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Resilient nations.*

**United Nations Development Programme
Country: Namibia**

PROJECT DOCUMENT

PIMS 4711: Scaling up community resilience to climate variability and climate change in Northern Namibia, with a special focus on women and children

UNPAF 2014-2018 Outcome(s):

Outcome 8: By 2018, Namibia has adopted and is implementing effectively and in a coordinated manner, policies and strategies to reduce poverty and vulnerability which are informed by evidence on the causes of poverty and vulnerability.

Outcome 11: By 2018, Namibia has reviewed, and is implementing, policies and strategies which ensure that severely poor and vulnerable households have access to, and are utilizing, productive resources and services for food and nutrition security in addition to sustainable income generation.

UNDP Strategic Plan Environment and Sustainable Development Primary Outcome 1: Growth and development are inclusive and sustainable, incorporating productive capacities that create employment and livelihoods for the poor and excluded; **Output 1.4.** Scaled up action on climate change adaptation and mitigation across sectors which is funded and implemented.

Implementing Entity: Ministry of Environment and Tourism (MET)

Responsible Parties: Ministry of Agriculture, Water and Forestry (MAWF), Regional Councils, CES, NNFU, UNAM

Brief Description

Namibia's agricultural sector is considered to be extremely vulnerable to climate change. The recently released IPCC WGIIAR5 report emphasizes that semi-arid areas will be under particular threat. Namibia already is a water-scarce country. Moreover, because livelihoods and production systems are tightly linked to the availability of rain, the impacts of climate variability and climate change are and will be felt severely. Vulnerable groups from the already marginal production areas, such as women-led households and young people living in rural areas of Northern Namibia, are particularly dependent on subsistence agriculture. Other sources of livelihood are not developed enough to provide viable alternatives. Frequently occurring extreme climate events, such as flooding in the Cuvelai drainage system and severe droughts throughout the regions, are causing damage to the infrastructure and agricultural production and have detrimental effects on health.

The project aims to strengthen the adaptive capacity for climate change and reduce the vulnerability to droughts and floods for 4,000 households, of which 80% are women-led, and children from 75 schools in Northern Namibia. Based on a previously implemented Namibian CBA programme (partially financed by SPA) and by using SCCF funds, the most promising adaptation pilots will be scaled up. The project's desired outcomes include: (1) the smallholders' capacity to adopt climate resilient agricultural practices is strengthened; (2) the vulnerability to droughts and floods is reduced by means of restoring wells and enhancing floodwater pools for food security; and (3) climate change and the national agricultural strategy or sectoral policy, including budgetary adjustments for replication and scaling up, are mainstreamed.

The project baseline comprises of three agricultural investment programmes led by the Government and other non-governmental partners. Project results will be delivered by a series of partnerships between the Government and non-governmental institutions from areas such as agricultural service delivery, financial services and marketing. The project is resilience oriented at the community, ecological and governance levels. It entails participatory decision-making and shared monitoring and evaluation which in turn promote policy mainstreaming and enhanced accountability.

The Ministry of Environment and Tourism (MET) in collaboration with regional and local partners will execute the project. Overall, \$ 3,050, 000 Million are allocated from the SCCF to this intervention.

Programme Period: 2015 – 2019

Award ID: 00083204

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PIMS: 4711

Start date: January 2015

End Date: December 2019

Management Arrangements: NIM

Total resources required: \$ 23,067,263

Total allocated resources: \$ 23,067,263

• Regular (GEF/SCCF) \$ 3,050,000

• Other:

MAWF (parallel cash) \$ 18,757,263

MET (in kind) \$ 400,000

UNDP (cash) \$ 500,000

UNDP (in kind) \$ 360,000

Agreed by (Government):

Date/Month/Year

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Date/Month/Year

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Date/Month/Year

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List of Abbreviations

AAP	Africa Adaptation Programme	IIED	International Institute for Environment and Development
AIDS	Acquired Immune Deficiency Syndrome	I&FF	Investment and Financial Flows
AMAT	Adaptation Monitoring and Assessment Tool	IFRC	International Federation of Red Cross
AMTA	Agro-Marketing Trade Agency	IP	Implementing Partner
CA	Conservation Agriculture	IPCC	International Panel for Climate Change
CBA	Community Based Adaptation	ITCZ	Inter-tropical Convergence Zone
CBNRM	Community Based Natural Resource Management Programme	LDCF	Least Developed Country Fund
CES	Creative Entrepreneurs Solution	LULUCF	Land Use, Land Use Change and Forestry
CCA	Climate Change Adaptation	MAWF	Ministry of Agriculture, Water and Forestry
CCAP	Comprehensive Conservation Agriculture Programme	MCA	Millennium Challenge Account
CDC	Constituency Development Committee	MDG	Millennium Development Goal
CLUSA	Cooperative League of the USA	MET	Ministry of Environment and Tourism
CO	Country Office	M&E	Monitoring and Evaluation
CONTILL	Conservation Tillage Project	MFMR	Ministry of Fisheries, Marine Resources
CPP	Country Pilot Programme	MGECW	Ministry of Gender Equality and Child Welfare
CRIIA	Centre for Research Information Action in Southern Africa	MRLGHRD	Ministry of Regional, Local Government, Housing and Rural Development
DART	Directorate of Agricultural Research and Training	MYNSSC	Ministry of Youth, National Service, Sport & Culture
DEA	Directorate of Environmental Affairs	NAB	Namibia Agronomic Board
DEES	Directorate of Engineering and Extension Services	NAD	Namibian Dollar
DLCPP	Dryland Crop Production Programme	NASCO	Namibian Association of Community Based Natural Resource Management (CBNRM) Support Organisations
DRR	Disaster Risk Reduction	NASSP	Namibia Agriculture Sector Support Programme
EIF	Environmental Investment Fund	NCA	Northern Communal Areas
EMOP	Emergency Management Operational Procedures	NCCI	Namibia Chamber of Commerce and Industry
EMU	Emergency Management Unit	NCR	Northern Communal Regions
EWS	Early Warning System	NCCSAP	National Climate Change Strategy and Action Plan
FFS	Field Farmers School	NDP	National Development Plan
FIDES	Financial Systems Development Services	NDRMP	National Disaster Risk Management Plan
FAO	Food and Agriculture Organisation	NEEEF	New Equitable Economic Empowerment Framework
GDP	Gross Domestic Product	NEWFIU	National Early Warning and Food Information Unit
GEF	Global Environmental Fund		
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit		
HDI	Human Development Index		
HIV	Human Immunodeficiency Virus		

NGOs	Non-governmental Organisations	SCCF	Special Climate Change Fund
NHIES	Namibia Household Income & Expenditure Survey	SHG	Self Help Groups
NNFU	Namibia National Farmers Union	SGP	Small Grants Programme
NPC	National Planning Commission	SNC	Second National Communication
NSA	National Statistic Agency	SME	Small Medium Enterprise
OIKE	OmalundulimunaKommitiye Elungameno	SPA	Strategic Priority on Adaptation
OPM	Office of the Prime Minister	TIPEEG	Targeted Investment Programme for Employment and Economic Growth
OSG	Other Support Groups	ToRs	Terms of References
PDNA	Post Disaster Needs Assessment	ToT	Training of Trainers
PET	Potential Evapotranspiration	UNAM	University of Namibia
PIF	Project Identification Form	UNDP	United Nations Development Programme
PIU	Project Implementation Unit		
PMU	Project Management Unit	UNFCCC	United Nations Framework Convention on Climate Change
PPG	Project Preparation Grant		
PPR	Project Progress Report	UPH	Urban and Peri-Urban Horticulture in Namibia
PoN	Polytechnic of Namibia		
RC	Regional Councils	UNPAF	United Nations Partnership Framework
RBM	Results-Based Management		
RDP	Regional Development Plan	USD	United States Dollar
RIP	Regional Implementation Platforms	VDC	Village Development Committee
RP	Responsible Party	WSSP	Water, Supply and Sanitation Policy
RIU	Regional Implementation Units		

1 SITUATION ANALYSIS

1.1 Context

1. Namibia was classified as the 7th most at-risk country in terms of agricultural losses caused by climate change globally (Wheeler 2011). On account of Namibia's weak adaptive capacity in certain areas and due to significant disparities, climate change policy and related responses are still in their infancy. Consequences in terms of agricultural losses, weakened food security, ill health and other impoverished livelihood aspects are particularly faced by rural households and small-scale farmers who depend on subsistence farming. Moreover, the marginalized social groups should also bear importance.

1.1.1 Key production systems and socio-economic frameworks

2. Only about 1% of rainfall replenishes the groundwater aquifers that many Namibians depend on and 2% runs off into surface water resources which have high rates of evaporation. Water is mostly collected through boreholes and in communal areas through hand dug wells. Namibia is classified as a water-scarce country because water is the chief limiting factor to the country's development.

3. There are five major farming systems: (1) small-scale cereals' production (2) livestock, (3) mixed cattle ranching, (4) intensive agriculture and (5) natural resource production (Mendelsohn, Jarvis, Roberts, and Robertson 2002). The farming sector is divided into small-scale and large-scale commercial producers. In the north-central regions, approximately 50% of farmers are smallholder farmers¹. Despite the fact that some areas are irrigated, a large-scale irrigation system would not be sustainable due to limited water resources (Hyens 2005). Dryland cropping is considered to be an alternative.

4. 27.4% of Namibia's work force is employed in the agricultural sector. Agricultural production is not even sufficient to ensure household food security, let alone to generate cash income. Instead, households rely on non-agricultural income sources to supplement food production. As a result, off-farm employment and income generation are central to the agricultural and rural development of Namibia.

5. The growth rate of Namibia's primary industries slowed down from a registered level of 16.7% in 2012 to 9.3% in 2013. This was attributed to the poor performance of the agricultural, fishing, mining and quarrying sectors, all of which dropped in 2013. The informal sector remains large in Namibia. For more than 40% of households, income is mainly earned from subsistence agriculture, social grants and sources outside of the formal employment sector. For instance, agricultural growth fell by 5.3% in 2012 if compared to 2011 on account of the livestock and crop production sectors which are highly dependent on rain. Additionally, according to the Household and Food Security Report (2014), food security dropped in the Northern Communal Areas (NCAs) due to last season's poor harvest. Food supplies only lasted up until August 2013 for the majority of the farmers. Finally, the real added value of the fishing and fish processing sectors is estimated to have declined by 4.7% in 2012 as compared to a growth of 6.2% recorded in 2011. This had an indirect effect on NCA households while migrant workers flocked towards the coast.

¹The term small-scale farmers and communal farmers are interchanged with smallholder farmers in this document. Smallholders are classified as farmers that own at least more than 2 Ha of land. Commercial farmers are classified as falling south of the red line.

1.2 The Climate Change Context

1.2.1 Impacts and Vulnerabilities

6. Climate change is expected to impact agricultural yields through changes in temperature and precipitation. Increased aridity is expected to heighten the grazing-caused stress and deteriorate vegetation while affecting livestock productivity. Moreover, a reduction in crop yields is likely and this can result in temporary or longer-term food shortages, poor nutrition, malnutrition and dependency on external food sources. However, positive effects are also possible. Increased CO₂ levels may increase productivity and seasonal shifts in the rainy season are expected to lead to a shortening of the growing season thereby reducing the time for crops to ripen.

7. Even without climate change, Namibia will be facing absolute water scarcity by 2020. Changes in air temperature and evapotranspiration are expected to impact the temperature of surface water. This will in turn influence seasonal floodplains (Oshanas) which will dry out sooner due to increased evaporation and consequently lead to habitat losses. Climate change appears to have already affected the distribution and availability of wood resources, thereby leading to a scarcity of biomass energy for many households. Although a marked shift in vegetation types is only expected over the longer run, the availability and use of local energy should be more advanced by the time such shifts are observed. It is an important policy impetus to plan for development and adaptive measures.

8. According to regional figures and the national census, approximately 62% of households are effectively led by women. A number of factors contribute to the vulnerability of rural women in general and of female-led households, in particular. For example, migration continues to affect the structure of households. In the northern central regions, the phenomenon is responsible for many of the female-run households which are facing a shortage of adult labour and decreased food productivity. Women must often make up for the loss through additional work in the field which includes intensive tasks such as tilling and clearing. Another challenge consists of the deteriorating land quality. Women lack fertiliser, implements and the technical know-how to boost the productive potential of their fields.

9. Drought is an ever-present threat to communal farmers whose harvests, in the absence of agricultural inputs, overwhelmingly depend on satisfactory rainfall. In the non-crop producing regions, stock-farming households must deal with drought and poor grazing which directly reduce the availability of milk for home consumption. Wild fruits and vegetables, riverine fish and small animals can enhance food security when in sufficient supply and provide an important buffer for poor households during times of food shortage. However, increasing deforestation and erosion in general and along rivers, in particular, unsustainable harvesting and pressures from an increasing population tend to reduce the availability of these resources.

1.2.2 Enhancing the livelihoods of smallholder farmers through climate smart agriculture

10. Household-level food security is generally derived from two main sources. On the one hand, the household's production and storage of the output from agriculture and/or food gathering is crucial. And on the other hand, the ability of households to purchase or acquire food, either from cash income, food transfers, or bartering also bears importance. Losing a season's harvest, a home or any belonging can have a detrimental effect on people already living on the margins. As a result, few households, whether male-

or female-headed, produce enough food to be self-sufficient. Therefore, to meet basic food needs, households augment production from subsistence agriculture with cash or in-kind income from other sources.

11. This project aims to uplift food security through the adoption of climate smart agricultural methods such as the ones described below. Conservation agriculture (CA) proves to be an effective method to meet future food demands and contributes to the sustainability of agriculture and rural development². CA is based on three principles: (1) minimal soil disturbance, (2) permanent soil covers and (3) crop rotations. CA appears to have a twofold advantage in that it provides knowledge and tools to enable farmers to achieve profits from high and sustained crop production and at the same time it protects the environment.

1.2.3 The problem

Overall

12. The increased rainfall variability due to climate change impacts directly on the livelihood security of smallholder farmers in the north-central and north-eastern regions of Namibia. Crops and livestock production, food and water security, as well as other related aspects such as nutrition, health and well-being are threatened. For Northern Namibia, rainfall changes are predicted to lead to an increase in the length of the dry season, a decrease in the number of consecutive wet days and an overall delayed start and early cessation of the rainy season.

13. Changes in precipitation patterns increase the likelihood of short-term crop failures and long-term production declines. Under such rainfall conditions it is difficult to decide on what to plant and when to prepare the fields. Increased temperatures impact water availability. As a consequence, crop production, pests, weeds, animal and human health are also affected. Marginal areas will become increasingly less productive. Without appropriate land and water management interventions, climate change will threaten the livelihoods of marginal groups. Female-led households and other vulnerable groups will bear the brunt of climate change. Currently there are only a few specific support interventions for these groups. Therefore, climate change interventions must focus on the building of adaptive capacities for those that are most vulnerable.

Drought (resulting in low yields)

14. From a national perspective and above all, droughts impact the agricultural and water supply sectors. Droughts have the potential to affect Namibia in the following ways:

- Droughts impact the national economy by way of the agricultural sector and other strategic sectors. The study by IIED³ revealed that the productivity of agricultural dryland cropping in Namibia may be reduced to 50% in the north-central regions and to 20% in the north-eastern regions, respectively due to climate change. Agriculture is linked to the wider economy as there are several industries servicing it. Moreover, agriculture is an important source of employment opportunities and income. A drought-induced shock can lead to a fall in the Gross Domestic Product (GDP) and a weakening of the balance of payments position as exports fall and imports rise;

²FAO, 2003. Climate Smart Agriculture source book

³Reid H, et al.2007.The Economic Impact of Climate Change in Namibia: How Climate Change will affect the contribution of Namibia's natural resources to its economy. Environmental Economics Programme. Discussion paper 07-02.

- Droughts impact other sectors besides agriculture. For example, the provision of hydro-electrical power may be affected as water shortages lead to a fall in the capacity to generate hydropower;
- Sectors such as health, education and tourism, which use large amounts of water for their daily activities, are also exposed. Droughts can spread diseases, thus further limiting people's capacity to cope;
- Increasing poverty on account of spikes in food prices and drops in income, while compensatory measures such as the sale of household assets (livestock and farm implements) further jeopardise food security in the longer run.

15. Crop production is challenging as it depends on the intensity, frequency and distribution of rainfall. This is likely to remain unchanged in the future since irrigation opportunities are limited owing to the scarcity of perennial and suitable ground water sources. For example, the recent 2012/13 drought had a significant impact on the country's crop production, with the northern areas being particularly affected. Over three quarters of households (85%) planted late or did not plant at all due to poor and erratic rainfall. Farming households achieved less than 30% of their normal harvests. Food security at household level was also affected. The production of maize was reduced by 15.2% for communal consumption and by 53.3% for commercial purposes⁴.

Floods (resulting in low yields, inundated fields, infrastructure damage)

16. Floods have also caused serious damage in the past. Severe floods occurred in the Cuvelai drainage basin in 2008/09 and more recently in 2014⁵. The perennial river basins at the northern and north-eastern borders of Namibia, i.e. the Kavango and Zambezi, are prone to severe flooding. According to a rapid assessment of impacts and needs conducted in March 2008, an estimated 62,240 people living along the rivers have been directly affected by seasonal floods. The recurrent floods in the Cuvelai Basin, along the Kavango water course and in the Zambezi floodplains have shown that the infrastructure is vulnerable to flooding and that local people do not have the necessary adaptive capacity to deal with the flooding. Entire villages were flooded, belongings and goods were lost and access routes to schools, health facilities and social services were interrupted. Concomitantly, energy sources from forests (wood, charcoal) were not accessible for prolonged periods of time.

17. Floods have caused structural damage, loss of life and property and have resulted in the deterioration of economic conditions and of livelihood prospects while carrying long-term implications for Namibia's development⁶. A national study conducted in the aftermath of the 2008 flooding revealed that Namibia lost about USD 100 million as a result of flooding in the northern regions during that year alone. This loss amounts to nearly 5% of the country's GDP. For example, the 2008 flood disaster affected six of the country's thirteen regions and resulted in:

- 215,257 people being directly affected;
- 100 reported flood-related deaths;
- the disruption of education for 32,050 learners from 100 schools;
- the loss of 63,637 domestic livestock (cattle, goats, sheep, donkeys and horses);
- 150,000 hectares of crop fields being submerged;

⁴World Food Programme. 2013. Emergency Food Security Assessment in Communal and Resettlement Areas of Namibia' of May 2013, a study commissioned by the Office of the Prime Minister.

⁵A report in the Namibian newspaper stated that 10 schools in Omusati region had to be temporarily closed because of heavy downpours and flooded oshanas, not necessarily from the rain in Namibia but flood from southern Angola due to heavy rains in that part of Angola

⁶GRN. 2009. Namibia Post Disaster Needs Assessment (PDNA) on floods

- extensive damage to roads, bridges, clinics, schools and businesses;
- the destruction of homes;
- the disruption of water supplies and damage to sewerage works;
- an outbreak of cholera; and
- severe damage to the subsistence production bases of the local population thus destroying the wage-based as well as natural resource-based livelihoods.

Decline in water availability (through increasing temperatures and therefore higher evapotranspiration and less ground water recharge)

18. Water availability is the chief limiting factor affecting agricultural production in Namibia. One of the most significant impacts of climate change is likely to be on the hydrological system and river flows, thereby affecting the water resources of the country. This is particularly critical to smallholder farmers that are dependent on rain for production.

1.2.4 Barriers

19. There are several barriers to building adaptive capacity amongst smallholder farmers and up-scaling such efforts. The most relevant barriers and the Theory of Change are presented in Figure 1.

Insufficient information and know-how to make use of new agricultural techniques at both the support services and local community levels

20. The traditional farming systems have evolved over long periods of time and they often demonstrate an impressive amount of resilience and interesting coping strategies on account of Namibia's the naturally occurring variable climatic conditions. However, it is clear that there are climate-smart innovations available. For example, improved practices and new implements. Most farmers in Namibia are not yet fully aware of the scale and magnitude of future climatic changes that will affect agriculture in Namibia. An awareness and sense of urgency is generally lacking.

21. Access to information regarding new practices is limited. Local farmers are often considered to be conservative and their beliefs make the adoption of innovations difficult. For example, a campaign to promote the use of tractors and specific rippers, which are routinely used in Conservation Agriculture, started in 2005. By the end of 2011 only about 800 farmers were using this technique⁷. The reasons behind the unsatisfactory outcome were manifold. They included the resistance to move away from traditional farming and the lack of implements. It remains that there are clear barriers to the adoption of new practices. New pathways of information sharing, knowledge transfer and changes of behaviour cannot be routinely incorporated into extension service delivery and community support by the government. The Namibian Government cannot adopt practices that have not been previously validated based on results-oriented research.

