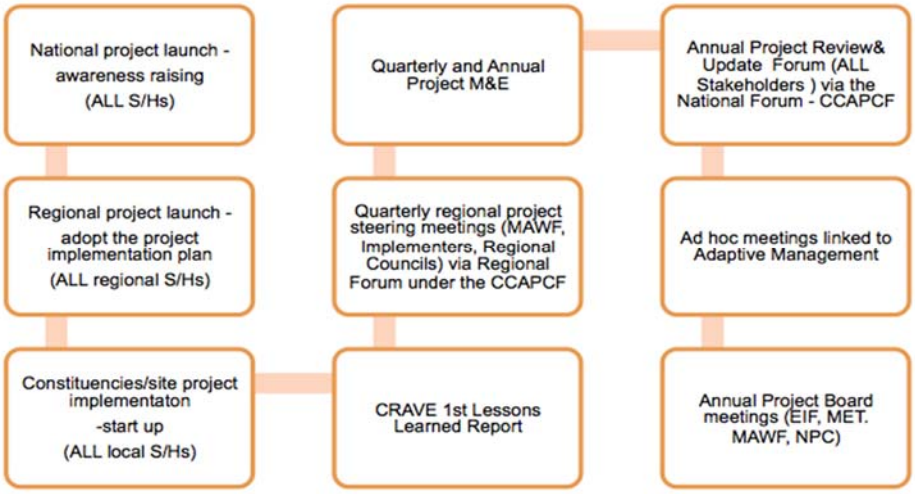
H.2. Arrangements for Monitoring, Reporting and Evaluation

137. The EIF monitoring, reporting and verification (MRV) procedures for the grant will serve as basis for the CRAVE M&E. However, for the purposes of CRAVE, the MRV will be adjusted to suit the project environment. Of particular importance, ensuing from participatory processes undertaken in the CRAVE project design, the partners, agencies and stakeholders will play a crucial role in the M&E activities at various levels. Firstly, the **CRAVE Project Board** will act as an oversight body, which will have the following institutions:

- MAWF (chair); MET (NDA); EIF (NIE); NPC; MoF; MURD; NNFU; and UNAM
- For information sharing, dissemination and coordination purposes, the Comprehensive Conservation Agriculture Programme Coordination Framework (CCAPCF) of the NCCAP will provide a stakeholder platform whereby the CRAVE will be reported.
- 119. At the project site levels, the following will be applicable:
- The Comprehensive Conservation Agriculture Programme Coordination Framework at regional levels will serve as key input to the CRAVE M&E setup;
- Kavango West Regional Council; Kavango East Regional Council; Zambezi Regional Council; MAWF DAPEES, DARD, DWAF; RC EIF- Monitors; AgriBusDev; AMTA; FA/ FBO/ etc.; AgriBank; and Agronomic Board; and
- These will be directly related to the Regional CA Forum established to coordinate the

138. **A Project Inception Workshop (IW)** will be conducted with the full project team, relevant government and executing agencies, counterparts, development partners, the NIE (EIF), the NDA (MET) and representation from the GCF Regional bodies, for example SA. A fundamental objective of this Inception Workshop will be to assist the CRAVE Project Team to understand and take ownership of the project's objective/s, meet stakeholders, present the draft detailed annual work plan and finalise the project's first annual work plan. This workshop will include reviewing the log-frame (indicators, means of verification, assumptions), imparting additional detail as needed, and on the basis of this exercise, finalising the annual work plan with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project. Additionally, the purpose and objective of the IW will be to: (i) introduce project staff of the EIF-GCF team; (ii) detail the roles, support services and complementary responsibilities of EIF and MET staff vis à vis the project team; (iii) provide a detailed overview of GCF reporting M&E requirements, with particular emphasis on the investment framework and related documentation, the environmental safety and social standards; GCF impacts and results indicator framework, as well as the need for the mid-term and final evaluations.

Table 10 CRAVE Evaluation Plan



139. Equally, the IW will provide an opportunity to inform the project team about the stakeholders at national, regional and local levels, hence, it will directly provide a chance for all parties and stakeholders, via the M-SEPP, to understand their roles and responsibilities within the project's decision-making structures, including reporting and communication and outreach activities. A **detailed schedule of project review meetings**, including M&E framework (fig. 9 and table 8), will be tabled by the project management, in consultation with EIF, MET and the MAWF (as project execution partners and stakeholder representatives) and incorporated in the reporting framework. Such a schedule will include: (i) tentative timeframes for Project Board meetings and (ii) project-related M&E activities. Day-to-day monitoring of implementation progress will be the responsibility of the NPM and Project Implementing Unit (PIU) based on the project's work plans and agreed indicators.

140. Measurement of impact indicators related to adaptation, co-mitigation benefits and additional SD co-benefits will occur largely in the latter parts of the programme, as part of the evaluation exercises (Table 8). This will largely depend on the tools developed by the GCF for this purpose. Annual Monitoring will occur through the Board and in accordance with the coordination of regional implementation of the M-SEPP (Figure 9). This is the highest policy-level meeting of the parties directly involved in the implementation of a project. The project will be subject to Board meetings twice a year. The first such meeting will be held within the first six months of the start of full implementation.