Limited capacity to purchase inputs for climate-resilient agricultural methods

22. The absence or insufficiency of high-tech inputs is a key barrier to the implementation of innovations and new practices in the field of climate-resilient agriculture. Moreover, women-led households are generally poorer than men-led households and they lack the resources required to

⁷von Hase F (2013).Facilitating Conservation Agriculture in Namibia through Understanding Farmers' Planned Behaviour and Decision Making

purchase climate-adapted seeding materials or farming tools such as rippers. Considering that most smallholder farmers in Namibia are subsistence farmers, it becomes clear that agricultural production is a limited source of income. If cash is generated, then it is not necessarily reinvested to increase future production. At this point in time, other necessities such as the purchasing of additional food products, sending children to school or health care are superior to the need of investing in long-term adaptive measures.

23. Access to loans and microfinance solutions is often difficult for smallholder farmers. First, there are few providers of such services. Second, in Namibia there is a collateral requirement. Moreover, because of the communal land rights the collateral is hard to pledge. Furthermore, saving groups, which are popular in other African countries, are not that well established in Namibia. Major sources of financing in the rural areas of Namibia are pension payouts as well as remittances sent by family members working in towns. An intricate system of financial flows has been reported for Namibia's communal areas, differing though by regions and cultural groups.

Inappropriate capacity to deal systematically and in the long-term with threats posed by extreme climatic events such as drought and floods

24. Extreme events in Namibia have been consistently regarded as unforeseeable disasters, ingrained in the national policy framework that is responsive rather than proactive. For example, in a highly variable climate it is "normal" that livestock numbers are seasonally adjusted through migration of off-take to match the availability of grazing. However, drought relief consisting of food aid and livestock marketing incentives are common and usually come at great government expense.

25. There are several analyses of how drought and floods could be better addressed at the policy and government service levels. A new Disaster Risk Management Policy has been recently developed in Namibia. Vulnerable households do not usually invest their resources to flood-proof their infrastructure and fields and they also do not have the necessary financial cushion to be able to manage their livestock in response to variable conditions. Such households often lack the basic capacity to take precautionary measures that would otherwise help them overcome severe shocks such as those related to flooding and drought.

26. There is a lack of knowledge as to which of the simpler and more effective protective measures could be applied. Additionally, there is a general sense of overburdening observed in such households. Although women are often considered to be more innovative and willing to try new things, it is clear that the poorest and most vulnerable lack the needed capacity. The constant focus is on survival while planning and investment are for the shorter term.

Resistance of relevant sectors to prioritize climate change resilience

27. Regardless of the fact that over the past decade, climate change has become an increasingly prominent issue in Namibia, the commitment to take measures is still insufficient. Despite the excellent guidance and leadership of the Ministry of Environment and Tourism (MET) in matters of understanding climate change and its impacts on Namibia, a sense of urgency lacks in most sectors. The MET has been promoting awareness, piloting response measures and enabling a policy environment for the mainstreaming of climate change adaptation into government responses.

28. Initial CPP/CCA pilot projects, such as water harvesting and drip irrigation, have been implemented under the auspices of the Ministry of Agriculture, Water and Forestry. Moreover, reports

such as the assessments produced through the UNDP supported Investment and Financial Flows (I&FF) and other agricultural sector assessments remain nevertheless pertinent to this project. Learning stemming from these pilots is yet to be rigorously incorporated into agriculture and water related policies and strategies. Barriers are complex and include lack of awareness and resistance to behavioural and system changes.

1.2.5 The preferred long-term solutions

29. The preferred long-term solution is **to enhance the resilience of vulnerable smallholders in six zones. This is to be achieved by means of a package consisting of support measures such as the provision of agricultural inputs, market access, capacity development and the supply of financial services.** Insights from these pilots will be systematically integrated into regional and national strategies related to climate change, both in the public and private sectors.

Improved access to knowledge of climate-smart agriculture

30. Namibia's rural regions are in need of basic information related to climate change, adaptation measures and climate smart agriculture. Information needs are manifold and will have to be tailored to the specific requests and interventions of each pilot site. An information and delivery system will be provided by the partners: the Regional Councils and MAWF. This is to be achieved mostly through the training and mentoring of beneficiaries.

31. Climate smart agriculture will be a focal theme for the self-help groups and field schools. Applying an innovative peer learning approach will ensure that information is not only availed but also readily put into practice and adapted to the specific needs of local farmers. The Farmers Action Research and Learning is at the heart of this intervention and is expected to have lasting effects on agricultural practices in northern Namibia⁸. An approach that the CES⁹ has successfully piloted and for which it has received several rewards¹⁰ is central to this project's implementation.

Improved food security and nutrition through land tillage and crop diversification

32. The mitigation of pests and crop diseases is of critical importance, especially on the background of extreme weather events which are likely to worsen these problems. For example, after recent floods in Northern Namibia, an outbreak of armyworm sent many crops to waste. Adaptation can occur by means of an integrated management of pests and improved veterinary services and care. Appropriate water harvesting initiatives and storage capacities will be developed to take advantage of occurrences such as large rainfall run-offs. Thereafter, the water could be used during lower rainfall seasons. Applying conservation tillage methods can help improve soil water content as well as soil nutrients. In addition, vegetable gardens will also be promoted as a strategy to improve household nutrition.

⁸ New era newspaper. 15 April 2014. Communal eyes fixed on Conservation Agriculture Project. Available at <http://www.newera.com.na/2014/04/15/communal-eyes-fixed-conservation-agriculture-project/>

⁹ CES will be contracted according to UNDP's procurement rules and procedures, following rules of transparency competitiveness and fairness.

¹⁰ New era newspaper. 1 July 2014. Conservation agriculture quickly becoming popular

Facilitate access to microfinance and market linkage for smallholder farmers to promote replication and up-scale adaptive practices

33. Microfinance agencies will provide access to capital for low-income individuals. Several reports on current lending initiatives, such as the Agribank, suggest that smallholder farmers are struggling to access funds because they are unable to meet funding requirements. Institutions such as the Kongalendwho have been providing group loans to rural communities. Of crucial importance is the fact that this initiative is reaching the bottom of the socio-economic pyramid. Collaboration with the AMTA is also vital for direct market linkages with the existing National Fresh Produce Hubs in Ongwediva and Rundu.

Climate change adaptation issues integrated into National Agricultural strategies and other relevant policy instruments

34. In the previous years, the Namibian government passed some policies aimed to enhance and promote sustainable rangeland management linking to climate smart agriculture. This project should facilitate the establishment of a platform to review these policies, create an enabling environment for adaptation (availability of drought adapted/resistant seeds, fertilizer and other implements) as well as strengthening current policies to facilitate the adaptive de- and re-stocking in drought and good rainfall years and develop a result-based management plan for climate-smart agriculture.

1.2.6 Theory of Change

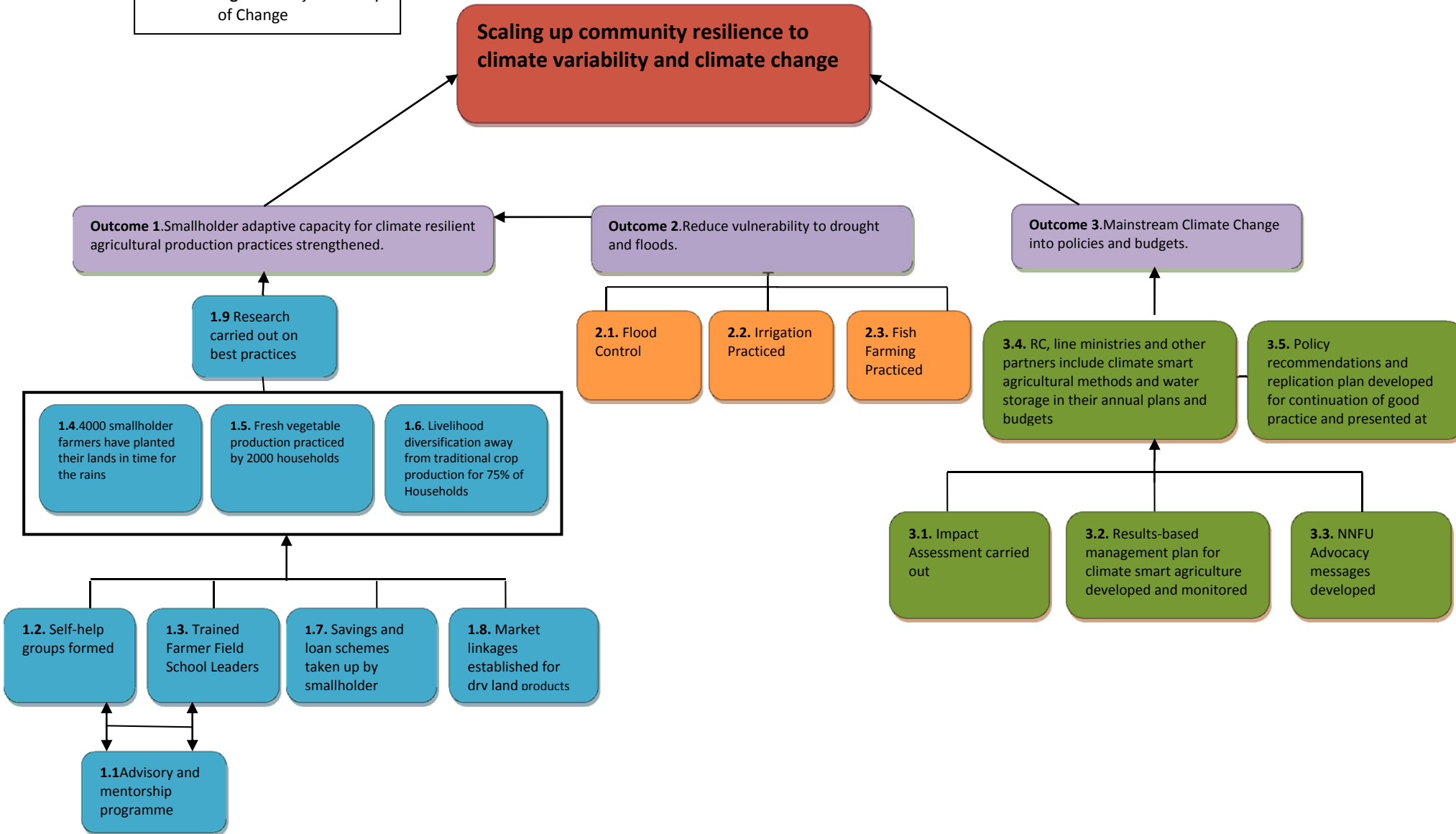
35. Figure 1 presents the project's theory of change. The project's objective is *to strengthen the capacity of rural communities in northern Namibia to respond to droughts and floods while focusing on women and children*. For climate change adaptation to be built at scale and for vulnerable smallholder farmers to successfully adapt to climate change, there are three goals which need to be pursued with priority:

- (i) Enhance smallholders' adaptive capacity in support of climate resilient agricultural practices;
- (ii) Reduce the vulnerability of smallholders to droughts and floods; and
- (iii) Mainstream climate change into policies and budgets.

36. The Theory of Change will be implemented with the help of various programmes of the Namibian Government, amongst which the MAWF will be central. The Comprehensive Conservation Agriculture Programme (CCAP) supports the rolling out of conservation agriculture as one of the aspects of climate smart agriculture. Outputs planned under Outcome 1 (see blue shaded boxes in diagram, Figure 1) will support the CCAP by piloting additional approaches which consist of beneficiary-oriented service delivery mechanisms. Overcoming bottlenecks in the outreach capacity is a critical contribution to achieving climate resilience of scale. The Drylands Crop Production Programme (DLCPP) and the Green Scheme of MAWF provide co-financing for outputs under Outcome 2 (see orange shaded boxes in diagram, Figure 1). It is focused on building the capacity to adapt to prolonged droughts and extreme floods. Co-financing focuses on dryland crop production, pioneering of climate adaptive crops and alternatives as well as sustainable water supply through the rehabilitation of traditional wells, for example. The Green Scheme is focused on the development of commercial irrigation schemes for a few beneficiaries and has a smallholders outreach component, which serves as co-financing for this outcome. Ongoing climate change policy work, especially under the National Climate Change Strategy and Action Plan (NCCSAP) coordinated by the Ministry of Environment and Tourism (MET), serves as co-financing for Outcome 3 (see green shaded boxes in diagram, Figure 1). The Theory of Change is that climate smart agriculture

interventions need further advancement in Namibia so as to increase their reach and lead to effective changes at the local level. Lessons learnt, to be documented in an Impact Assessment, will be directly integrated into relevant policy instruments through the Climate Change Unit and in collaboration with MAWF. Outreach and information sharing activities are planned.

Figure 1 Project Theory of Change



1.3 Stakeholder and policy context analysis

1.3.1 Stakeholder analysis

37. The table below presents the various stakeholders and their roles.

Table 1 Stakeholders and their roles in the project

Stakeholder group	Key responsibilities	Role in project
Ministry of Environment and Tourism (MET)	Responsible for environmental affairs in Namibia; wide-ranging mandates including Rio Convention coordination and implementation; national designated ministry to deal with climate change	Implementing Agency; Provide an oversight of the project and accountable for delivery of project outcomes; provide leadership on developing CCA responses and building adaptive capacities in Namibia; Key Implementation partner for this project. Also may serve as RP for policy component (Outcome 3)
Ministry of Agriculture, Water and Forestry (MAWF)	Has jurisdiction over all on matters related to water resources, natural resource use and agriculture, including climate related information	Responsible party esp. for climate smart agriculture methods such as Conservation agriculture, CCAP, and DLCPP. Have various functions under all outcomes
Regional Councils (Ministry of Regional, Local Government and Housing and Rural Development, MRLGHRD)	Responsible for rural development at regional level, development planning and implementation. Important actor for coordination at both project sites (beneficiaries)	Responsible party; Critical to mainstreaming adaptation concerns into regional development and financial frameworks. Regional project implementation/coordination units to be housed at RCs. Implementers of the cash for work baseline programme
Office of the Prime Minister (OPM)	Deals with disaster risk management in the country, have regional emergency management units in all 14 regions	RP Source of information on vulnerable groups based on their DRM studies; Critical for Output 2 and 3
Ministry of Finance (MOF)	This Ministry is responsible for administering the fiscal and financial policies that ensure macro-economic stability, sustainable and equitable socio-economic development	RP Ministry is also critical for component 3 on the resource allocation to CA adoption. Can link to current Climate Finance Readiness project of MET, delivered in collaboration with MoF and NPC
National Planning Commission (NPC)	Planning national priorities at national, regional and local levels in the form of short, medium and long term	RP for mainstreaming climate smart agriculture in NDPs and National Development Budget, which again can link to current Climate Finance Readiness project of MET, delivered in collaboration with MoF and NPC
Traditional Authorities (TAs)	Various mandates related to the project (water, agriculture, forests, livestock, livelihood building)	IP and Part of authorisation for the project via the Project Steering Committee Community mobilisation to ensure the smooth operation of the project

Namibia National Farmers Union (NNFU)	Lobbying and advocacy, provide support as representative voice for smallholder farmers	RP for developing advocacy messages for policy fora, training of farmers on production technologies
Private sector – financial	Such as Kongeland, Fides Bank, Agribank are vital as financial services provider, marketing of drylands products	RP as service providers for component 1; Output 1.8 of the project
NGOs	Local (e.g. CES, OIKE, Rossing Foundation) are vital for capacity building, social development and empowerment	RP to become service providers under the project; They can also provide technical and advisory to the Min; Beneficiaries of “training of trainers” programme for farm schools; CES critical implementation partner for programme
Creative Entrepreneurs Solution (CES)	Local NGO based in Ondangwa; work closely with small holder farmers in increasing farming systems productivity and resilience incl. to climate change	RP for various project outputs; Output 1.1 -1.6 under Outcome1 as well as rendering technical assistance to Outcome 2. May become primary implementation partner to Regional Coordination/Implementation Units
UNAM	Research and tertiary institution	RP for impact assessment
Project beneficiaries (smallholder farmers)	Innovators, implementers	Potential access to capacity development (farm schools) and provision of CA services through lead farmers
Parastatals/Donors (Environmental Investment Fund & Small Grants Programme)	Namibia has two main grant providers, one governmental and another from the GEF through UNDP	RP for advice and marketing (e.g. AMTA) under Outcome 1; AMTA for instance is already operational in theOshana and Kavango west regions through the fresh vegetable hubs. To be verified during inception

1.3.2 Existing policy context

38. A detailed policy analysis is presented in Annex 2.

2 PROJECT DESCRIPTION

2.1 Project rationale

SCCF conformity

39. Namibia ratified the UNFCCC in 1995 and is classified among the non-Annex 1 parties. Moreover, it is a signatory of the Kyoto Protocol, thus pledging political and practical commitment in the direction of sustainable development. Namibia launched its National Climate Change Policy in 2011 and prepared a National Climate Change Strategy and Action Plan in 2013. Namibia is entitled to benefit from the SCCF for the implementation of national priority measures. The project was prepared in line with guidance provided by GEF and the SCCF Trust Fund.

40. The Project is in line with the GEF CCA results framework.

- CCA 1: Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global levels. It will contribute to Outcome 1.1: Mainstreamed adaptation into broader development frameworks at country level and in targeted vulnerable areas. In addition, it will also contribute to Outcome 1.3: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas.
- CCA 2: Increase the adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global levels. It will contribute to Outcome 3.1: Successful demonstration, deployment, and transfer of relevant adaptation technology in targeted areas.

2.2 Country eligibility

41. This project fully reflects the priority measures as identified by Namibia's National Climate Change Action Plan. This includes on the one hand the promotion of new technologies to address climate change problems with a focus on supporting women and children. And on the other hand, the development of climate resilient farming practices. These will in turn contribute to the achievement of critical national development goals.

42. Several experiences and lessons have been drawn from previous GEF investments in the same regions (a SPA project from 2007 to 2010 and a SGP/CBA project from 2009 to 2011) to enhance climate change resilience amongst smallholder farmers in northern Namibia. These efforts will be scaled up and further improved with new adaptation learning. Well established NGOs from the northern regions will work closely with local and regional government institutions and their relevant extension services to support organisations in advancing adaptation learning, knowledge and overall capacities to deal with climate change.

2.3 Design principles and project consistency with requirements for SCCF funding

43. Design principles and strategic considerations include:

- Building on the experience of the previous work of the CES on the UNDP-supported SGP and CBA programmes. This includes working with their already-established model of mobilising self-help groups to raise awareness, motivate and promote peer to peer learning.
- Tangible local demonstrations to develop visible and practical adaptation learning, which can be directly used and applied by other constituencies, extension services in the regions and local and regional government representatives, as well as by other communities.
- A strategic partnership with the University of Namibia for piloting an impact assessment approach as an integral part of the project design.
- Step up the adaptation learning by means of delivering outputs which integrate project results into policy making.
- UNDP has a comparative advantage with respect to capacity building and gender mainstreaming in the context of climate change.
- Consultations with FAO on specific conservation agriculture practices as part the climate smart agriculture.

2.4 Overall GEF conformity

44. The Project has been designed to meet overall GEF requirements in terms of design and implementation. For example, the proposed project is:

- Country-driven: Several consultations under the leadership of MET took place during the project preparation phase. A three-day stakeholder meeting, which was convened by MET, took place at end of July 2012 to develop the concept. During the PPG phase, two comprehensive planning meetings were held in Oshakati in August 2013 and February 2014. Local level consultations were carried out in 5 of the 6 project zones/regions and several national level consultations were undertaken (Table 7). Moreover, the project builds on stakeholder priorities and experiences on climate resilient methods gained through previous SGP/CBA and a SPA project in the target regions;
- Cost-effective: the project will take proven, climate-smart agricultural technologies and practices and develop them programmatically using three national programmes as replication mechanism;
- Integrated into national sustainable development and poverty-reduction strategies: the project will help to implement the 4 priorities of the National Development Plan;
- Relevant, given the outcome it seeks to achieve. The project will deal with the vulnerabilities and adaptation priorities as mentioned in the Namibia Second National Communications (2011), the National Climate Change Policy (2011) and the National Climate Change Strategy and Action Plan (2013).

2.5 Sustainability

45. The SCORE project works with the Government, NGOs, the private sector, community initiatives and programmes that aim to improve food security by means of climate smart agricultural practices and which assist communities in coping with droughts and floods. Amongst others, the following parties are

involved: the Directorate of Engineering and Extension Services (DEES), the National Early Warning and Food Information Unit (NEWFIU), the Comprehensive Conservation Agriculture programme and DLCPP. The project will add and/or enhance the climate change adaptation component of already existing initiatives. The project relies on Regional Councils and other similar community organizations to identify and address development issues by moving away from a strictly programmatic solution and instead relying upon a Sustainability Strategy to achieve development objectives.

46. **Environmental sustainability** will be promoted within Component 3 by integrating climate smart agriculture into national policies and by allowing communities to lead the planning and implementation of the adaptation measures as addressed in outcomes 1 and 2. By means of partnerships with the non-governmental sector, the project will develop sustainable financing models. It goes without saying that adaptation efforts are necessary beyond the lifespan of this project. The project pilots microfinance options that can thereafter continue to be used. The positive examples that will be demonstrated by the local Self-help Groups (SGHs) (see Section 2.9 Project Design, paragraph 129 for details) will lead to replications by the local farmers.

47. **Institutional sustainability** will be achieved through capacity building on climate-smart agriculture and support actions at different levels. At the local farmers' level and based on demand, SGHs will receive support in the form of trainings, micro-finance solutions and specific implements. The capacity building components of this project will further empower stakeholders. From the local smallholders to regional authorities and governmental and non-governmental organizations, they will all deal with climate change not only by providing information but also by piloting workable climate resilient capacities which will bring benefits beyond this project's lifetime. Capacity support investments at Regional Councils will lay the foundation for a decentralised adaptation approach. The pilot regions will help build a network of practitioners knowledgeable about climate risks, adaptation options and tools to facilitate farmers' resilience, especially those that come from vulnerable groups. A participatory and shared monitoring of project results will enable the mainstreaming of climate change into the plans and budgets of MAWF, Regional Councils and other relevant project partners, thus setting the foundation for institutional sustainability.

48. **Social sustainability** is supported by means of working with the existing (government and non-government) organisations and by explicitly targeting women and other vulnerable groups. Women are often left behind while men migrate. Thus their engagement in the project is recognized as critical to social sustainability. As above, the approach of starting small with demonstration activities then scaling-up promotes a momentum and allows the project to generate more support, improving the targeting of benefits. This includes putting into place financial services to take the place of grant financing in years 3, 4 and 5 of the project.

2.6 Replicability, innovation and scaling up

49. The design principles outlined in Section 2.3 are set out to foster replicability through the development of adaptation learning and mainstreaming it into policy processes. As this specific project is embedded within the MAWF, the Ministry directly responsible for agriculture, water and forestry, a high degree of ownership over the outcomes is expected. This is a good foundation for replication.

50. The design of this intervention is focused on improving climate smart agricultural practices which can be replicated in terms of approach while technologies can be tested in other communities and regions through the SPA/CPP and CBA pilot programmes where participants have shown a high demand and enthusiasm for them. The barriers are know-how, technical and institutional support which this project will address (Outcomes 1 and 2); aiming to make a systemic shift in the way smallholder farming is supported through promotion of evidence-based policy development and programme/budget planning (Outcome 3). The systematic documentation of adaptation learning, as well as the tracking of impacts of project outputs and activities, are key to the establishment of a knowledge base from which replication can take place. Knowledge management is a key component and should be carefully followed during implementation. The focus on capacity building will generate a pool of technical experts, through the RIPs, which can be utilised for future replication in other parts of the country.

51. Furthermore, the fact that the project is putting in place, and then demonstrating, the institutional framework required to integrate adaptation into development planning means not only that the outcome is replicable, but that replicability and scaling up is a key post-project aim. Ultimately, the positive demonstration by these ministries/sectors and districts, through the effective use of the established institutional architecture to incentivise the integration of adaptation into planning through the enabling of appropriate finances will not only make this project replicable, but the intention is that other ministries/sectors and districts will actively want to follow suit at a later date. Replication of activities will be enabled by the incorporation of adaptation into the comprehensive project M&E system, which may be taken up in planning process in other Districts. In this way, bottom up information on cost effectiveness can be fed into District and national level planning processes and contribute to the development of a climate finance ready system.

2.7 Project Area and Target Groups

52. The north-central and north-eastern regions of Namibia are the key areas where rain-fed agriculture is present and where mixed production systems are in place. The majority of rural Namibia is concentrated in the communal areas of six regions, namely Oshana, Omusati, Ohangwena, Oshikoto, Kavango West and Kavango East. These regions are regularly and increasingly threatened by extreme weather events such as droughts and floods.

53. The targeted zones were chosen based on requests from local communities and regional governments to become partners in the adaptation pilots. Targeting also takes into account the geographical location and the social groups included in the baseline projects (i.e. the Green Scheme, the Integrated Initiative in support of Urban and Peri-Urban Horticulture in Namibia (UPH) project, Dryland Crop Production Programme (DLCP), and – initially – the Food for Work / Cash for Work programme¹¹. On this basis, Omusati, Oshana, Ohangwena, Oshikoto, Kavango East and West would constitute the project area for region level activities.

54. During the PPG phase, a detailed baseline survey was conducted in those zones which have been identified in a participatory and demand-led manner with the involvement of Regional Councils and specific Constituency leaders. A team from the Polytechnic of Namibia (PoN) conducted local

¹¹ This project could not be verified as dedicated baseline co-financing activity during the PPPG phase.

consultations to better understand (a) the knowledge of local smallholder farmers regarding impeding climate risks and impacts, (b) locally existing coping strategies, and (c) priorities for the design of this adaptation project. The baseline assessment aimed to identify gender specific contexts as well as needs of vulnerable groups, in particular women and women-led households.

55. For the selected communities, several focus group discussions and data collection tools were applied. Information on the following knowledge areas was collected:

- a) Adaptation for livelihood improvement and self-monitoring and evaluation.
- b) Climate change related hazards and impacts on the community (i.e. barriers to livelihoods improvement or diversification).
- c) Mapping climate change related behavioural change (including indicators of impacts and livelihood performance).
- d) Climate change adaptation interventions (i.e. projects, activities, practices, etc.).
- e) Trend analysis (i.e. changes over time regarding natural resource use and climate events).

56. In the final selection, project areas would be differentiated according to the different types of activities. Project activities, technologies/practices for climate-smart crop production, water harvesting, inclusive financial services, market linkages and value chains development, are based on known and tested approaches. Within each region, targeting is at two levels (i) geographic, and (ii) household. In each of the six regions, the project interventions target regions that are a) highly vulnerable to climate change, b) dominated by extensive crop practices, c) hosting relevant baseline development projects and d) have vulnerable group households.

57. The majority of the rural population is found in those regions which are targeted by the project. This project will focus its activities on 80% of most food insecure women-led households in vulnerability hot-spots listed in the previous sub-section. The targeting strategy results in 4000 households benefiting from the project.

2.7.1 Climate Change adaptation profiles of the six pilot regions and project zones

Omusati Region

Vulnerability of this site to climate change

103. Soil salinization is a very serious result of localised flooding. It limits crop production and has been leading to the death of trees in the Okalongo Constituency. In order of their importance, the major livelihood options are: crop farming, livestock farming, small businesses, remittances and wages, pension funds and the harvesting of natural resources. The most affected are crop and animal farming as well as small-scale business.

Community identified intervention strategies

Table 2 The project sites and their main vulnerabilities with possible intervention strategies

Region	Constituencies and targeted villages	Problem areas	Possible intervention strategies
Omusati	Okalongo constituency: Odundu village OkathituGoNgai	<ul style="list-style-type: none"> • Access to potable water: only communities near schools have access to tap water; those far from schools use omifima (wells). • Salinisation: after heavy localised rains which inundates crop fields, high salt content after evaporation, kills crops. • Insect pests: absence of birds in the area has increase insect pest abundance and in varieties. • Heat waves cause crops to wilt. • Gusty winds cause damage to plants. • Floods reduce grazing capacity for livestock. • Labour scarcity: only the elderly and primary school kids who are tending to farming work. 	<ul style="list-style-type: none"> • Earth dams to capture rain water for micro irrigation activities. • Tree planting to serve as windbreaks. • Pest control mechanisms. • Access and better use of manure / soil fertilisers to reduce salinity. • Micro finance to initiate self-help projects that will strengthen livelihood options. • Training the farmers on smart agriculture.
	EtayiConstituency Ogungila village Omunghete village	<ul style="list-style-type: none"> • Insect pests • Floods • Droughts • People over the age of 40 to 59 year in the village are most vulnerable group as they do not qualify for pension. 	<ul style="list-style-type: none"> • Drilling boreholes and upgrading traditional wells. • Irrigation and electricity are very important for the village development (solar system pumping shows the community may improve their life).

OshanaRegion

Community identified intervention strategies

Table 3 Depicts the project sites, their main problem areas with possible interventions strategies

Region	Constituencies and targeted villages	Problem areas	Possible intervention strategies
Oshana	Okatana Constituency Omulathitu Onenongo	<ul style="list-style-type: none"> • Flood related challenges. • Increased animal diseases. • Cooking become a problem, used artificial stands to cook on, dry wood become scarce. • Access to portable water. • Birds– when mahangu seeds are starting to dry out on the stalks. • Access to seeds and fertilisers. • Ploughing services are limited. • Heat waves cause crops to wilt. • Gusty winds cause damage to plants. • Labour scarcity. • General poverty among communities. 	<ul style="list-style-type: none"> • Small irrigation system. • Tree planting to serve as windbreaks. • Pest control mechanisms. • Access and better use of manure/soil fertilisers and seed. • A small pig farm and a brick making projects exist in Onenongo – this could beupscaled.
	Okakuconstituency Onyeka village Ongenga village	<ul style="list-style-type: none"> • Army worms devastating crops. • High temperatures (heat waves) wilting crops. • Droughts and floods. • Lack of potable water. • Unaffordable NamWater access and user fees. • Animal diseases. • Declining soil fertility. 	<ul style="list-style-type: none"> • Small-scale irrigation projects. • Development/rehabilitation of wells. • Soil fertility improvement projects. • Extension services in animal husbandry including health vaccination issues.

Ohangwena Region

Vulnerability of this site to climate change

104. The Ohangwena region is relevant in terms of crop farming due to favourable rainfall, soil quality and water availability which allow for the dry land crop production of Mahangu, for example. Increased temperatures, the late onset of the rainy season and higher rainfall during the shorter rainy season all have adverse effects on crop production in the region. Too much rain results in the inundation of the field and poor performance of crops. It often leads to mould and other water damage. However, drought in the region causes much more severe damage. Complete harvest failures can occur. Heavy reliance on livestock in the region makes farmers vulnerable due to the climatic effects on livestock (as in the Oshikoto region). Eastern Ohangwena contains large-scale forests (Kalahari woodlands) which are important as the resources obtained from them, such as wild spinach, wild fruits and wild berries, supplement staple food for many households. In addition, numerous wild plants collected from the woodlands are used as traditional medicines. The potential effects of adverse climatic conditions have not been not fully studied for these forests whose ability to renew is not guaranteed.

105. Ohangwena region was not included in the community consultations during the PPG phase.

Oshikoto Region

Community identified intervention strategies

Table 4The project sites main problem areas and possible interventions strategies

	Constituencies and targeted villages	Problem areas	Possible intervention strategies
Oshikoto	OmuthiyaGwiipundiconstituency Omalindi village Okapuku village	<ul style="list-style-type: none"> • Declining soil fertility • Seed scarcity 	<ul style="list-style-type: none"> • Horticultural projects • Poultry projects • Rainwater harvesting for irrigation • Livestock manure for soils • Seed distribution

Kavango Region: East and West

Vulnerability of these sites to climate change

106. The main climate change related hazards in this region are droughts, floods, gusty winds and cold weather spells. The majority of people living in the Kavango region depend on small-scale farming, conservancy related tourism and the use of forest products. All these natural resource-based livelihoods are vulnerable to climate change. The Okavango River has been central to the livelihoods of most people in the region. River level fluctuations due to climate change have the potential to increase the dependence of these communities. This vulnerability is exacerbated by poor infrastructure, poor soil potential and competition with grazing, particularly along the river banks. Some people run small businesses, which can also be negatively affected by extreme weather events. They can be flooded. Moreover, some of their customers, here the farmers, may have little money to spare after an extreme weather event which has affected their harvest.

107. Flooding is perhaps the most visible and directly felt climate hazard in the Kavango region. Most of Namibia’s major rivers cut through this region and are rendering the floodplains prone to regular inundation. Although the floods may not be necessarily linked to climate change, projections of rainfall in the catchment areas, which mostly lie beyond the borders of Namibia, indicate potential changes in flood patterns and possibly higher intensities and frequency of flooding. Such extremes can lead to famine and widespread disruption of socio-economic well-being.

108. Besides the threat of increased flooding, hotter and drier climates may also have a negative impact on the productivity of specific livestock breeds and crop varieties. The survival of some species may not be feasible. Certain livestock species may not be able to cope with higher temperatures and therefore become sick, produce less meat, milk and/or have poor reproduction rates. Farmers have already signalled that prolonged dry spells have had serious negative effects on crop and cattle farming. Generally, food from both crops and livestock will become more difficult to produce and people may suffer from starvation and malnutrition. Pest outbreaks are expected during both drought and flood years and may potentially worsen under the projected climate change scenarios.

Community identified intervention strategies

Table 5 The project sites and their main problem areas with possible interventions strategies

Region	Constituencies and targeted villages	Problem areas	Possible intervention strategies
Kavango west	Kahenge constituency Mcuncuni constituency	<ul style="list-style-type: none"> • Lack of portable water. • Long walking distances to firewood. • No grazing nearby. • No capacity to treat animal diseases. • Crop failures due to insects and heat spells. • Restricted access to fishing in the Kavango River. • Limited livelihood options – high unemployment. 	<ul style="list-style-type: none"> • Rehabilitation of wells. • Energy-efficient firewood stoves. • Extension services in animal health. • Aquaculture projects. • Extension services in crop diseases and pest management.
Kavango East	Mashare constituency	<ul style="list-style-type: none"> • Seed scarcity. • Floods inundating crop fields. • Declining soil fertility. • Animal diseases. 	<ul style="list-style-type: none"> • Seed distribution. • Soil fertility management. • Irrigation projects to increase production and food security. • Extension services in animal health.

2.8 Linkages with GEF and non-GEF interventions

109. The project interventions will be coordinated with a number of relevant ongoing and/or planned interventions in the project regions. More information on coordination can be found on page 117 in the annex.

110. **GIZ-MAWF CCA Agriculture Project (draft concept/project appraisal):** The project called “Adaptation of agriculture to climate change in Northern Namibia” is currently being prepared under the supervision of the Ministry of Agriculture, Water and Forestry and with support from the GIZ Namibia. The objective of the project is to investigate if *smallholder farmers successfully apply climate-adapted farming practices*. The focus will be on the most vulnerable smallholder farmers and communities. This

project will complement the SCORE project in several ways. The climate adapted methods employed by farmers will be identified. The project will secure the delivery of services in support of climate adapted methods. Moreover, the know-how and experiences on climate adapted farming practices will be capitalized on and the capacity of the MAWF to tackle climate change issues is expected to increase. Cross learning between this project and SCORE will be facilitated through field schools training, advisory and mentorship programmes as well as through the various engagements with the stakeholders under Outcome 3.

111. **Various ongoing CCA and agriculture related projects** are under implementation both in the north-central regions and in the north-eastern Kavango region. These programmes work very closely with local communities to strengthen their capacity to deal with climate change and improve food security. For example, the Namibia Agronomic Board is focusing on the conservation tillage project and AMTA, a parastatal under MAWF, is assisting farmers to market their fresh produce through business hubs. The latter has two centres, one in Ongwediva from Oshana and another in Rundu from West Kavango. Measures can be taken so as to assist farmers with the selling of their produce. Other initiatives focus on land access and management, livestock support and the sale of indigenous natural products through the Agriculture project of the Millennium Challenge Account. This project is primarily focused on achieving a sustainable increase in the economic performance of the agricultural sector in the Northern Communal Areas (NCAs) of Namibia. The activities of the Agriculture Project aim to strengthen the land tenure system in the NCAs, improve rangeland management practices, strengthen animal health services, livestock marketing efficiency and improve the supply chains and commercialization of indigenous natural plant products throughout Namibia. The approach is to synchronize the efforts contributing to poverty alleviation and improved livelihoods. The Namibia Nature Foundation is also engaged in activities linked to Conservation Agriculture in the Kavango region. Several international bodies, such as the National Society, IFRC support, the Namibian Red Cross and others, conduct assessments as well as provide support focused on food security, nutrition, water, sanitation, health, and hygiene promotion in the north-central, north-western and north-eastern regions. These are all interventions which are complementary to the SCORE project and which are addressing baseline resilience needs.

112. The GIZ **Biodiversity management and climate change programme**, which was implemented by MET and which is currently running until 2016, aims to consolidate the successes of the community-based management of natural resources and align it with nature conservation policies. The project works with a number of communal conservancies and community forests in the Kavango East and Ohangwena Regions. It promotes the commercial use of biodiversity-based products (bio trade), the ecosystem-based adaptation to climate change and improved governance to sustain these development processes¹². This is a parallel running investment; however, more direct linkages with the SCORE project may be sought during project implementation.

2.9 Project design: objective and components

113. The objective of the project is to *reduce the vulnerability of rural communities to drought and floods in Northern Namibia, with a special focus on women and children.*

¹²Available at <http://www.giz.de/en/worldwide/24529.html>

To achieve this objective, and based on the identified problem, the barrier analysis and the developed Theory of Change, the project's intervention has been organised into three components. The following sections include a description of the project components and design as well as an additional cost description. The latter demonstrates what would be done in a development baseline in the absence of climate change and the alternative scenarios including measures that meet urgent and immediate needs which justify the request for SCCF resources.

COMPONENT 1: SCALING UP CLIMATE RESILIENT LIVELIHOODS

Outcome 1: Strengthened capacity of Smallholder farms to implement climate resilient agricultural practices.

Adaptation Alternative Component 1, With SCCF Intervention

114. The above described baseline indicates a significant investment into the agricultural sector of Northern Namibia. However, it is clear that not all of the described baseline activities explicitly address future climate risks into their rationale and design. In fact, it is likely that investments may be lost due to climate change impacts in the future. Additionally, badly adapted practices may be currently promoted through short term investments. Consequently, they undermine the resilience building efforts and leave smallholder farmers more vulnerable to future climate challenges.

115. This SCCF project is furthering the scope of MAWF in terms of building climate resilience. Special community mobilization approaches are set up and used to scale up efforts in a cost-effective and functional way. Meaningful local level engagement and motivation serve to unlock possibilities for microfinance solutions that can support resilience building. The focus on women-led households and on other vulnerable groups provides a further addition to building meaningful adaptive capacities amongst smallholder farming communities.

116. The MAWF has recently developed (April 2014) the **Comprehensive Conservation Agriculture Programme (CCAP) for Namibia** which is included in the project design as strategic co-financing. The programme seeks to address in a holistic manner all the important aspects of CA in order to encourage farmers to take up CA and profit from it. The objective of the programme is to counter and reverse land degradation and adapt to climate change through CA adaptation¹³. The programme aims to 1) increase awareness and knowledge of CA amongst stakeholders, 2) improve knowledge and skills amongst farmers and extensions, 3) conduct farmer-focused research to develop appropriate technologies and packages for the farming systems, 4) establish institutional arrangements for the harmonized and coordinated implementation of the CA programme, 5) ensure farmers' sustained access to CA equipment, inputs, markets and services and 6) develop standards, monitoring and evaluation. The programme targets all crop producers in Namibia and aims to provide assistance to communal farmers in the form of subsidies. All farmers in the SCORE zones fall in the beneficiary regions. A clear strategy for collaboration will be developed during the inception phase of the SCORE project and once the CCAP is moving into its implementation phase.

¹³ MAWF (April 2014) .Comprehensive Conservation Agriculture Programme for Namibia Draft report

117. The CCAP will be further strengthened by the SCCF project which provides a flexible and responsive learning platform that can enhance the performance of the large-scale government investments into building long-lasting community resilience. This is pertinent to Outcome 1: strengthen the national seed suppliers and promote the development of smallholder horticulture production through soil improvement and micro-drip irrigation in the six project zones. Moreover it is also relevant for Outcome 3: ensure that institutional gaps and capacities for CA adoption are adequately dealt with.

118. Aside from the strong focus on agriculture and food security related policies; this project also aims to engage the microfinance sector, for example. This is to explore the possibilities to unlock the financial sector in support of resilience building for smallholder farmers and especially for the vulnerable groups. Whilst Outcome 1 is piloting such approaches at the micro-level, Outcome 3 will include activities that extend at the macro-level. This is closely tied to the Green Scheme and the CCAP programme of the MAWF.

119. The SCCF project builds on lessons from previous CBA and SPA adaptation programmes (see Annex 9). It specifically invests in the development of community engagement and ownership. In Namibia it is recognised that local level impacts can only be achieved when working directly with communities and smallholder farmers. The IPCC ARWG5 report emphasizes the importance of working with local people and of making use of community engagement approaches as a means to truly empower the farmers to learn about climate change adaptation and build their own adaptive capacities. The CBA programme and other CES work have demonstrated that setting up and working with voluntary Self-help Groups (SHGs) can be a successful way to mobilize the motivated community members. SHG community coordinators (volunteers) can become special-change agents and engage in an advisory and mentorship programmes.