Figure 11 CRAVE Adaptive M&E and elements for the M-SEPP engagement plan

Evaluation	Planned start Month/year	Planned end Month/year	Budget for independent evaluators	Other budget (that is, travel, site visits etc.…)	Budget for local translation
Mid-Term Evaluation	August 2019	November 2019	50 000	15 000	5 000
Final Evaluation	April 2022	August 2022	50 000	20 000	5 000

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)
- ☒ Term Sheet (if applicable)
- ☒ 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
- ☒ Gender Analysis
- ☒ Stakeholders Consultation Report
- ☒ Project/programme confirmation (see the template in Annex I to the Accreditation Master Agreement)
- ☒ Theory of Change Illustration

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

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[i] Republic of Namibia-National Planning Commission, *Namibia Poverty Mapping*, (February 2015).
[ii] [ii] Republic of Namibia, *National Climate Change Strategy and Action Plan: 2013-2020*, (2014); [ii] Republic of Namibia, Ministry of Environment and Tourism, *Climate Change Vulnerability and Adaptation Assessment: Chapter for Namibia's Third National Communication to the UNFCCC*, (2014).
[iii] Republic of Namibia, *National Climate Change Strategy and Action Plan: 2013-2020.*
[iv] Ministry of Agriculture, Water and Forestry, *Namibia Comprehensive Conservation Agriculture Programme*, (2014).
[v] Republic of Namibia, Ministry of Environment and Tourism, *Climate Change Vulnerability and Adaptation Assessment: Chapter for Namibia's Third National Communication to the UNFCCC*, (2014).
[vi] Namibia Agriculture Working Group for LULUCF, *Investment and Financial Flows to Address Climate Change in Namibia –Adaptation LULUCF/Agriculture Sector Assessment* (May 2012).
[vii] Reid et al, *The economic impact of climate change in Namibia*, (November 2007)
[viii] Republic of Namibia, *Namibia Labour Force Survey*.
[ix] Namibia Early Warning and Food Information Unit (NEWFIU) *Namibia Crop Prospects, Food Security and Drought Situation Report* (June 2015).
[x] Namibia Early Warning and Food Information Unit (NEWFIU) *Namibia Crop Prospects, Food Security and Drought Situation Report* (June 2015).
[xi] Ministry of Environment and Tourism, 2008, *Namibia Country Pilot Partnership Programme Baseline Study Report*.
[xii] Food and Agriculture Organisation of the United Nations, n.d, *Country Programming Framework for Namibia 2014 -2018*.
[xiii] Ministry of Environment and Tourism, 2008, *Namibia Country Pilot Partnership Programme Baseline Study Report*.
[xiv] Food and Agriculture Organisation of the United Nations, n.d, *Country Programming Framework for Namibia 2014 -2018*.
[xv] Republic of Namibia-National Planning Commission, *Namibia Poverty Mapping*, (February 2015).

[xvi] Namibia Early Warning and Food Information Unit (NEWFIU) *Namibia Crop Prospects, Food Security and Drought Situation Report* (June 2015).
[xvii] Republic of Namibia, *Initial National Communication to the UNFCCC*, 2002.
[xviii] Turpie et al, 2010.
[xix] Republic of Namibia, *National Climate Change Strategy and Action Plan: 2013-2020*, (2014)
[xx] National Planning Commission, *Namibia Index of Multiple Deprivation*, (April 2015).
[xxi] Republic of Namibia, *National Climate Change Strategy and Action Plan: 2013-2020*, (2014)

REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT AND TOURISM

Tel: (00 26461) 284 2111
Fax: (00 26461) 229 936

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

Enquiries: Mr. P. Muteyauli

E-mail: pmuteyauli@met.na

19 April 2016

The Secretariat
Green Climate Fund
G-Tower, 24-4 Songdo-dongo, Yeonsu-gu Incheon
Republic of Korea

RE: Funding proposal to the Green Climate Fund by the Environmental Investment Fund of Namibia (EIF) regarding *"Climate Resilient Agriculture in the three Vulnerable Extreme northern crop growing regions (CRAVE)"* in Namibia

Dear Sir/ Madam,

We refer to the project "*Climate Resilient Agriculture in the three Vulnerable Extreme northern crop growing regions (CRAVE)*" in Namibia as included in the funding proposal submitted by the Environmental Investment Fund of Namibia to us on April,19, 2016. The undersigned is the duly authorized representative of the Ministry of Environment and Tourism, the National Designated Authority of Namibia.

Pursuant to GCF decision B.08/10, the content of which we acknowledge to have reviewed, we hereby communicate our no-objection to the project as included in the funding proposal.

By communicating our no-objection, it is implied that:

(a) The government of the Republic of Namibia has no objection to the project as included in the proposal;

(b) The project as included in the funding proposal is in conformity with Namibia's national priorities, strategies and plans;

(c) In accordance with GCF's environmental and social safeguards, the project as included in the funding proposal is in conformity with relevant national laws and regulations.

We also confirm that our national process for ascertaining no objection to the project as included in the funding proposal has been duly followed. We acknowledge that this letter will be made publicly available on the GCF website.

Yours Sincerely,

Ministry of Environment & Tourism
21-04-2016
Office of the PERMANENT SECRETARY REPUBLIC OF NAMIBIA

M. Lindeque
Permanent Secretary

"Stop the poaching of our rhinos"

Environmental and social report(s) disclosure

Basic project/programme information	
Project/programme title	Climate Resilient Agriculture in three of the Vulnerable Extreme northern crop-growing regions (CRAVE)
Accredited entity	Environment Investment Fund of Namibia (EIF)
Environmental and social safeguards (ESS) category	Category C
	Note: *Environmental and social report disclosure not required for Category C and Intermediation 3 projects and programmes.*
Environmental and social report disclosure information	
Description of report/disclosure	N/A
Date of disclosure on accredited entity's website	Click here to enter a date.
Language(s) of disclosure	N/A
Link to disclosure	http://
Other link(s)	http://