120. Working closely to mobilise and sensitise support from the public and private sector organisations is a critical part of the SCCF project. Therefore, an advisory and mentorship programme will be established to deliver an integrated package of support services for project beneficiaries. Given the predominance of women-led households in the northern regions of Namibia, special consideration will be given to women-led organisations. Experts in the field estimate that the cost of a mentorship programme could be of approximately N\$500 per hectare, which is lower than the demonstrated returns of climate-smart agriculture in Namibia. The mentorship programme will take place in the first year of the project. The training materials and mentoring approach will be designed and applied to ensure that the most effective knowledge exchange and transfer happen through this programme. The programme will produce about 200 mentors in the six project zones.

121. In the previously implemented CBA projects, SHGs have developed into informal Farmer Field Schools (FFS). They are the ones leading the implementation of the projects with support from the CBA management team. The Farmer Field Schools act as the driving force for farmer mobilizations into SHGs. This is where farmers are trained on the impacts of and adaptation to climate change, on low-tillage agriculture, conservation agriculture and multipurpose crops, farm planning and management, nutrition and crop diversification, poultry and livestock health and silage fodder production. This approach will be further developed. It is envisaged that these Farmers Field Schools will turn smallholder farms into learning hubs for the rest of the farming community. This will create a sustainable method of learning and passing on the best practices related to climate change resilience building. Critical aspects of work with

communities, such as overcoming barriers and the resistance to absorb new farming techniques, technologies and approaches, will be addressed while harnessing the power of peer learning.

122. SCCF's project investments in the development and implementation of the best community engagement approaches are considered a critical factor for the success of this intervention, and is specific adaptation addition to the baselines described above. Lasting adaptive capacities can be built by focusing on individual and institutional capacity development. Three key technical adaptation interventions are being pursued through this CCF project. They are following up on key needs identified through the community consultations carried out during the PPG phase as well as previous experiences with the implementation of SPA and CBA projects in northern Namibia. For the resilience of communities and smallholders, it is essential to consider: (a) addressing the smallholders' challenge to plant the fields in time for the onset of the first rains by means of reliable weather data, (b) improving nutrition and household income by focusing on the production of fresh vegetables, supported by soil improvement, micro-drip and other appropriate production enhancing techniques and (c) helping farmers to move away from mono-cropping and applying more diversified cropping systems.

123. One of the key technical barriers to producing a good harvest is the shortage of draught power leading to crops being planted later than the recommended time in November/December. This is leaving crops with only a small chance to reach maturity which then results in lower yields especially in seasons that end earlier than usual. Moreover, nutrients are made available sooner because of the early rains. If crops are planted some weeks later, then by that time much of the nutrients will have leached out or will have been consumed. Good management practices should overcome harsh climatic conditions such as mid-season droughts or temperature peaks. This would be achievable by means of modifying the length of the growing period and changing the planting and harvesting dates. The project will invest in overcoming these barriers through interventions such as conservation agriculture and systems that ensure the timely, appropriate and sufficient provision of seeds. Current bottlenecks in seed supply are severely affecting the ability of local farmers to plant at the right time.

124. Investing in the production of fresh vegetables by using CA principles is considered to be a valuable adaptation strategy for multiple reasons. First, productivity and yields can increase through soil improvement and micro-drip irrigation. Applying CA creates a more stable micro-climate. It improves the soil's capacity to retain water while also lowering evapotranspiration and the drying out of soils. The provision of new implements and reliable agricultural extension services further stabilize agricultural production. Second, malnutrition can set in on account of poor intake of vegetables which contain nutrients that are critical to human health. Therefore, access to fresh vegetables can greatly improve health which is an important aspect of adaptive capacity and resilience. Third, fresh vegetable gardens have the potential to become a business line for smallholders in Namibia. Markets are available and this project will overcome the barriers that have been preventing farmers from accessing them.

125. In terms of project implementation, an approach that focuses on vulnerable groups and vegetables production, for example, may represent a good opportunity. Moreover, the project proposes to work through schools. The CBA programme has shown that communities are successfully implementing the improved farming methods that their children have learned in school. Young people and especially the girls are quickly picking up the necessary skills. The project has been so successful that it has attracted the attention of schools from outside the pilot area. Some of the proceeds from the sale of vegetables

and crops are used to purchase school uniforms for orphans. Such a focus will be furthered through this SCCF project, in line with its effort to build resilience amongst the most vulnerable.

126. The SCCF project will focus on these key technical intervention areas while working with the established institutional arrangements. It goes without saying that certain enabling conditions must be created to support the successful technical community outreach and support system. The key barriers that have been identified relate to issues such as the need for access to markets and microfinance options. This would sustain SCCF project interventions in the longer run and would also allow to extend demonstrations.

127. The lack of access to financial resources has been voiced as one of the key barriers to achieving climate resilient smallholder agriculture. Microfinance institutions can potentially support and unlock financial opportunities. CBA projects implemented by CES have found that smallholder farmers can make good returns on their plots by practicing low tillage land preparation and other climate-smart conservation practices. Even the very poor smallholder farmers are able to save on a monthly basis. By means of the SHGs, as voluntary groupings, a good foundation of successful savings programmes is in place. Additionally, there is evidence that using mobile collateral (e.g. livestock) to secure loans can be a successful approach. The Namibian Meat Board has piloted such an approach with small livestock in Northern Namibia. However, during the PPG phase it has found that the importance of establishing a strong microfinance component goes beyond the locally CES-appointed pilots. Therefore, it requires more dedicated research and expertise. There have been recent movements in the microfinance sector of Namibia. For example, the sale of the sole microfinance development institution, FIDES Bank. The institution was operating in northern Namibia to TRUSCO, a government close Namibian outfit. A SME bank is to be established through this take-over. It might be supervised by the government as opposed to being governed by the commercial sector. An initial expert review of the intended project output 1.8 is included in Annex 8. A more explorative approach is suggested to provide adaptation learning lessons that can, in turn, be integrated more systematically into output 3.5 on a macro-level.

128. Creating market access is related to marketing expertise, as well as to dedicated value-chain development of newly emerging products. This is a key barrier to many local diversification efforts. The project will specifically focus on overcoming such barriers. To support local level diversification, the help of marketing organizations in the area of dryland products will be sought through the Advisory and Mentorship Programme. Organisations currently working in this field are the NGOs and the Centre for Research Information Action in Africa Southern African Development and Consulting (CRIIA SADC). They support rural communities and in particular the poorest members of the society, to benefit from sustainably produced indigenous natural products and smallholder crops. The MCA programme in Namibia has dedicated a significant support to further develop value-chains for such products. However, it has become apparent that this takes significant time and requires sustained support. The Small Grants Programme (SGP) has already had one success in enabling the cowpeas (omakunde) to become a commercial option. More traditional diversified crops and vegetables have the potential to reach market value and the Agro-Economic Board, the Agro-Marketing and Trade Agency (AMTA) and the National Chamber of Commerce and Industry (NCCI), which are supporting smallholder farmers to reach relevant markets. Macro-level interventions are needed to create an enabling environment to step up diversification efforts. The project adds this as a specific adaptation alternative to its activity portfolio.

Component 1:

Baseline Co-financing: US 15,246,542

SCCF grant requested: US\$ 1, 9 Mio

Output 1.1: Smallholder advisory and mentorship programme that promotes drought resilient land management and crop production practices established to scale up good practice for 4,000 smallholder farmers

Activities:

- 1.1.1. Design and develop a mentorship programme** by bringing together local community leaders who have an interest in building climate change resilience and in improving the productivity of smallholder systems in their area. It is a peer learning platform that connects farmers with outside expertise i.e. from existing support organisations and extension services, following a Training of Trainers (ToT) approach. Sustainability beyond the project's implementation time is a key design principle of the intervention.
- 1.1.2. Select participants for the advisory and mentorship programme** based on a self-motivation approach. The CES, through their SHGs, already have good experience in investing in the establishment of such groups including self-identification of suitable representatives. Organisations represented on the Regional Implementation Platforms (RIPs) will become partners in the mentorship programme, as learners and as trainers.
- 1.1.3. Produce mentorship materials** that will support and drive the training exercise applying best practices in terms of adult learning and professional updating. It is critical that a modern training approach is applied to ensure best possible mentorship results. Reviews of international best practice are an integral part of this. The learning material should be applicable beyond this project, available in common vernacular languages and preferably allow replication to other areas too. The curriculum will follow a demand-led principle to ensure that priority areas leading to climate change resilience are addressed.
- 1.1.4. Implement a mentorship programme** and link to impact monitoring (Outcome 3). To measure the success of the mentorship programme and test its suitability for upscaling learning impacts that lead to a change in behaviour in terms of local level farming practices and other aspects of building climate change resilience amongst local communities is vital.

Output 1.2: Community self-help groups formed in the project zones to promote implementation and replication of climate-smart methods

Activities:

- 1.2.1. Form self-help groups** based on the tested CBA approaches. This is a critical investment that will aid the successful implementation of the various other outputs under Outcome 1. The successful setting up of local savings groups will largely depend on the success of setting up SHGs.
- 1.2.2. Train the most active and suitable members of each self-help group** to become the coordinators of the SHG. By selecting coordinators from the participating farmers, ownership is left in the hands of the communities and creates a sustainable system that it is not heavily dependent on outside

forces. Providing structured training develops confidence and increases their income generation opportunities. The leaders who have gone through the mentorship programmes will be the key peers engaging in the trainings. They will connect the RIPs that are part of the organisational implementation structure of this project. Specialised extension and support services will be sourced through such RIUs.

Output 1.3: At least 300 trained farmers' field school leaders and coordinators in drought resilient land management practices serving 4,000 households

Activities:

- 1.3.1. Identify and train farmers' field school leaders** linked to the mentorship programme under output 1.1. This is basically a scale-up approach linking the mentorship programme with the SHGs and developing a peer learning reach to a wider set of community members. This will also allow to specifically reach out to the more vulnerable groups. Orphans, for example, will be targeted through school programmes.
- 1.3.2. Development of farmer training curricula based on the technologies to be scaled up** and following a demand-led approach. The curriculum will evolve and change throughout the project timeline and beyond. It is important to monitor the impact of learning experiences and fine-tune approaches throughout the project's lifetime.

Output 1.4: 4,000 smallholders plant their land in time to catch the first rains

Activities:

- 1.4.1. Provide access to ploughing services to 600 households per region** and well in advance of the planting season. Land will have to get tilled in good time. Tillage and planting rosters will be distributed to allow farmers to have access to tractors at certain times and avoid conflict.
- 1.4.2. Improve seed distribution** by setting up local micro seed distribution banks with the help of SHGs. These farmers will be able to collect seeds in time for the planting season. Farmers usually maintain their own seed banks; however, these banks need to be supplemented with improved seeding materials as well as with seeds that are adapted to the seasonal weather and climate conditions. Currently there are major barriers. For example, the MAWF needs to source such seeds from outside of Namibia. Seed supplies are often not distributed in time for early planting. Therefore, having local seed supplies is critical.
- 1.4.3. Disseminate seasonal forecast and early warning information** so that farmers can take appropriate crop and livestock management decisions. Using the appropriate channels to disseminate information is important. Moreover, the information must be presented so that local farmers can use it for climate-smart decision-making.

Output 1.5: Fresh vegetables' production through soil improvement and micro-drip irrigation practiced by 2,000 households, including 35% orphan-led households

Activities:

- 1.5.1. Create an understanding of the benefits and challenges entailed by the production of fresh vegetables** and support farmers in designing their approach to vegetable farming.

- 1.5.2. Adopt the drip and bucket irrigation system for vegetable gardens.** This is a simple technology that is gaining a foothold for subsistence farmers in Africa. By using plastic buckets or larger containers and drip irrigation tape, these systems enhance food security. Buckets need to be elevated on stands that are at least three feet above the ground — on the high end of the garden in case it is not flat. Beds should be prepared with compost or organic material and manure and then levelled. The drip tape can then be set up, and if installed with care, the system can last 5-7 years.
- 1.5.3. Scale up soil improvement interventions that minimize soil erosion and water-related ecosystem services** through:
- The replanting and protection of indigenous grasses and herbaceous vegetation that are resilient to significant climatic variance;
 - Measures that promote infiltration, the decrease in soil transpiration and make more palatable grasses and water available to livestock during the dry season.

Output 1.6: Crop diversification away from traditional crop production for 75% of households

Activities:

- 1.6.1. Promote the use of plastic buckets for the watering of newly planted trees.** Buckets with punched holes are placed next to the trees or alternatively a tube is inserted into the soil, next to the young tree and then it delivers water. This method is cost efficient and not labour intensive. Once the buckets are in place, they only need to be refilled 2-4 times a month.
- 1.6.2. Scale up sunflower production** which has already been piloted by subsistence farmers. It resulted in significant seed and oil outputs. From the piloted productions, the average seed yield per hectare when applying conservation agriculture was 4,000 kg. The 'seed cake' left over from oil extraction is an ideal chicken feed, thus boosting household chicken production. Private sector entities as well as the Government of Namibia have been procuring cooking oil for drought relief as well as cattle fodder.
- 1.6.3. Scale up sorghum production:** The best sweet stem sorghum varieties have recorded grain yields of up to 4 tonnes per hectare. Nevertheless, 800 kg is the norm. The biomass yield is of up to 30 tonnes per hectare. The groups in Namibia that took part in the pilot programme have reported that they had saved money at the household level as they produced more of their own food. The varieties that have been selected can withstand more floods and rainfall than other sorghum varieties.

Output 1.7: Savings and loan schemes are tested among smallholder farmers to promote replication and the scale up of adaptive practices and technologies

Activities:

- 1.7.1 Engage a microfinance expert to develop a long-term microfinance strategy for the project.** See Annex 8 for the key activities that should be undertaken. These recommendations will be developed into a set of TORs for a microfinance expert who will work with the project team to develop a suitable long-term strategy during the inception phase. Microfinance can be a critical ingredient to build climate change resilience amongst communities.

- 1.7.2 Review and evaluate the existing CES (CLUSA) supported savings groups** that were established through the CBA project by a microfinance expert and integrate lessons learnt into the design of a longer-term microfinance strategy.
- 1.7.3 Introduce a savings approach to SHGs** and support the functioning of savings groups.
- 1.7.4 Facilitate access to microloan schemes** through existing microfinance institutions. Loans will serve to invest in improving the productivity of farming systems (e.g. for equipment such as tractors, threshers and others), based on the approaches set out in the strategy (activity 1.7.1).

Output 1.8: Market linkages established for dryland products working with the private sector

Activities:

- 1.8.1. Develop a project plan that establishes which value chains should be specifically pursued through the SCCF financed intervention.** Currently, the three key technical components focus on the more traditional crops and less on other non-timber forest products or natural resources. This strategy will be designed in a flexible manner and local demand will guide which additional avenues to pursue. The RIPs will generate relevant expertise. If needed, specific expertise from CRIAA and relevant experts, the GIZ facility natural resources valuation programme and other.
- 1.8.2. Facilitate market access and improve marketing expertise** to increase the income of smallholder farmers beyond subsistence farming. Special trainings can be linked to the mentorship and farmers' field schools in this regard. Additional macro-level interventions will be pursued to create a more enabling environment for smallholder farmers to gain market access.
- 1.8.3. Facilitate training in grading, cleaning and packaging of products.** Training of smallholder farmers should become a priority. Labour-saving technologies should be introduced to enable smallholder farmers to control weeds and improve harvesting methods and post-harvest storage. In the Kavango region and Oshana regions, for instance, connections could be made with the AMTA through the Rundu and Ongwediva fresh produce business hubs.

Output 1.9. Documentation of best practices

Activities:

- 1.9.1. Set up local level monitoring, farmer's action research and formal evidence-based impact monitoring systems for all project interventions and innovations.** The real-time monitoring of interventions will be a strong evaluation tool. Lessons will be documented throughout and not as an after-thought. The assimilation of lessons will inform the project as it runs its course and it will also inform future programmes.
- 1.9.2. Link to MAWF/DART agriculture research and other relevant research entities.** Linking the monitoring outcomes and lessons learnt to the available knowledge base will allow for information to be disseminated more widely.
- 1.9.3. Provide for research knowledge to be integrated into relevant policy processes (see Outcome 3).** Lessons learnt and action research will inform policy processes directly.

COMPONENT 2: COMMUNITY LEVEL FLOOD AND DROUGHT MANAGEMENT

Outcome 2: Small scale agricultural infrastructure introducing to reduce vulnerability to floods and droughts e.g. through restoration of wells and harvesting of floodwater for food security.

Baseline Component 2, Without SCCF Intervention

129. Rural subsistence communities in the northern parts of the country are exposed to climate change and increasingly frequent weather variability. They are facing droughts, increased temperatures, unpredictable rainfall patterns and severe floods because of water flowing in from northern neighbouring countries. Floodplains in the Caprivi and oshanas (ephemeral rivers and pans formed in the shallow depressions of the Cuvelai system in the north) remain particularly vulnerable. Smaller areas will be inundated and they may dry out more rapidly due to increased evaporation.

130. In 2011, 60,000 people had to be relocated during the flood season and all in all, more than 260,000 people were severely affected. The President declared a state of emergency, which was the second in three years. The 2011 floods adversely affected communal farmers and an estimated 25,000 animals were lost. Roads, permanent buildings and bridges were destroyed. The damage was of US\$ 140,000,000. Yield prospects were reduced by 40% and the cultivation area cut by 50% which left up to 600,000 households at risk of little or no food availability and thus dependent on government flood relief.

131. About 50% of the rural population who lives in the northern regions depends on inland fish resources for food, income and informal employment. Inland freshwater fisheries are dominant in the less arid areas such as the Caprivi, Kavango, Omusati and Oshana regions. Inland aquaculture includes inland facilities and utilisation of ponds, tanks and enclosures that are dependent upon the culturists for maintenance of water quality, food supply and waste removal¹⁴. The Ministry of Fisheries and Marine Resources (MFMR) is coordinating aquaculture projects throughout the country and provides fingerlings to farmers.

132. One specific project to mention is the Omahenene Inland Aquaculture which is providing fingerlings and training to farmers on fish farming with MFMR. Aquaculture has the potential to uplift livelihoods through diet and income diversification for many rural households in project zones. A suggestion for fish ranching as an alternative to conventional fish farming was made. This concept is being piloted in the Zambezi region with KAZA support by the NNF and other partners. Some of the social and environmental advantages include limited infrastructure to set up the seasonal water bodies and the possible disease control measures as the fish eats the mosquito larvae.

133. The MAWFs Drylands Crop Production Programme (DLCPP) aims to prepare farmers for severe climate conditions, although not specifically for long-term climate trends. It specifically invests in the promotion of suitable dryland crops, alternative production systems and water conservation practices. The Green Scheme of the MAWF, although mostly focusing on commercial irrigation production systems, also invests in the development of dryland adapted irrigation systems for a better response to droughts. Most of the activities of these two programmes are considered baseline. However, certain activities that are implemented through MAWF in the pilot regions and which are relevant to the project sites are designed as co-financing to this project, specifically.

¹⁴http://209.88.21.36/opencms/opencms/grnnet/MFMR/Aquaculture/Type_Aquaculture.html

134. The Disaster Risk Management falls under the Office of the Prime Minister (OPM). A National Disaster Risk Plan is in place, including an Early Warning System for drought and impending food shortages, in cooperation with the FAO global early warning system. A global early warning system can be reliable only when there is strong local capacity to gather reliable information. For this reason the Government has established an Early Warning Unit within the MAWF. The OPM has a number of functions as well and coordinates national and regional disaster Risk management units and responses¹⁵. There is a need to strengthen disaster risk reduction activities which are linked to the OPM's Disaster Management Policy. This project has the potential to identify these activities based on Output 2.1, Activity 2.1.1 and the ongoing OPM investment is counted as baseline investment.

135. Several flood and drought responses spring up on short notice during disaster years. It usually happens in the form of an emergency response. Some baseline activities with a longer-term focus are the work of the Red Cross in North-central Namibia, focusing on linking floods and drought management to health, especially amongst vulnerable groups. The Namibia Nature Foundation, a local NGO, has been implementing the "Every River has its People" programme along the Kavango River for some years now and this programme has a floods and drought management component. It also includes a pilot for the seasonal "fish ranching" in the Kavango and the Zambezi regions. This project also relates to the work the Ministry of Fisheries and Marine Resources (MFMR) is implementing in terms of aquaculture development. However, none of these projects is specifically geared to addressing climate change. The Country Pilot Partnership for Sustainable Integrated Land Management, partially supported by GEF, has conducted relevant pilot approaches, which are also implemented by the Government and local partners in certain areas of the north-central regions and Kavango. This adds to the project baseline. Interventions included: water harvesting, rehabilitation of traditional wells, improved cattle farming practices, dryland horticulture development, piloting aquaculture ponds, to name just a few.

Adaptation Alternative Component 2, With SCCF Intervention

136. The project will scale up the successful water harvesting pilots tested in the CCP/CCA and CBA programmes. It is recognised that the suggested water harvesting techniques would be useful in northern Namibia in any event. Moreover, it is ever more relevant with the projected climate change impacts in the area. Namibia is classified as a water-scarce or water-constrained country, even under current conditions. It is clear that the water situation in Namibia will worsen under current climate change projections, especially in the SCORE targeted areas. This SCCF project aims to enhance water use and its availability while clearly recognising that more drastic development options must be explored by the Government of Namibia in the longer term.

137. The communities who participated in the CBA programme have revived a century old but now neglected practice: water harvesting. This used to be a common practice in Northern Namibia before the introduction of piped water 20 years ago, and even earlier, before men were moved to the southern parts of the country for mining work during the colonial apartheid administration. The wells were either placed in or at the edges of the shallow rain and flood water fed ephemeral lakes ('oshanas') or dug on higher ground in areas where the ground water level was high (identified by the grass being green there even during the dry season). Wells could also be found at the edges of crop fields in order to prevent flooding coming from a specific direction and destroy the crops.

¹⁵OPM (1998). Republic of Namibia National Disaster Plan. Available at: www.opm.gov.na

138. In most of the north-central areas of Namibia one can find neglected traditional water-harvesting wells. They are now very shallow, filled with sludge or material from collapsing walls. The restoration of the traditional water harvesting wells and the establishment of new ones for various purposes is an affordable, locally appropriate and effective community water harvesting method. It could complement the construction of large, high-cost earth dams in the Northern Namibian areas which are prone to floods and droughts.

139. The CBA SHGs pilot to revive traditional wells for flood and rain water harvesting or to dig new earth ponds proved was effective and welcomed by rural dwellers as floods have had increasingly negative impacts on their livelihoods. Rainwater is generally collected from roofs or non-permeable, on the ground surfaces and stored in tanks. It helps to cope with water shortages during the dry season and buffers fluctuations in rainfall even during the rainy season.

140. Using Oshana water is challenging because of the high evaporation rates and quick degradation of the stored water. The technology of floodwater harvesting aims to avoid these problems by storing the water in artificial, closed reservoirs. The Oshana water is therefore pumped with pedal pumps into the storage reservoirs at the height of the dry season when water quality is best.

141. The SCCF project aims to mainstream rainfall and flood-water harvesting into the DLCPP and Green Scheme while implementing relevant activities in those project communities that are situated in the Oshanas or are otherwise threatened by floods and droughts. Overall, the learning from the SCORE project is geared towards informing MAWF and partners about the urgency of mainstreaming long-term climate resilience building into their programmes and planning. The DLCPP and Green Scheme are committing co-financing for such activities at overlapping project sites. Activities will be implemented with the help of the technical services package implemented at Outcome 1.

142. The possibility to establish sustainable aquaculture investments, especially where water harvesting has been successfully undertaken, will be scoped and pursued as a possible adaptation option. Aquaculture development can supplement subsistence food supplies and can also develop into a business. Relevant environmental standards will have to be developed and applied to ensure that such investments are not causing negative environmental impacts. Where community projects are being set-up, relevant social impacts must also be addressed. SHGs and related social structures should provide feasible entry points for a manageable model of introducing food and livelihood alternatives.

143. Dryland irrigation systems i.e. drip irrigation coupled with the systematic application of Conservation Agriculture practices will be implemented to build better resilience to persistent droughts. Building on the various MAWF baseline projects, such technologies and techniques will be implemented with the SHGs, FFSs and supported through the Mentorship and Advisory programme. A comprehensive local level monitoring and farmers actions research components will be added for a better understanding of the practices that can indeed provide suitable adaptation. The ultimate purpose is to consider them for further development. This research component will be conducted in close collaboration with the MAWF Directorate of Agricultural Research and Training (DART).

Component 2:

Baseline Co-financing: USD 3,791,721

SCCF grant requested: USD 505,000

Output 2.1: Flood and drought control measures provided to smallholder farmers in flood-prone areas

Activities:

- 2.1.1. Identify those project zones that are prone to floods and scope out flood and drought control measures.** Project zones can either be areas where the Food for Work programme is situated or specific project intervention areas where SHGs and other support structures have been established through the SCCF project.
- 2.1.2. Restoration of traditional wells and enhancement of inland ephemeral floodwater pools for households in the project zone.** Following the CBA testing of technologies and considering the objectives of the Food for Work programme, the following techniques from the CBA experience will be implemented under this activity: (1) ponds placed at the centre or edge of oshanas for flood water harvesting; (2) Wells placed at the edge of crop fields for flood water harvesting and protection of crops; (3) Wells placed on higher grounds for rain water harvesting; (4) Ponds placed on higher grounds filled with water pumped from nearby flood areas (this variety is used for fish farming purposes only).
- 2.1.3. Trained communities on the management of harvested water and multipurpose use the water for livestock, irrigation, fresh vegetable production or inland aquaculture, for example.** Trainings will take place under outcome 1 by means of established institutional structures, i.e. the SHGs, FFSs and the mentorship programme. Relevant technical inputs will be solicited from the RIPs.

Output 2.2: Climate-smart Irrigation practiced

Activities:

- 2.2.1. Set up irrigation systems in project zones.** Interested communities will be identified to benefit from this support but investments will be subject to prior environmental clearing. While dryland cropping usually applies water-smart irrigation, currently applied practices, such as those supported by the Green Scheme and the DLCPP programmes, have not yet included climate change resilient planning. Therefore, specific safeguards will be applied under this activity. It is asserted that by introducing small scale irrigation schemes, crop yields and food security can increase, especially during periods of drought.
- 2.2.2. Introduce relevant Conservation Agriculture practices to complement irrigation efforts** and at the same time build the resilience of the agricultural system on site. Integrated soil and water management will improve yields and reduce degradation of resources. Through a strong local level monitoring and by means of a farmers' action research component, linkages to the CCAP are established to assess the effectiveness of climate change resilience measures.
- 2.2.3. Train farmers on the proper use and maintenance of irrigation systems.** Trainings will take place under Outcome 1 by means of established institutional structures, i.e. the SHGs, FFSs and the mentorship programme. Relevant technical inputs will be solicited from the RIPs.

2.2.4. Set up a local level resource monitoring programme which applies farmers' action research. It is important that both inputs (esp. water) but also yields are being monitored to gain a better understanding of the cost and benefit of such irrigation systems in a drylands context. Such information will also be useful for the monitoring work set out under Outcome 3.

Output 2.3: Climate-smart fish farming practiced

Activities:

- 2.3.1. Establish fish ranching in project zones** where such farms are environmentally feasible. Interested communities will be identified but investments will be subject to prior environmental clearing. A usage plan will be developed at the onset of on-site intervention planning, esp. regarding the sharing of benefits from this community project. Technical expertise will be built under Outcome 1 by means of established institutional structures, i.e. the SHGs, FFSs and the mentorship programme. Relevant technical inputs will be solicited from the RIPs. The Ministry of Fisheries and Marine Resources Aquaculture Division will be specifically represented on the RIP for this purpose. The lessons learned from previous and ongoing inland fisheries programmes through the NNF and other partners can serve this project.
- 2.3.2. Provide farmers with much needed inputs and fingerlings¹⁶ for start-ups.** Start-up inputs will be provided by the project. However, the running of the aquaculture entities should be self-sufficient after three years from their establishment. Relevant business planning skills and know-how will be conveyed through training and mentoring activities under Outcome 1. It is necessary to establish if supply chains are well developed to ensure that fish stocks as well as aquaculture implements are readily available to local smallholder farmers. This work will be carried out in close collaboration with the Aquaculture Division of the Ministry of Fisheries and Marine Resources.
- 2.3.3. Develop a market access strategy for each aquaculture investment.** Linked to Output 1.8, an investment to establish market access and promote marketing expertise is envisaged.

COMPONENT 3: CLIMATE CHANGE MAINSTREAMING INTO AGRICULTURAL STRATEGY

Outcome 3: Mainstream climate change into national agricultural strategy/sector policy, including adjustments to budgets for replication and up-scaling

Baseline Component 3, Without SCCF Intervention

144. The problem in Namibia is not the lack of policies or even the fact that they may be not be supportive of climate-smart agriculture. In fact, the policy content is impressively good. The lack of implementation is posing the greatest problem. Annex 2 of this report sets out the numerous policies that exist accompanied by the principles and objectives that support climate-smart agriculture. Implementation is unsatisfactory because of:

- Insufficient results-based management as a way to guide planning and budgetary allocations;
- Unclear roles and responsibilities;
- Limited performance management;

¹⁶A young or small fish

- Ineffective inter-agency cooperation and coordination in the areas of agriculture, irrigation and water development, sustainable natural resource management, rural and regional development, rural infrastructure, food security and nutrition and drought and disaster management;
- Inappropriate transfer of resources from the Central Government to regional institutions so as to enable locally driven development plans.

145. The above is being addressed through various donor and government funded projects. Moreover, special focus has been placed on raising climate change awareness in rural areas where the most affected and vulnerable populations are. Communities lack the ability to cope with natural phenomena such as floods and droughts. Policy mainstreaming can thus empower the communities to respond more effectively to these impacts.

146. The MET is Namibia's designated institution for Climate Change. As such, the Ministry has an established Climate Change Division, headed by a Deputy Director for Climate Change. The Ministry chairs the National Climate Change Committee (NCCC) and coordinates the mainstreaming of climate change interventions throughout other sectors. MET is the lead institution tasked with the coordination of Namibia's National Climate Change Strategy and Action Plan (NCCSAP). The NCCSAP is at the beginning of its implementation. Although the SCORE programme is tightly embedded within the strategy and plan, the NCCSAP can be seen as a baseline for this outcome. Currently SCORE is the only programme that connects to the land and inland water based elements of NCCSAP's food security components. This is also the only project with a specific focus on vulnerable groups to date. Without the SCORE project, these critical components of Namibia's NCCSAP will not be realized.

147. A specific Climate Finance Readiness initiative is being implemented under the leadership of MET with the National Planning Commission (NPC) and the Ministry of Finance, which is supported by the German Government through the GIZ. The project is laying the foundation to start discussions on the need to mobilize national funds for long-term climate change resilience building in all of Namibia's economic sectors. Although this project is running over a short time frame, it builds a useful baseline for the SCORE project interventions.

148. The **Namibia National Farmers' Union (NNFU)** is a national federation of regional farmers' unions established in June 1992 to represent the Namibian communal and emerging farmers. It aims to increase food production for household security, enhance marketing of farming products to increase household income, increase participation and recognition of women in farming, contribute to environmental protection and sustainable utilization of natural resources. In recent years, it has strengthened the implementation of its mandate by providing services and by having an advocacy function. It has three programmes:

- *Policy Education and Advocacy* which promotes the active participation of small-scale farmers in the design and drafting of a conducive and enabling policy environment in terms of agriculture, water, land and credit amongst others. Moreover, it seeks to involve smallholders in the implementation of national policies, acts and legislations, projects and schemes. It should also serve as a conveyor belt between farming communities countrywide and service delivery institutions.

- *Institutional Strengthening and Capacity Building*, which works via local farmers' associations and regional farmers' unions on planning and leadership.
- *Business Advisory and Trade links unit* assisting farmers to organise as small-scale farmers for collective marketing purposes. This is to enhance their bargaining power, critically analyse factors that influence the commodity market chain and understand factors that influence price structures in the market place.

Adaptation Alternative Component 3, With SCCF Intervention

149. The design of this SCCF project entails a strong focus on adaptation learning that will be integrated into relevant policy processes and implementation actions. By setting up an impact assessment to be carried out throughout implementation and linked to the various local level monitoring and research components, it will generate valuable information on which approaches, practices, techniques and technologies are effectively contributing to climate-smart agriculture and climate resilience. The design of the impact assessment will be geared towards generating information that can be used to influence policy and strategies not only in the agricultural sector but also for disaster risk management and preparedness. This impact assessment will be conducted by the Multidisciplinary Research Center of the University of Namibia.

150. Building on existing policy development processes e.g. the MAWF, development planning at the regional and national levels, knowledge generated and lessons learnt from the SCCF project will all serve sector reviews, programme development and the Regional and National Development Plan 5 (NDP 5; 2017/18-2021/22). For example, a detailed mid-term evaluation can identify best practices emerging from the SCORE project just in time for the NDP4 review and following the NDP5 preparation. The mid-term evaluation would be due during 2017. A window of opportunity could be used to integrate resilience building in the agriculture sector at that time. MAWF has a practice to request lessons from all implemented projects to be screened for best practices and then consider their possible replication or expansion. Based on such analyses the Ministry formulates follow-up national programmes that will allow for a systemic absorption of best practices. This project can develop strategies that will strengthen policy implementation.

151. By specifically working with regional governance structures, i.e. with Regional Councils, and through setting up regional support platforms and extension services, this SCCF project is establishing critical linkages between deconcentrated central government/line ministry functions and decentralised governance structures in place. Moving away from a focus on sectoral ministries only, this project will provide specific institutional lessons that will be invaluable to building climate change resilience more broadly in Namibia. Although it is clear that there are numerous capacity bottlenecks and shortcomings at the RCs, it is also clear that meaningful service delivery to the broader population cannot be achieved only with the help of the relatively small agricultural extension teams. Investing to expand and improve collaborative structures that have been set up, for example under the Country Pilot Partnership for Integrated Sustainable Land Management (CPP for ISLM), is a strategy that this project pursues in the light of piloting effective governance for resilience building.

152. There are several aspects needed to improve locally-driven development that builds adaptive capacity:

- Agreement between politicians, government officials and the communities about what works and what does not work in terms of climate-smart agriculture;
- Trust-building needed between communities and government;
- Sufficient resources for Regional Councils to be able to respond to local community needs and priorities;
- A results-based management plan for climate-smart (conservation) agriculture that is accepted by all parties and which is monitored by the relevant authorities. This will feed into the planning and budgetary cycle.

153. This SCCF project will act on all these levels, particularly responding to key priorities set out in Namibia’s NCCSAP. Components 1 and 2 will facilitate critical, on the ground learning. Component 3 of the project ensures that such learning will find its way into policy development. It will create and document relevant understanding for broader building of climate change resilience in Namibia. The project connects the piloting of adaptation measures and climate resilience building to ongoing impact assessments and evaluations and their eventual consideration for policy items.

154. It is recognised that public awareness has to be built to ensure that best practices in terms of climate change adaptation will be applied more broadly. To address this, the SCCF project includes a small but important communication component. It works with the NNFU to develop relevant advocacy messages and to promote the expansion of climate-smart agricultural methods. A specific budget will be earmarked for NNFU to disseminate information throughout their network. It is important to note that this will not only mean the development of brochures but also the development of meaningful strategies for behavioural change amongst local farmers. A dedicated research component will be attached to this specific output. We know relatively little about the values that differentiate vulnerable groups and that would otherwise help us to effectively target campaigns.

Component 3:
Baseline Co-financing: USD 659,000
SCCF grant requested: USD 500,000

Output 3.1 Impact assessment carried out

The detailed methodology of this output can be found in Annex 11. However, a short synopsis of activities is outlined below.

Activities:

- 3.1.1. A participatory monitoring and evaluation process is set up (linked to Outputs below).** Focus group discussions will provide a qualitative basis for quantitative research on measuring vulnerability reduction. Aims: to understand general vulnerabilities, identify the factors causing them and devise community strategies to reduce them. Focus group discussions will validate the relevant explained and explanatory variables to include in the quantitative research. Communities will select indicators that can be used to measure reduced vulnerability.

- 3.1.2. Establish treatment groups and control groups.** Distinguish treatments (interventions) to be monitored and assessed. Establish when measurement of behavioural change will take place. This is directly linked to the activities of Output 3.3.
- 3.1.3. A questionnaire is developed.**
- 3.1.4. The pilot questionnaire is tested** to ensure that a) all questions are understood as intended b) that no question leads the respondent into a particular answer nor influences any other question i.e. the questionnaire should be as neutral as possible c) that the questionnaire is complete, avoids duplication and avoids redundant questions.
- 3.1.5. Sampling and baseline data collection.** Sample measurements will be taken from 260 households in the region (total population: 800 households). The sample may be widened to allow for attrition. Control groups will be chosen the following way: choose a constituency in each region that is furthest away from the beneficiary constituencies to minimize the risk of spillover effects. Choose a community that has similar characteristics to the beneficiary communities using GIS to compare land characteristics and through comparison of income, health statistics and livelihood characteristics (using national data sources). This includes data collection, focus group discussions, survey results, assessment of the treatment effect and the main determinants then rerunning the adapted survey again in year 3.
- 3.1.6. Preparation of policy implications directly linked to Outputs 3.4 and 3.5.**
- Benefits extrapolated to other similar communities in Namibia
 - Quantification of impacts from a CCA project
 - Policy implications

Output 3.2: Results-based management (RBM) plan for climate-smart agriculture developed and monitored by the main stakeholder groups and led by the Regional Councils

Activities:

- 3.2.1. Regional platforms (RIPs or their equivalents), led by RCs, develop RBM plans with stakeholders in a participatory manner.** It is important that multi-stakeholder dialogues and joint planning are carried out to build ownership and facilitate the right engagement for follow-up action and implementation. The project team (PMU) will play a facilitator's role and coordinate follow-up and M&E. The plans need to be linked to this project document and receive relevant funding support for implementation. Linkages between the CCAP baseline project and relevant projects of the RCs will be established where possible.
- 3.2.2. Plans are being implemented and progress is being tracked.** RBM principles are observed and implementation is monitored. Results are shared with all relevant stakeholders and in particular those linked to MAWF CCAP and other relevant baseline projects.

Output 3.3: NNFU advocacy messages developed and delivered in policy to promote scale-up of climate-smart agricultural methods.

Activities:

- 3.3.1. Undertake a study to better understand behavioural change context especially amongst vulnerable groups and to develop a targeted advocacy campaign.** A behavioural change and communication expert will be hired to develop the campaign and assess the impact of

communications. Linking a small research component to this aspect can generate additional adaptation learning. It would allow to better understand the decision-making process of vulnerable groups. Moreover, this would better inform the communications' content for the future. The work will be linked in particular to the outputs under Outcome 1 (outputs 1.1 to 1.3), dealing with community engagement underlying the project approach.

- 3.3.2. Facilitate the developing of advocacy messages and campaigns and their implementation.** Based on the knowledge generated under activity 3.3.1, develop a targeted campaign and advocacy messages and measure their effectiveness amongst the NNFU network of influence. Ensure, through a quick assessment, whether the traditional NNFU membership/network does include women and vulnerable groups and if these groups need to be additionally targeted through improved outreach.

Output 3.4: Regional Councils, line ministries and other partners (Regional platforms - RIPs or their equivalents - led by RCs) include climate-smart agricultural methods, water harvesting, storage and other relevant climate resilience building practices, approaches, techniques and technologies in their annual plans and budgets

Activities:

- 3.4.1. Plan the methods of developing and influencing strategy.** This would be based on already established procedures and processes such as in MAWF (see AA above) and regional and national development planning processes. Identify relevant policy processes already in place as well as the timelines for engagement opportunities and specific strategies for integrating lessons learnt from this SCCF project. This links directly to activity 3.5.1.
- 3.4.2. Facilitate consultations/dialogues** between Regional Councils, line ministries (regional platforms) and local communities to discuss results, promote mainstreaming of climate-smart agriculture into budgets and ensure adequate resource transfers to Regional Councils and other relevant structures.

Output 3.5: Policy recommendations and a replication plan are developed for continuation of good practice, presented at the project closure workshop and integrated into cross-sectoral and national development planning

Activities:

- 3.5.1 Identify key policy opportunities for project interventions and integration of lessons learnt** beyond the opportunities identified during the PPG. This activity is directly linked to activity 3.4.1 and includes the development of strategies able to influence policy for all the selected and prioritized instruments. This is to be achieved during the project's lifetime. The identified strategies are to be included in the project's plans. Information from the Impact Assessment will be strategically used in the implementation of these strategies.
- 3.5.2 Integrate lessons from the mid-term evaluation of SCORE project into NDP 5 planning.** At an early stage develop ToRs for mid-term evaluation to specifically address this need/opportunity. Engage early on with the RDP and NDP processes to develop a strong strategy. Promote the need for implementing the NCCSAP, where SCORE is prominently featured, during NDP5.
- 3.5.3 Consider the lessons drawn from the SCORE project for the MAWF programme proposal and for integration into MAWF operations and budget.** Strategize with MAWF opportunities at an early

stage to ensure that this is not left as an “after thought” in project implementation. This is a critical responsibility of the Project Coordinator and the Project Steering Committee.

3.5.4 Mainstream learning into other relevant sector instruments, including microfinance, disaster risk management, preparedness and others. Recommendations of macro-level actions for the microfinance sector are included in Annex 9. Specific plans for mainstreaming opportunities need to be identified early on in the project.

2.10 National and Local Economic, Environmental and Social Benefits

155. This project will contribute towards reducing the vulnerability of 4,000 households. It will focus especially on vulnerable groups such as women and children in vulnerable areas of northern Namibia. The benefits will be felt at different levels as described in the sub-sections that follow.

156. **Macro level:** This SCCF project will contribute towards the implementation of the thematic area related to food security from Namibia’s Draft National Climate Change Strategy and Action Plan (draft November 2013). The purpose is to reduce the vulnerability food-production systems and of communities by consequence to climate change and variability. Moreover, the aim is to enhance the ability of individuals, communities and institutions to plan for and respond to the impacts of climate change. The project will contribute significantly towards NDP 4 and MDG 1 for Namibia’s dryland communities.

157. **Micro level:** At the micro level, 4,000 households will derive benefits. They will have secured their livelihoods assets and improved their adaptive capacity. This will be achieved by expanding on climate-smart agricultural practices from pilot programmes, by means of livelihoods diversification, access to finance and markets, early warning systems, improved understanding of climate change risks, vulnerabilities and management options. Better climate risk management is expected to reduce economic losses associated with climate change and variability and improve rural livelihoods by consequence.

158. Benefits will derive from:

- a. Increase in the income of smallholder farmers and vulnerable groups from improved agricultural production and increase in value added of agricultural produce;
- b. Inclusion of smallholder farmers in a local market system;
- c. Stimulation of local economy;
- d. Reduced economic losses on account of extreme climate/weather events and increased income of the rural poor in the targeted northern communal regions;
- e. Mainstream adaptation plans into policy making.

159. **Environmental Benefits:** The environmental benefits of this SCCF project consist of: decreased land degradation and soil erosion for 4,000 households from the adoption of sustainable climate-smart agricultural practices. This will be tracked through Output 1.9 and experiments. For example assessing land properties before and after the adoption of conservation agriculture by the DART of MAWF. Or looking at various ways of cropping and their impact on land properties. Additionally, the DART will have to establish major disease and pest free crops, fertilizer requirement etc.

160. Environmental sustainability entails reduced land degradation and soil and water management practices through the adoption of climate-smart agricultural methods such as dripping and furrowing,

intercropping and mulching. A special focus of this project would be on women and children who are the majority (80%) of households in the North-central Namibia. Moreover, there are also significant numbers of orphan-headed households. Women will be empowered in the following ways:

- a) Financial products designed to suit the circumstances of rural women;
- b) Women's access to information and training is improved;
- c) Knowledge, innovations and practices for rural women are supported;
- d) Women's capacity as decision-makers, planners and managers is developed.

161. **Social Benefits:** Social benefits from this SCCF project consist of:

- a) Improvements in human capacity, especially women, children and other vulnerable groups;
- b) Local adaptive capacity strengthened by smallholder farmers' improved access to agricultural technologies specific to local farming needs;
- c) Increase in farmers' human capital due to improved access to technical support;
- d) Increase in the institutional capacity to mainstream climate change adaptation into national and district-level development planning and into budgeting. This will improve the resilience of local communities in the longer-term.

2.11 Project Cost and Financing Plan

162. Total project costs are estimated at US\$ 23,067,263 and the detailed financial plan, including the baseline figures is presented in Table 6.

Table 6 Project Financing Plan

	Project Financing plan			
	SCCF	Co-financing (cash and in-kind)	Baseline	Total
Component 1	1,900,000	15,246,542	35,600,000	52,746,542
Component 2	505,000	3,791,721	8,800,000	13,096,721
Component 3	500,000	659,000	750,000	1,909,000
PMU	45,000	320,000		365,000
M & E	100,000	n/a		100,000
Total	3,050,000	20,017,263	45,150,000	68,217,263

2.12 Cost Effectiveness

A number of design options were considered for the project before the final design was proposed. The project design clearly identifies activities that were piloted/demonstrated through previous projects such as the CBA and CCA: CPP-SLM approach, amongst other. An emphasis is placed on implementing a rigorous approach to community mobilization and engagement that will generate long-term replication activities amongst the local population. Such an approach will aid the Government in the long-term to implement cost-effective extension work throughout the country, with a climate change focus. An underlying rationale of the design is that successful approaches and lessons learnt will be applied in the North Central and Kavango regions in Namibia. The SCORE project links with Government, NGO, private

sector and community initiatives and programmes that work towards combating climate change and assisting communities to cope with drought and floods such as the CLUSA USAID’s three year (2013-2015) Namibia Conservation Agriculture programme (NCAP) and the KONGALEND’s micro finance initiative for smallholder farmers to acquire agricultural equipments and inputs. The project will build on existing structures by adding and/or enhancing a climate change adaptation component to already existing initiatives.

The SCCF project builds on baseline rural CA programs in northern Namibia inclusive of the Oshana, Oshikoto, Ohangwena, Omusati and Kavango West and Kavango East regions through the NCASP which directly targets 10,800 smallholder farmers for training in Namibia specific conservation tillage (NSCT) techniques. Such training concentrates on land preparation, ripping techniques, planting, weeding, harvesting and post harvesting activities as well as the basic business skills required to sustainably manage income generating agri-business. These baseline initiatives have already collected some baseline data that could be used by the SCORE project. The NCASP is estimated to transfer indirect skills to 43,200 fellow smallholder farmers as indirect beneficiaries¹⁷

163. During the PPG phase, the cost effectiveness of similar interventions was reviewed and revealed. See Table 4 of the project document for a detailed additional cost analysis.t.

2.13 Key indicators, risks and assumptions

164. Key indicators, risks and assumptions are indicated in the Project Results Framework found in Part 3 of this document) and in the Risk Log from Annex 1. The Project Results Framework integrated the Adaptation, Monitoring and Assessment Tool (AMAT), which is used to measure progress towards achieving the outputs and outcomes under the LDCF/SCCF results framework for GEF-5. Indicators have been developed to be Specific, Measurable, Achievable, Realistic and Time bound (‘SMART’). Risks and recommended countermeasures were identified during bilateral consultations at the project preparation stage.

RISK	RATING(H/M/L)	RISK MITIGATION MEASURE
Environmental	Medium	The project will prepare households for dry years by implementing early land preparation and planting, and the planting of early maturing crops in drier than normal years. The project will need to make use of existing weather and seasonal forecasting information from the MET Service.
Organisational	Low	Low and variable organisational capacities for implementation will be addressed by delegating roles to the NGO and private sector, thus leveraging capacity and resources into the project. An adequate budget will be provisioned for capacity development and project management.
Social and cultural	Low	Only willing smallholder farmers will be included as project beneficiaries, the selection of the beneficiaries will be done with the inputs from the Regional Councils in the six project zone to avoid an unbiased or conflicts regarding the chosen beneficiaries.

¹⁷ www.kongeland.na

Social and cultural: Low participation of women, youth and orphans.	Medium	Women, youth and orphans participation will be targeted as direct beneficiaries. A gender assessment will be carried out in the PPG phase to mitigate the risk. Experience shows that women are willing to participate in many developmental projects.
Political	Low	Roles and responsibilities will be clearly defined through a consultative process. All key stakeholders such as MAWF will be involved in the project.

2.14 UNDP Comparative Advantage

165. UNDP has historically been the largest GEF implementing agency in terms of assisting countries to undertake climate change adaptation. This way more than 25 adaptation projects have been facilitated in over 80 countries and worth ~US\$ 700 million excluding co-financing. Due to UNDP's track record in Africa, the Government of Namibia has requested UNDP's assistance to design and implement this project. UNDP is currently supporting the development and implementation of GEF projects in numerous other countries throughout Southern Africa (e.g., Angola, Botswana, Zimbabwe, Zambia, Mozambique, and South Africa, among others).

166. UNDP's comparative advantage in designing and supporting this SCCF project is particularly strong because of the project's capacity building focus. UNDP has the ability to develop the country's capacity to integrate climate change into social equity considerations, economic growth and environmental protection at all decision-making levels. Factoring climate change risks in the management of natural resources and into key national development frameworks and sector strategies is the key to UNDP's work in Namibia.

167. UNDP has already conducted other adaptation-related projects in Namibia and has specifically worked with MAWF on climate change issues. UNDP Namibia has a national office in Windhoek and has well-developed working relationships with the key stakeholders of the project. The Office counts on support, operational and senior level staff who ensure that the programmes are well run. The UNDP Country Office has finalized the development of new UN Partnership Framework in Namibia (UNPAF) for 2014- 2018.

168. The project will also benefit from the technical support of a UNDP/GEF Regional Technical Advisor and a Principal/Senior Technical Advisor dedicated to Climate Change Adaptation. Fiduciary oversight support will also be provided through UNDP-GEF staff at the regional and HQ level in addition to staff at the country office level. UNDP also has extensive experience in integrated policy development, human resources development, institutional strengthening and non-governmental and community participation. UNDP and its partners have been at the forefront of developing climate fiscal frameworks, particularly in Asia, based on country case studies and regional dialogues involving Indonesia, Bangladesh, Lao PDR, Nepal, Philippines, Thailand and Vietnam. UNDP continues to develop and nurture this work area drawing its technical skills in climate finance, democratic governance and capacity development.

2.15 Stakeholder involvement

2.15.1 Stakeholder baseline analysis

169. During the project preparation phase, a series of workshops were organised, accompanied by extensive bilateral consultations. The table below gives an overview of these and points to available documentation.

Table 7 Meetings and consultations during the PPG phase

Event	Detail	Outcomes	Documentation available from UNDP CO
Inception workshop 19-20Aug 2013	Involve the stakeholders through direct consultation on the draft Project Identification Form (PIF) and incorporation of comments and amendments to this document.	Feedback on PPG planning and PIF content, especially identifying collaboration partners for the project and setting realistic and feasible outcomes.	Workshop report (in English)
Technical stakeholders and Regional Councillors workshop report held in Oshakati	Both consultations were aimed at elaborating the project design and Implementation arrangements as well as stakeholder involvement plans from both the Technical stakeholders as well as the Regional Councillors from the regions and validating on how this would suit the needs of this project.	Guidance for project design and implementation arrangements.	Workshop report (in English)
Consultations in the five project zone regions	Detailed consultations took place with communities in selected villages within different constituencies of the project zone regions. Data collection and interviews covered the relationship between the communities, agriculture and livelihoods, specifically, those who depend on crop farming. The following analysis was carried out; a) The analysis of the vulnerability of community activities to climate change; b) The social acceptability of the project.	Site selections Guidance for project design.	Field consultations report(in English)
Regional National stakeholder workshop May 2014	This meeting served to validate the baseline, project design with the key line ministries (MAWF and MET) and agree on the implementation arrangements as well as sourcing of the co-financing letters.	Discussion point and agreement on the Project Implementation Arrangements	
Validation workshop 30-31 July 2014	The E-PAC workshop for the project was aimed at validating the project design and Implementation Arrangements with the stakeholders.	Validation of the project design	

2.15.2 Stakeholder involvement plan

170. The Stakeholders identified during project preparation will continue to be implicated throughout project implementation. A stakeholder involvement plan has been created to provide a framework to guide interaction between implementing partners and the key stakeholders, particularly end-users to validate progress. All stakeholders involved in the baseline self-capacity assessment will be addressed again in order to track the effectiveness of stakeholder capacity building, both operationally and technically. CES will act as the lead implementing unit at the local level. With respect to climate-smart agriculture as well as other community projects, CES is currently well established within the project zone regions.

171. The design of the project incorporates activities and mechanisms to ensure on-going and effective stakeholder participation throughout project implementation:

- Project inception workshop to enable stakeholder awareness at the start of implementation: the project will be launched by a multi-stakeholder workshop. This workshop will provide an opportunity to provide all stakeholders with the most recent information on the project and work plan. It will also establish a basis for further consultation as implementation commences.
- Project Steering Committee will ensure representation of stakeholders' interests in the project: a Project Steering Committee (PSC) will be constituted to ensure broad representation of all key interests throughout the project's implementation. The representation, and broad terms of reference, of the PSC are further described in Section II, Part V (Management Arrangements) of the Project Document.
- Project communications to facilitate on-going awareness about the project: the project will develop, implement and maintain a communications strategy to ensure that all stakeholders are informed on an on-going basis about the project's objectives, activities, registered progress and the opportunities to get involved in various aspects of the project's implementation.
- Capacity building: project activities are focused on building the systemic, institutional or individual capacity of institutions, NGOs and other stakeholders to ensure the sustainability of initial project investments.

172. Details of the Stakeholder Involvement Plan are provided in Annex 4.

3 Project Results Framework

<p>This project will contribute to achieving the following Country Programme Outcome as defined in CPAP: Outcome 12: By 2018, institutional frameworks and policies needed to implement the Environmental Management Act (2007); National Climate Change Policy (2011); Tourism Bill and Strategy; and Protected Areas and Wildlife Management Bill; and International Conventions, are in place and are being implemented effectively. Outcome indicator: Number of environmental institutions fully equipped with standards, guidelines and specialized skills.</p>					
<p>Country Programme Outcome Indicator: Outcome 2: Citizen expectations for voice, development, the rule of law and accountability are met by stronger systems of democratic governance. Output 2.5 Legal and regulatory frameworks, policies and institutions enabled to ensure the conservation, sustainable use, and access and benefit sharing of natural resources, biodiversity and ecosystems, in line with international conservations and national legislation.</p>					
<p>Primary Applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): Promote climate change adaptation</p>					
<p>Applicable GEF Strategic Objective and Program: Objective CCA-1: Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level Objective CCA-3: Promote transfer and adoption of adaptation technology</p>					
<p>Applicable GEF Expected Outcomes: Outcome 1.1: Mainstreamed adaptation in broader development frameworks in targeted vulnerable areas Outcome 1.2: Reduced vulnerability in development sectors Outcome 1.3.: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas Outcome 2.1: Increased knowledge and understanding of climate variability and change-induced risks in targeted vulnerable areas Outcome 2.2: Strengthened adaptive capacity to reduce risks to climate-induced economic losses</p>					
<p>Applicable GEF Outcome Indicators:</p> <ul style="list-style-type: none"> • Indicator 1.1.1: Adaptation action implemented in national/sub-regional development framework • Indicator 1.1.1.2: Sectoral strategies that include specific budgets for adaptation actions • Indicator 1.2.8 80 % change in projected food production in targeted area given existing and projected climate change • Indicator 1.2.11: % of populations with access to improved flood and drought management 					
	Indicator (AMAT)	Baseline	Targets End of Project	Source of verification	Risks and Assumptions

<p>Project Objective¹⁸ To strengthen the adaptive capacity to reduce vulnerability of rural communities in responding to droughts and floods in Northern Namibia, with a special focus on women and children.</p>	<p>Vulnerability and risk perception index (Score) - Disaggregated by gender</p>	<p>Initial survey conducted during PPG. Score = 1. Extreme Vulnerability (men and women in all sites/six regions)</p>	<p>Target Scores = 3. Medium Vulnerability (both men and women in all sites / six project intervention regions) At least 4000 hh, of which 80% are 80% of women and children beneficiaries targeted under this objective to reduce vulnerability to floods and drought</p>	<p>- Vulnerability Assessment carried out by UNAM and OPM - Baseline data of targeted communities established, household surveys done yearly -</p>	<p>Assumption: The Implementing partner and communities are willing and efficiently implement the project. Risks of floods and droughts sufficiently mitigated in project zones</p>
<p>Outcome 1: Strengthened capacity of Smallholder farms to implement climate resilient agricultural practices.</p>	<p>Climate resilient agricultural practices introduced to promote food security and diversified livelihoods. % of households that have more secure access to livelihood assets (5 point score) – Disaggregated by gender</p>	<p>Farmers (women and men) currently constrained by limited access to CCA knowledge and resilient agricultural practices 10 % of households hold assets that can be used to buffer pressure during periods of climate shocks.</p>	<p>By the end of the project 4000 hh of small-holders farmers, 80% (3200 hh) of which are women and children have been trained and are applying climate resilient agricultural production practices. 4000 households have more secured assets and livelihoods diversified away from traditional crop production, promoting food security</p>	<p>Gender disaggregated community survey; community level vulnerability reduction assessment Household survey conducted annually CCA Capacity assessment, evidence of training and demonstration of knowledge transfers</p>	<p>Assumption: - 4000 beneficiaries are willing to participate in the project - Farmers field schools and SHG are formed and fully functioning for implementation of activities - Govt is functioning and project implementation efficient and well-coordinated Risks - Support services such as land preparation, seed</p>

					<ul style="list-style-type: none"> availability, etc, on a timely basis Low and variable organisational capacities for the implementation of the activities
<p>Outcome 2: Small scale agricultural infrastructure introducing to reduce vulnerability to floods and droughts e.g. through restoration of wells and harvesting of floodwater for food security.</p>	<p>Percentage of area covered by flood and drought infrastructure. population with access to improved flood and drought management (disaggregated by gender)</p> <p>Percentage of the population receiving relevant climate risk management information</p>	<p>Currently less than 10% of the targeted land area is covered by effective flood management infrastructure.</p> <p>Climate risk information (1 day through to seasonal forecasts) does not currently reach local populations</p>	<p>80% of targeted land area is covered by efficient flood management infrastructure</p> <p>By the end of the project beneficiaries receive adequate climate risk information and early warning for floods and droughts.</p>	<ul style="list-style-type: none"> Impact assessment survey report produced 	<p>Assumptions:</p> <ul style="list-style-type: none"> Adequate equipment and support services are available The implementing partner is capable of delivering the project activities <p>Risk</p> <ul style="list-style-type: none"> Maladaptive practices e.g. traditional wells are not properly restored and maintained and farmers harvesting fingerlings before maturity
<p>Outcome 3: Mainstream climate change into national agricultural strategy/sector policy, including adjustments to budgets for</p>	<p>Number of comprehensive adaptation actions - policies, programmes and budgets – included in development frameworks to support climate resilient agricultural practices</p>	<p>Within the agriculture sector climate change adaptation is, to varying degrees, hinted at but not explicitly or comprehensively addressed, and nor are effective budgets allocated</p>	<p>sector strategies/ for agriculture are integrating and budgeting adaptation measures such as:</p> <ul style="list-style-type: none"> -Conservation agriculture -Contingency plans for DRM at regional levels? 	<p>Impact assessment survey report produced</p> <p>Result based management planned for climate smart agriculture developed and monitored</p>	<p>Assumptions:</p> <ul style="list-style-type: none"> The Govt is willing and internal political complexities allow for the inclusion of CCA in planning and budgeting of development frameworks.

replication and up-scaling.					Risks - Lack of political will to mainstream climate change into budgets
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3 Total Budget and Workplan

Award ID:	00083204	Project ID(s):	00091803
Award Title:	Scaling up community resilience to climate variability and climate change in Northern Namibia, with a special focus on women and children		
Business Unit:	NAM10		
Project Title:	Scaling up community resilience to climate variability and climate change in Northern Namibia, with a special focus on women and children		
PIMS no.	4711		
Implementing Partner (Executing Agency)	Ministry of Environment and Tourism (MET)		

GEF Outcome/Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Amount Year 5 (USD)	Total (USD)	See Budget Note:
OUTCOME 1: Smallholder adaptive capacity for climate resilient agricultural production practices strengthened	MET	62180	GEF (SCCF)	71200	International Consultants	20,000	20,000	20,000	20,000	20,000	100,000	a
				71300	Local Consultants	90,000	90,000	90,000	90,000	90,000	450,000	1
				71800	Contractual Services	40,000	40,000	40,000	40,000	40,000	200,000	2
				71600	Travel	6,000	6,000	6,000	6,000	6,000	30,000	3
				72300	Materials and Goods	300,000	400,000	100,000	100,000	100,000	1,000,000	4
				74100	Professional Services	60,000	24,000	12,000	12,000	12,000	120,000	5
					sub-total SCCF	516,000	580,000	268,000	268,000	268,000	1,900,000	
		04000	UNDP	71400	Contractual Services	36,000	36,000	36,000	36,000	36,000	180,000	6
					sub-total UNDP	36,000	36,000	36,000	36,000	36,000	180,000	
	Total Outcome 1			552,000	616,000	304,000	304,000	304,000	2,080,000			
OUTCOME 2: Reduced vulnerability to droughts and	MET	62180	GEF (SCCF)	71200	International Consultants	20,000	20,000	20,000	20,000	20,000	100,000	a
				71300	Local Consultants	36,000	36,000	36,000	36,000	36,000	180,000	7
				71800	Contractual Services	20,000	20,000	25,000	20,000	20,000	105,000	8

floods through the restoration of wells and enhancement of floodwater pools for food security			71600	Travel	6,000	6,000	6,000	6,000	6,000	30,000	9		
			72300	Materials and Goods	27,000	27,000	18,000	9,000	9,000	90,000	10		
				sub-total SCCF	109,000	109,000	105,000	91,000	91,000	505,000			
			Total Outcome 2	109,000	109,000	105,000	91,000	\$91,000	\$505,000				
OUTCOME 3: Mainstream climate change into national agricultural strategy/sector policy, including adjustments to budgets for replication and up-scaling	MET	62180	GEF (SCCF)	71200	International Consultants	10,000	10,000	10,000	10,000	10,000	50,000	a	
				71300	Local Consultants	54,000	54,000	54,000	54,000	54,000	270,000	11	
				71800	Contractual Services	20,000	20,000	20,000	20,000	20,000	100,000	12	
				71600	Travel	1,000	1,000	2,000	3,000	3,000	10,000	13	
				75700	Workshops	4,800	4,800	4,800	4,800	28,800	48,000	14	
				75100	Professional Services	4,400	4,400	4,400	4,400	4,400	22,000	15	
					sub-total SCCF	94,200	94,200	95,200	96,200	120,200	500,000		
				Total Outcome 3	94,200	94,200	95,200	96,200	120,200	500,000			
					72200	Equipment and Furniture	12,000	2,000	2,000	2,000	2,000	20,000	16
			72500		Supplies	3,000	3,000	3,000	3,000	3,000	15,000	17	
			74100		Professional services	13,000	3,000	38,000	3,000	53,000	110,000	18	
					sub-total SCCF	28,000	8,000	43,000	8,000	58,000	145,000		
				UNDP	71300	Local Consultants	24,000	24,000	24,000	24,000	24,000	120,000	19
			71600		Travel	20,000	20,000	20,000	20,000	20,000	100,000	20	
			74500		Miscellaneous	20,000	20,000	\$20,000	20,000	20,000	100,000	21	
	sub-total UNDP	64,000	64,000		64,000	64,000	64,000	320,000					
			Total PMU	92,000	72,000	107,000	72,000	122,000	465,000				
			PROJECT TOTAL	847,200	891,200	611,200	563,200	637,200	3,550,000				

Summary of Funds*: Award ID: 00083204 Project ID:00091803 PIMS: 4711	Year 1	Year 2	Year 3	Year 4	Year 5	TOTAL (in USD)
GEF (SCCF)	747,200	791,200	511,200	463,200	537,200	3,050,000
UNDP	100,000	100,000	100,000	100,000	100,000	500,000
TOTAL	847,200	891,200	611,200	563,200	637,200	3,550,000

Budget notes	Description of cost item
a	Cost of International Expertize required to advance and deliver on the outcomes 1, 2 and 3.
1	Core staff (Project Manager (\$5,000), Regional Coordinators (\$3,000) (*3) and Procurement and Finance Officer (\$2,000); incl. salary per month over the course of the 5 project line – distributed in 50% over the course of the years; full-time based at MET (DEA) in Windhoek, Namibia
2	Contractual services for CES to conduct most of the activities under Outcome 1 such as 1.2 “Community self-help groups”, 1.6 “Assisting the 2000 households with fresh vegetable production & micro-drip irrigation”
3	The funds are allocated for project staff related travels, DSA costs to the region and movement between the various regions, partially for MAWF’s DEES Officers when providing with activities in Outcome 1
4	Funds have been budgeted for implements for all technical activities on site; mostly under Output 1.4 - providing access to ploughing implements and service to 600 households per project zone to prepare land well before planting season, setting up micro seed distribution banks locally through SHGs (linked to MAWF co-financing); 1.5 – micro irrigation systems for vegetable production, soil and water improvement services and 1.6 – tree seedlings e.g. sorghum, sunflower, legumes etc, plastic buckets for watering young trees
5	Sub-contracts to conduct the Mentorship and Advisory Programme of support services to the project beneficiaries; Conduct training of 200 (33 per region) farm field school leaders for 2 week (10 days); Development of farmer training curricula, inclusive of production and printing of the curricula materials, briefs etc; Conduct a 1 meeting with micro-financing institutions to scope out Output 1.7
6	Funding from UNDP allocated for on demand support services – such as establishing the baseline for the Project Results Framework as explained in Outcome 1
7	Core staff (Project Manager (\$5,000), Regional Coordinators (\$3,000) (*3) incl. salary per month over the course of the 5 project line – distributed in 20 % over the course of the years; full-time based at MET (DEA) in Windhoek, Namibia
8	Contract to NGOs/Companies to implement various aspects of for Output 2.1 and 2.2; a) identify project zones that are flood prone, b) materials for restoration of 8000 traditional wells in the six project zones linked to the co-financing from the “Food/Cash for work programme”, beneficiaries will also assist in this regard with guidance from the NGO, training on the proper use and maintenance of irrigation systems; c) conduct training workshops through established institutional structures (Outcome 1) e.g. SHGs, FFSs and mentorship programme;
9	Local travels for site visits, e.g. MRLGHRD and MFMR Officers for inputs and advise to RIUs and beneficiaries for Outputs 2.1 to 2.3 – these two institutions will take the leaders and work in close collaboration to undertake these activities
10	Funds for setting up the micro-irrigation systems, establishing fish farms in suitable project zone where Oshana’s exist e.g. Kavango and for all other need materials and goods.
11	Core staff per month over the course of the 5 project line – distributed in 30% over the course of the years; full-time based at MET (DEA) in Windhoek, Namibia
12	Funding for Output 3.1 Sub-contracting to UNAM to conduct an Impact Assessment for assessing the main factors causing vulnerability; determine indicators that best measure adaptation progress smallholder farming community; assess effectiveness of two adaptation measures in vulnerability; assess extent of replicability of the interventions to the smallholder farming communities in Namibia; quantify potential macro-impact of vulnerability reduction e.g. national level food security; and recommend for policies and measures to promote replicability
13	Local travel and DSA costs for PMU and RIU for workshops and consultation, @ operations (incl. vehicle km), technical support teams such as MET DEA, MAWF DEES
14	Funds allocated for consultation workshops with (30 participants, (5) per region in the six project zones to discuss how to mainstream climate change into policies) and dialogues, as well as the (1) finale project workshop – mostly under Output 3.4 and 3.5

15	Sub-contracting to NNFU to develop advocacy messages in policy forum and run a campaign
16	Expense for office equipments such as computer hardware, photocopier, printer, desks and chairs
17	Office consumables such as printing paper, pens, file folders, post-it notes, computer disks which are regularly used up and need to be bought often telecommunication costs etc
18	Funding allocated for Inception meeting and report (\$10000), Auditing (\$3000 per annum), Midterm review (\$40000) in Year 3 and Terminal Evaluation (\$50 000) in Year 5 (See M&E work plan and budget)
19	Funding from UNDP budget for Local Consultant (Procurement and Finance Officer) salary (\$2,000); incl. salary per month over the course of the 5 project line – lump sum distributed per month over the course of the years; full-time based at MET (DEA) in Windhoek, Namibia
20	The funds are allocated for Project staff related travels, DSA costs to the region and movement between the various regions.
21	Funding from UNDP for contingency and miscellaneous costs such as the volatile USD exchange rate and other associated bank transfers but not limited to these costs.

5 Management Arrangements

5.1 Project implementation arrangement

173. The project will be nationally implemented over a period of 5 years (60 months). The project will be nationally implemented by the Ministry of Environment and Tourism (MET) that will function as the Implementing Partner to UNDP. Ministry of Agriculture, Water and Forestry and the Ministry of Regional Local Government and Rural Development will function as Responsible Parties to the Implementing Partner. Execution includes coordinating action on the ground, engaging partners and service providers, including those directly tasked with implementation, while also closely monitoring the project and reporting according to procedures outlined in the project document.

174. **Project Board** (also called **Project Steering Committee**): The Project Board is the group responsible for making by consensus, management decisions for a project when guidance is required by the Project Manager, including recommendation for UNDP/Implementing Partner approval of project plans and revisions. In order to ensure UNDP's ultimate accountability, Project Board decisions should be made in accordance with standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case a consensus cannot be reached within the Board, final decision shall rest with the UNDP Programme Manager. In addition, the Project Board plays a critical role in UNDP commissioned project evaluations by quality assuring the evaluation process and products, and using evaluations for performance improvement, accountability and learning. Project reviews by this group are made at designated decision points during the running of the project, or as necessary when raised by the Project Manager. This group is consulted by the Project Manager for decisions when Project Manager's tolerances (normally in terms of time and budget) have been exceeded (flexibility). Based on the approved annual work plan (AWP), the Project Board may review and approve project quarterly plans when required and authorizes any major deviation from these agreed quarterly plans. It is the authority that signs off the completion of each quarterly plan as well as authorizes the start of the next quarterly plan. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems between the projects and external bodies. In addition, it approves the appointment and responsibilities of the Project Manager and any delegation of its Project Assurance responsibilities. Potential members of the Project Board are reviewed and recommended for approval during the PAC meeting. Representative of other stakeholders can be included in the Board as appropriate. The objective is to create a mechanism for effective project management.

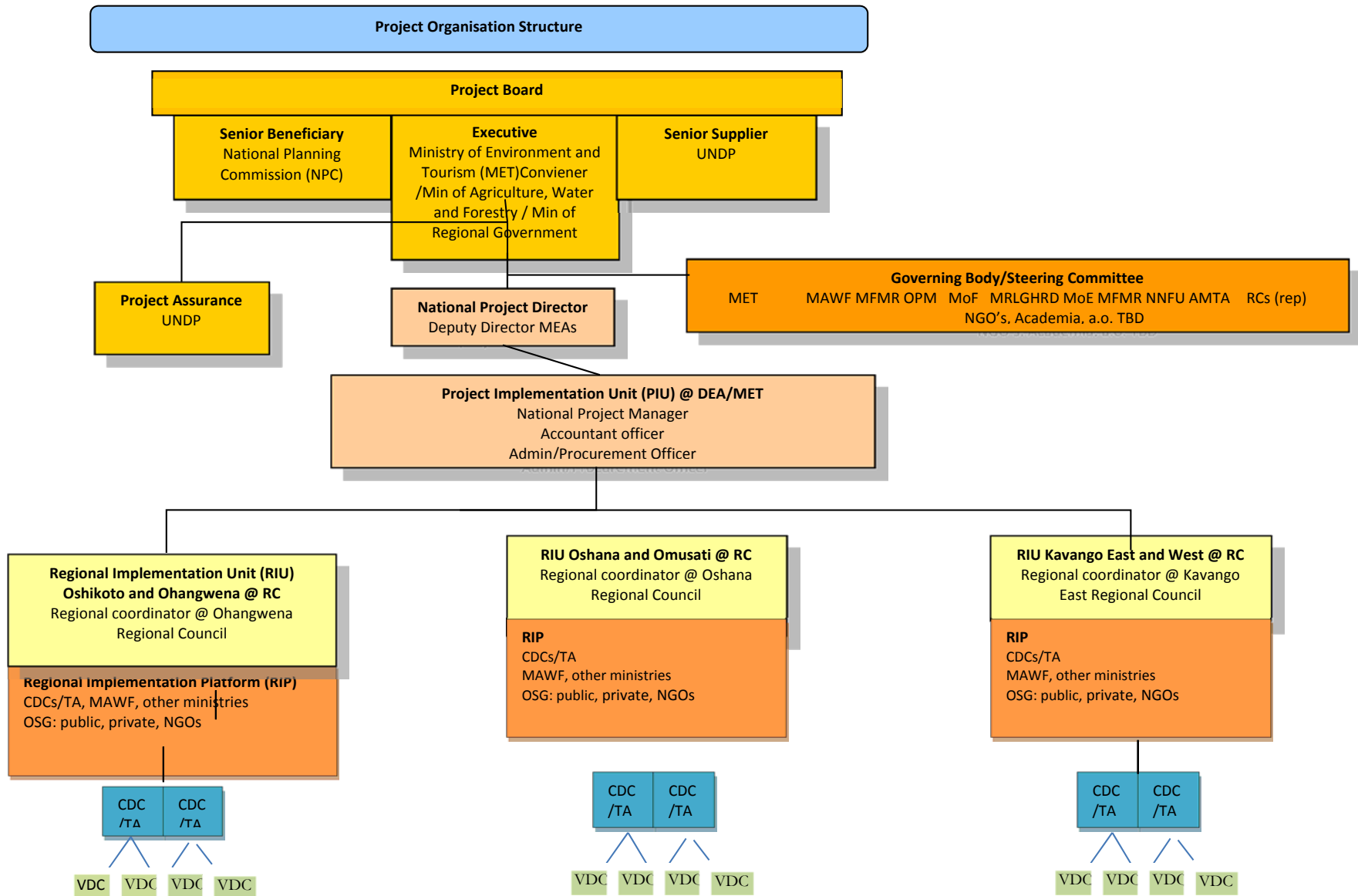
175.

176. To ensure UNDP's ultimate accountability for the project results, Project Board decisions will be made in accordance to standards that shall ensure management for development results, best value for money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the final decision shall rest with the UNDP Project Manager.

177. The **Project Assurance** role supports the Project Board Executive by carrying out objective and independent project oversight and monitoring functions. UNDP fulfils the Project Assurance role.

178. UNDP will monitor the project's implementation and achievement of the project outputs, and ensure the proper use of GEF funds. Day-to-day operational oversight will be ensured by the UNDP Country Office (CO) for Namibia, and strategic oversight by the UNDP/GEF Unit based in Addis Ababa and

HQ. The UNDP CO will be responsible for: (i) providing financial and audit services to the project; (ii) recruitment and contracting of project staff; (iii) overseeing financial expenditures against project budgets; (iv) appointment of independent financial auditors and evaluators; and (v) ensuring that all activities, including procurement and financial services, are carried out in strict compliance with UNDP-GEF procedures.



Pims 4711 Namibia: Scaling up community resilience to climate variability and change (SCORE)

CDC=Constituency Development Committee, OSG=Other Supporting Groups, PIU= Project Implementation Unit, RIU=Regional Implementation Unit, RC=Regional Council, RIP=Regional Implementation Platform, TA=Traditional Authorities, VDC=Village Development Committee

Figure 2 Project implementation arrangement structure – this is different from the standard template on institutional arrangements

179. Facilitation of the local and regional implementation of the project with the relevant regional and constituency level government structures will be done with various NGOs. Due to the proximity of the six project sites, the project envisages three Project Coordinators; both under the single National Project Manager. The project implementation will be overseen by a Project Steering Committee (PSC) described below.

180. Day-to-day management of the project will be undertaken by a National Project Manager (PM). The PM will be located at the MET, either in any of the regional offices (e.g. Ongwediva or in Windhoek, this needs to be determined). The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The Project Manager will liaise and work closely with all partner institutions to link the project with complementary regional and national programs and initiatives. The Project Manager will be recruited using standard UNDP recruitment procedures. The terms of reference for the PM are detailed in Annex 6.

181. The National Project Management Unit (PMU) will consist of six staff:

- The National Project Manager (PM)
- Accountant Officer
- Administration/Procurement Officer
- Three (3) Regional Coordinators; each regional coordinator will be responsible for the regions as follows (Oshikoto and Ohangwena, Oshana and Omusati; Kavango East and Kavango West), six (6) communities), based in one of the three clusters of her/his responsibility. Each regional coordinator will be recruited competitively.

182. Under the supervision of the PSC, the PMU has the following main responsibilities:

- Coordination and management of the project and its six regional 'sub-projects';
- Developing work plans and consolidated annual budgets;
- Preparation of technical reports and periodic financial reports;
- Managing relationships with donors and project partners and monitoring the implementation of co-financing arrangements;
- Supporting the strategic partners of the PSC;
- Capacity building of stakeholders;
- Monitoring and evaluation of project activities;
- Policy analysis and development strategies in the light of the results of the project;
- The design and implementation of a communication strategy for the project;
- Resource mobilization.

183. The composition of the steering committee will be as follows:

- 1 representative from MET
- 1 MoF representative
- 1 MoE representative
- 1 MFMR representative
- 1 MAWF-DEES representative
- 1 UNDP

- 1 NNFU representative
- 1 RC representative
- Chief Regional Officers of the regions where the project will be implemented
- 2 representatives from academic, NGOs a.o.

184. Overall, it is envisaged that this project work in three communities per constituency/ one constituency per region. As such the project will be mostly implemented in support of Namibia's decentralisation efforts, with **Regional Implementation Units** (RIUs) to be hosted by the various Regional Councils (See figure 2). The RIUs will coordinate support organisations, through what is temporarily called '**Regional Implementation Platforms**' (RIPs), on which MAWF – especially through the various extension services will be having a strong implementation role. The RIPs will be working independently from the RDCCs; however they shall update and share information, update progress on the project work with the RDCC. For the Omusati region the RIP will make use of the previous implementation structure from the CPP: CCA project in 2008; a similar structure for the remaining five regions is envisaged, where Oshana, Oshana and Oshikoto are already in the fundamental stages through upscaling of the CPP: CCA and SPA/CBA projects. On demand by the Constituency Development Committees/Traditional Authorities specific technical and extension support from the RIPs will be requested to provide technical assistance for implementing CA practices on the ground.

185. Regarding **CSOs and NGOs**, it is in the interest of the project objectives to ensure a continued partnership between the project and already-active NGOs and CSOs in the six areas where the project will operate. In particular, NGOs such as CES will be positioned to implement most of the activities especially under component 1 and 2, based on the ability and experience with similar work.

The **private sector and other various organizations** will provide technical assistance, data and other services on a needed basis. The National Project Manager will directly manage the agreements to establish service agreements with public organisations (such as NNFU, micro financing institutions etc), more especially for the development of the farmers field schools and mentorship programme.

6 Monitoring Framework and Evaluation

186. Given that the project is very innovative in approach, its monitoring and evaluation deserve special attention and consideration. While the main approach to building adaptive capacities is focused on vulnerable groups, particularly women and children (i.e. IPCC WGIAR5), there is limited evidence to guide users in the selection of the most appropriate options for its context. Consequently, while the evidence base is developed, it is vital that a learning-by-doing approach is adopted. This approach advocates for constant reflection to inform change of course both during project implementation and also to continue to collect lessons post implementation that will facilitate longer-term adaptive management.

187. The project will be monitored through the following M&E activities. The M&E budget is provided in the table below. The M&E framework set out in the Project Results Framework (Part 3 of this project document) is aligned with the AMAT and UNDP's M&E frameworks.

188. **Project start:** A Project Inception Workshop will be held within the first 2 months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/feasible regional technical policy and program advisors as well as other stakeholders. The Inception Workshop is crucial to building ownership for the project results and to plan the first year annual work plan. The **Inception Workshop** should address a number of key issues including:

- Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO and Regional Coordinating Unit (RCU) staff (i.e. UNDP-GEF Regional Technical Advisor) vis-à-vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
- Based on the project results framework and the LDCF related AMAT set out in the Project Results Framework (Part 3 of this project document), finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
- Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed to and scheduled.
- Discuss financial reporting procedures and obligations, and arrangements for the annual audit.
- Plan and schedule Steering Committee meetings. Roles and responsibilities of all project organization structures should be clarified. The first Steering Committee meeting should be held within the first 12 months following the inception workshop.

189. An **Inception Workshop report** is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

- Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS.
- Risks become critical when the impact and probability are high. Note that for UNDP/GEF projects, all financial risks associated with financial instruments such as revolving funds,

microfinance schemes, or capitalization of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).

- Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs will be used to monitor issues, lessons learned. The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

190. **Annually:** Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). The APR/PIR combines both UNDP and GEF reporting requirements.

The APR/PIR includes, but is not limited to, reporting on the following:

- Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative);
- Project outputs delivered per project outcome (annual);
- Lesson learned/good practice;
- AWP and other expenditure reports;
- Risk and adaptive management;
- ATLAS QPR.

191. **Periodic Monitoring** through site visits: UNDP CO and the UNDP-GEF region-based staff will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report/BTOR will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and Project Board members.

192. **Mid-term of project cycle:** The project will undergo an independent Mid-Term Review at the mid-point of project implementation (expected to be in July 2017). The Mid-Term Review will determine progress made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term review will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term review will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit (RCU) and UNDP-GEF.

193. **End of Project:** An independent Terminal Evaluation will take place three months prior to the final PB meeting and will be undertaken in accordance with UNDP-GEF guidance. The terminal evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term review, if any such correction took place). The terminal evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF. The LDFC/SCCF AMAT as set out in the

Project Results Framework in Section III of this project document) will also be completed during the terminal evaluation cycle. The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response, which should be uploaded to PIMS and to the UNDP Evaluation Office Evaluation Resource Center (ERC).

194. **Learning and knowledge sharing:** Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums.

195. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects.

196. There will be a two-way flow of information between this project and other projects of a similar focus.

197. **Audit:** This project will be audited in accordance with UNDP Financial Regulations and Rules and applicable audit policies.

Table 8 Project Monitoring and Evaluation workplan and budget

Type of M&E activity	Responsible Parties	Budget US\$ Excluding project team staff time	Time frame
Inception Workshop and Report	Project Manager PIU (Project Implementation Unit) UNDP CO, UNDP GEF	Indicative cost: 10,000	Within first two months of project start up
Measurement of Means of Verification of project results	UNDP GEF RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members PIU, esp. M&E expert	To be finalized in Inception Phase and Workshop	Start, mid and end of project (during evaluation cycle) and annually when required
Measurement of Means of Verification for Project Progress on output and implementation	Oversight by Project Manager PIU, esp. M&E expert Implementation teams	To be determined as part of the Annual Work Plan's preparation. Indicative cost is inclusive in the budget under the UNAM impact assessment ¹⁹	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	Project manager PIU UNDP CO	None	Annually

¹⁹This will be linked to the UNAM Impact assessment – thus it not budgeted for under this M & E workplan

	UNDP RTA UNDP GEF		
Periodic status/ progress reports	Project manager and team	None	Quarterly
Mid-term Review	Project manager PIU UNDP CO UNDP RCU External Consultants (i.e. evaluation team)	Indicative cost: 30,000	At the mid-point of project implementation
Terminal Evaluation	Project manager PIU UNDP CO UNDP RCU External Consultants (i.e. evaluation team)	Indicative cost : 40,000	At least three months before the end of project implementation
Audit	UNDP CO Project manager PIU	Indicative cost per year: 3,000 (15,000 total)	Yearly
Visits to field sites	UNDP CO UNDP RCU (as appropriate) Government representatives	For GEF supported projects, paid from IA fees and operational budget	Yearly for UNDP CO, as required by UNDP RCU
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		US\$ 95,000 (+/- % of total GEF budget)	

7 Legal Context

198. This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the SBAA and all CPAP provisions apply to this document.

199. Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

The implementing partner shall:

- a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;
- b) assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

200. UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

201. The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to the Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via <http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm>. This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

Communications and visibility requirements

1. Full compliance is required with UNDP's Branding V.5. Communications and visibility requirements
2. Full compliance is required with UNDP's Branding Guidelines. These can be accessed at <http://intra.undp.org/coa/branding.shtml>, and specific guidelines on UNDP logo use can be accessed at: <http://intra.undp.org/branding/useOfLogo.html>. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: http://www.thegef.org/gef/GEF_logo. The UNDP logo can be accessed at <http://intra.undp.org/coa/branding.shtml>.
3. Full compliance is also required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines"). The GEF Guidelines can be accessed at: http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf. Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The

GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items.

4. Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.
5. Guidelines. These can be accessed at <http://intra.undp.org/coa/branding.shtml>, and specific guidelines on UNDP logo use can be accessed at: <http://intra.undp.org/branding/useOfLogo.html>. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects needs to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The [GEF logo](http://www.thegef.org/gef/GEF_logo) can be accessed at: http://www.thegef.org/gef/GEF_logo. The [UNDP logo](http://intra.undp.org/coa/branding.shtml) can be accessed at <http://intra.undp.org/coa/branding.shtml>.
6. Full compliance is also required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines"). The GEF Guidelines can be accessed at: http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf. Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items.
7. Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.

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9. Annexes

Annex 1: Threats, root causes, barriers and solution matrix

Table 9 Threats, root causes, barrier and solution matrix

THREAT/IMPACT	ROOT CAUSES	MANAGEMENT CHALLENGE/BARRIER	SOLUTIONS OR BARRIER REMOVAL ACTIVITY
<i>Lack of on the ground capacity to deal with climate change resilience and adaptation</i>			
<ul style="list-style-type: none"> • Low level of capacity in the regional and local level structures to deal with climate change • Promotion of maladaptive practices 	<ul style="list-style-type: none"> • The capacity for social organizations and support in communities is severely constrained by access to resources • Lack of effective institutions that serve smallholder farmers also constraint the level of production, currently the MAWF are the most active institution that deals with smallholder farmers on a day to day basis 	<ul style="list-style-type: none"> • Low levels of agricultural technology and livelihood diversification from traditional farming systems • CA ripping/furrowing services, trainings, advisory services and mentorship is very limited to NGOs and private sector • Poor mobility means for extension staff in the regions 	<ul style="list-style-type: none"> • Identifying and demoting maladaptive practices; develop strategies for shifts to adaptive practices and investments • Use synergies with other projects, where possible • Deliver agro-climatic and weather forecasting information to farmers • Form community self-help groups to promote the implementation and replication of climate smart methods <p>Develop mentorship programmes with training curricula on:</p> <ul style="list-style-type: none"> • Train farmers on vegetable production methods, production planning, after-harvest management, packaging of produce for the market • Train farmers on marketing & financial management <p>Deliver services for climate adapted farming practices through:</p> <ul style="list-style-type: none"> • Training and supervision of farmers schools and field technicians (national extension service, NGOs, local consultants) • Support to NTA with development of curricula on climate change adaptation in agriculture • Organisational and entrepreneurial support to tractor and draught animal service providers (conservation agriculture) • Logistical support to governmental input supply such as seeds and fertilizers • Documentation of experiences and results, and elaboration of training materials <p>Increase the capacity of the MAWF to tackle climate change issues through:</p>

			<ul style="list-style-type: none"> • Advice to MAWF on climate change and corresponding response • Capacity building of RIPs staff to ensure they are knowledgeable about climate change and adaptation management • Organisation of workshops (elaboration of climate change strategy in agriculture, knowledge on climate finance and other climate related tools, adaptation concepts and methods in agriculture systems, e. g. conservation agriculture) • Support elaboration of an early warning system for floods and drought • Support national roundtable for adaptation to climate change in agriculture
<i>Inadequate seed and fertiliser supply to smallholder farmers</i>			
<ul style="list-style-type: none"> • Low germination rates and wilting of crops • Poor harvests • Declining levels of land productivity • Low soil fertility rate 	<ul style="list-style-type: none"> • Lack of sufficient seed banks • At the moment Namibia has only 17 government owned silos that cater for national strategic food reserves with a capacity of 15 400 tons²⁰ • Insufficient or inefficient use of manure 	<ul style="list-style-type: none"> • The seed growers are not able to meet the demand of seed distribution to the smallholder farmers 	<ul style="list-style-type: none"> • Support to seed cooperatives and farmer groups in on-farm and community seed product e.g. short duration seeds such as maize • Encourages farmers to produce and apply compost-based fertilizer (manure) to improve the soil fertility • Improve supply of inputs such as high quality seed varieties adapted to the climatic conditions in the northern areas to mitigate the impacts of unreliable rainfall patterns and drought spells on crop production
<i>Poor land management practices</i>			
<ul style="list-style-type: none"> • Detrimental effects on soil quality due to the use of outdated ploughing methods i.e. ploughs and disc harrows 	<ul style="list-style-type: none"> • Farmers resistance to adopt new land management techniques in some areas, and the lack of information 	<ul style="list-style-type: none"> • Lack of information and know how on new farming techniques • Lack of weed control – this is also attributed to the no tillage method 	<ul style="list-style-type: none"> • Improve dry land crop production through soil improving management methods such as composting, crop rotation and conservation agriculture • Provide better ploughing and weeding equipments and reduce the dependency on animal drawn implements

²⁰ These silos are strategically positioned in KatimaMulilo; Rundu; Okongo; Omuthiya; and Tsandi. <http://www.nab.com.na/controlled-crops/>

<ul style="list-style-type: none"> • Crops exposed to wind, flood and drought 	<ul style="list-style-type: none"> • sharing on such practices in others 	<ul style="list-style-type: none"> • (no exposure of moisture, sun and organisms) 	<ul style="list-style-type: none"> • Provide training through the farmers schools and mentorship programmes on SLM best practices applicable to the project sites
<i>Crop yield under threat from worm infestation</i>			
<ul style="list-style-type: none"> • Worms feeding on immature mahangu grains • Poor harvest 	<ul style="list-style-type: none"> • Outbreak of army and boll worms²¹ 	<ul style="list-style-type: none"> • The use of pesticides can cause harm to the ecosystems 	<ul style="list-style-type: none"> • Use of pesticides with proper training for the farmers to do this in a manner that is not harmful, this should be done with care and environmental consideration • Investments into integrated pest management i.e. biological ways to control the outbreak and improved veterinary services and care
<i>Poor soils and limited water availability for dry land crops</i>			
<ul style="list-style-type: none"> • Increasing water limitations for rain fed subsistence agriculture • Poor soil quality which result in poor productivity of the land 	<ul style="list-style-type: none"> • Erratic rainfall patterns that result in shorter planting periods • Outdated agricultural practices that impoverish the soil quality and fertility such as mono-cropping • Impacts of drought and floods i.e. lack of soil moisture, water logging 	<ul style="list-style-type: none"> • Limited education in modern agricultural techniques resulting in stagnant farming practices • Unsustainable tillage methods producing impoverished soils and common cause of soil compaction reducing water percolation • High evaporation rates resulting in limited surface water for infiltration 	<ul style="list-style-type: none"> • Integrate trees (agro forestry), legumes and cowpeas to improve soil fertility and increase dietary variety • Create in-field water harvesting for staple foods, deep ripping and furrowing increases water infiltration • Increase the water-holding capacity of soils through enhancing the soil organic matter (SOM) content; bio char²² can potentially be applied and promoting soil organisms with positive soil-physical – and chemical characteristics • Combat soil erosion and soil compaction, which leads to poor infiltration and ultimately runoff and loss of water, wind and floods and drought e.g. through crop cover for moisture, mulching and improve the germination of seeds • Applying water use efficiency measures e.g. using household waste (grey) water for garden irrigation; managing livestock watering in efficient ways • Reducing water usage for irrigation by applying most appropriate technologies, e.g. soil water harvesting methodologies such a drawing trench lines or furrows, and appropriate timing of irrigation (length of watering) • Reducing evaporation from irrigated areas e.g. by applying netting to reduce wind – which increases evaporation

²¹This has been reported during the cause of 2014 in the four O regions with Oshana region hit the hardest: see links;
<http://www.newera.com.na/2014/03/31/mahangu-crops-worm-attack/>

²²Bio char is a 2,000 year-old practice that converts agricultural waste into a soil enhancer that can hold carbon, boost food security and discourage deforestation. The process creates a fine-grained, highly porous charcoal that helps soils retain nutrients and water.

High vulnerability to drought and floods due to climate variability			
<ul style="list-style-type: none"> • Disruption of agricultural activities and other livelihoods which has a severe impact at both the national and individual household food security level • Lack of sufficient potable water for the local communities • Severe negative socio-economic impacts e.g. emergency aid support, decline in employment and household income • Increased poverty due to high food prices, drops in income and household sales of assets • Outbreaks of diseases such as cholera, malaria • Damage or loss of homes, belongings and goods, flooded of settlements, access routes to schools, health facilities, social services etc 	<ul style="list-style-type: none"> • High variability of climate results sometimes in floods or drought • Lack of proper land use planning e.g. Oshakati town which is partly in a flood plain 	<ul style="list-style-type: none"> • Lack of means to capture flood and rain waters • Poor water-holding capacity, low nutrient content • Increased evaporation rates that Oshanas and pans inundated by floods dry out sooner 	<ul style="list-style-type: none"> • Maintain and promote techniques on rainwater harvesting technologies from roof tanks, runoff for irrigation in areas which have sufficient water sources • Rehabilitation of traditional wells and enhancement of inland ephemeral floodwater ponds through established “Food for work and Cash for work programmes” for keeping water during the dry season • Train communities on managing and maintaining harvested flood and rain water for multipurpose such as livestock, irrigation and inland aquaculture • Sensitive communities on how to respond to drought and floods through e.g. early planting , restocking and off farming livelihood diversification • Promote the use of flood and drought resistant crops i.e. pearl millet and maize varieties, rice and sweet stem sorghums for human nutrition and well as food for livestock/chicken • Strengthen early warning systems on floods and droughts and information on climate change and climate change adaptation in the regions i.e. provide farmers with knowledge on when the start of the rainfall season could be expected or whether rainfall is expected to be higher or lower than average, allowing them to decide what crops to plant etc and to better prepare for expected challenges such as floods or drought
Inadequate mainstreaming of climate change into agricultural strategy/policy processes			
<ul style="list-style-type: none"> • Duplication of existing initiatives and programmes into various policies and the lack of implementation 	<ul style="list-style-type: none"> • Low investments into making climate risk related information available and applying it at regional and local levels 	<ul style="list-style-type: none"> • Limited human resource to deal with climate related issues at regional and local level in the Regional Councils • Lack of funds and support for extension officers and councillors in the regions to promote climate smart agriculture methods – i.e. 	<ul style="list-style-type: none"> • Establish enabling environment for adaptation actions for smallholders i.e. setting policy into practice that would increase the availability for drought and humidity adapted/resistant seeds, fertilizer and other implements • Strengthen current policies to facilitate the adaptive de- and re-stocking in drought and good rainfall years • Develop result-based management plan for climate smart agriculture that are monitored by key stakeholders and led by the Regional Councils

		inefficiencies in the MAWF structures hinders the government from successfully supporting conservation agriculture	<ul style="list-style-type: none"> • Undertake consultations with the NPC, MOF, Regional Councils and line Ministries to discuss the inclusion of climate smart agricultural budges in the annual plans and budgets • Identify key policy opportunities for project interventions and integration of lessons learnt beyond the opportunities up scaled during the project phase
Poor access to and availability of credits, markets, rural infrastructure that serve smallholders			
<ul style="list-style-type: none"> • Low production technologies • No value addition for the produce 	<ul style="list-style-type: none"> • Lack of collaterals such as title deeds, property etc • Lack of suitable microfinance packages for smallholder farmers • Insufficient access to markets and limited infrastructure and storage facilities for produce contribute to low levels of agricultural productivity and production 	<ul style="list-style-type: none"> • Lack of affordability to purchase inputs for climate-resilient agricultural methods, despite the fact that over 70% of the population are highly dependent on agriculture • Lack of information and know how on new techniques i.e. neither the land preparation by government tractor nor the subsidy for private tractor owners is effective; leading to discouragement of the private sector and farmers not receiving ripping services 	<ul style="list-style-type: none"> • Encourage private sector to invest in adaptive practices and climate smart agricultural methods to promote to smallholder farmers, i.e. through improved incentives and subsidy systems for the provision of ripping services to farmers as the government is unlikely to meet the ripping needs of a large number of farmers across the northern parts • Introduce soft loan packages which are suitable for smallholder farmers to promote replication and up-scaling of adaptive practices and technologies i.e. through grants programmes, Agribank, Kongeland • Form cooperatives for easier access of SMME loans and grants • Develop new, innovative forms of collaterals e.g. agricultural insurance policies for the farms to invest in appropriate land preparation, weeding and harvesting technologies, inputs and safer storage facilities • Link farmers to market hubs for fresh produce through the MAWF's parastatal AMTA in Rundu and Ongwediva
Insecure food security at household level due to labour constraints			

<ul style="list-style-type: none"> • Poor nutrition i.e. vulnerable groups such as orphans, male led households • Health related risks such as malnutrition due to insufficient vitamin supplements in the body 	<ul style="list-style-type: none"> • The high level of poverty, impact of HIV/AIDS and migration all limit adaptive capacity i.e. growing number of orphans and vulnerable children who are often forced to take the responsibility for the household 	<ul style="list-style-type: none"> • Lack of sufficient labour power for preparing the fields on time, for weeding and harvesting and to utilize land to its optimum by implementing new farming practices and inputs • Reduction in crop yields resulting in temporary or even longer-term food shortages • poor nutrition and malnutrition, and high dependency from others 	<ul style="list-style-type: none"> • Introduce low cost fruit and vegetable growing irrigated by flood and rain water for household income, boost food security and nutrients • Diversify the resource base (to minimize the risk due to harvest failure, by growing many different drought resistant crops and varieties, and they also fish and gather wild food plants) • Enhance food security and agriculture-based livelihoods by careful planning for emergency situations (e.g. storing of grains for future use, setting aside savings for necessary farm investments) • Produce fish for rural consumption through aquaculture where sufficient water resources are available, thus where no risk of maladaptation is evident
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Annex 2: Policy, legislative and regulatory context

Table 1 An in-depth review of all policies relating to agriculture and climate change and relevance to the project.

Objectives of the policy	Description of relevance to the project
National Development Plan 4 (2012/13 – 2016/17).	
<p>Three overarching goals: High and sustained economic growth; Employment creation; Increased income equality.</p> <p>Economic priorities are: Logistics: port and rail for southern and central Africa; Tourism; Manufacturing; Agriculture: production to increase of 4% in real terms over NDP4. Strategies to be deployed to achieve this outcomes are as follows: Continued promotion of the Green scheme; Increase carrying capacity for livestock; Establishment of agricultural fresh produce markets; Establishment of other agricultural infrastructure such as silos and research stations.</p>	<p>Vision 2030 structures its logic in terms of two groups of priority areas which will deliver the goals: ‘basic enablers’ and economic priorities. ‘Basic enablers’ (also referred to as ‘foundation issues’) are essential but not sufficient conditions for economic development. The most important ones are listed as being:</p> <ul style="list-style-type: none"> The institutional environment; The high cost of doing business; Low quality of skills; Inadequate access to finance; Low productivity; Inflexibility in the labour market; Climate change. Education and skills; Health; Reduction of extreme poverty; Creation of sustainable job opportunities, particularly for unskilled youth; Public infrastructure. <p>In its chapter 5 on ‘Sustainable Resource Base’, NDP 4 sets out that although new irrigation projects will create jobs, they require enormous subsidies and are capable of accelerating land degradation through pollution, soil salinisation and high water demands.</p>
National Climate Change Policy (2011)	
<p>To develop and implement appropriate adaptation strategies and actions that will lower the vulnerability of Namibians and various sectors to the impacts of climate change.</p>	<p>The government recognises the importance of meaningful participation in the planning, development and implementation of climate change activities at local, regional and national level. The government shall encourage the development of public private. Partnerships that shall contribute to climate change adaptation and mitigation.</p>

<p>To develop action and strategies for climate change mitigation.</p> <p>To integrate climate change effectively into policies, institutional and development frameworks in recognition of the cross-cutting nature of climate change.</p> <p>To enhance capacities and synergies at local, regional and national levels and at individual, institutional and systemic levels to ensure successful implementation of climate change response activities.</p> <p>To provide secure and adequate funding resources for effective adaptation and mitigation investments on climate change and associated activities (e.g. capacity building, awareness and dissemination of information, etc)</p>	<p>Involvement of NGOs and Faith and Community based organisations is critical to bring awareness of the impacts of climate change and also mobilisations of financial and other resources to local communities for climate change adaptation and mitigation. NGOs and CBOs shall be encouraged to assume the role of coordinating and integrating efforts amongst various stakeholders in order to address climate change issues.</p> <p>Priority areas set out in the policy include:</p> <p><u>Sustainable access to water</u> Formulate and implement a strategy for harvesting and capturing water during the rainy season.</p> <p><u>Food security and the sustainable resource base</u> Integrate poverty-climate change issues into economic policies and plans across sectors. Promote diversification of the food base. Promote systems in the agricultural sector that are climate resilient.</p> <p><u>Agriculture</u> Promote and encourage conservation agriculture and ecologically Compatible cropping systems. Promote and encourage highly adaptive and productive breeds of livestock in both communal and commercial areas. Promote and encourage highly adaptive and productive crop cultivars in dry-land or rain-fed crop farming system. Promote and encourage agricultural production to best maintain and improve household income. Promote sustainable management of rangelands and pastures through preparation and implementation of integrated rangeland management plans to avoid land degradation and deforestation.</p> <p><u>Disaster risk reduction and management</u> Develop and implement a climate change induced disaster management strategy. Establish and strengthen climate change induced disaster management institutions at regional and national levels to reduce causality and ensure preparedness.</p> <p><u>Policy and legislative development</u> Integrate climate change policy into the existing policies based on specific sectors. Identify issues of climate change commonality amongst sector policies in order to enhance synergies, facilitate cost effectiveness and avoid duplications of effort.</p> <p><u>Gender issues and child development</u> Ensure that communities are empowered and both men and women.</p>
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	<p>Participate meaningfully in the planning, testing and roll out of adaptation and mitigation activities in both rural and urban areas.</p> <p>Ensure that climate change response activities are gender sensitive.</p>
National Climate Change Strategy and Action Plan (2013)	
<p>The Namibia Climate Change Strategy and Action Plan has been developed on three aspects; adaptation, mitigation and crosscutting issues.</p>	<ul style="list-style-type: none"> • The adaptation is to be addressed through four themes namely food security and sustainable resource base, sustainable water resources base, human health and wellbeing and infrastructure. • Mitigation is to be addressed through two themes; Sustainable energy and low-carbon development transport. • Cross-cutting issues will be addressed through the following themes: capacity building, training and institutional strengthening, research and information needs, public awareness, participation and access to information, disaster reduction and risk management, financial, resource mobilisation and management, international cooperation and networking and technology development and transfer and legislative development. • Specific actions are outlined in terms of adaptation throughout the country - including the North central and Northeast.
National Disaster Risk Management Policy (2009)	
<p>Make disaster risk reduction a priority at all levels in Namibia by establishing sound, integrated, and functional legal and institutional capacity within the established National Disaster Risk Management System.</p> <p>Improve risk identification, assessment and monitoring mechanisms in Namibia.</p> <p>Reduce the underlying risk and vulnerability factors by improving disaster risk management applications at all levels.</p> <p>Strengthen disaster preparedness for effective response and recovery practices at all levels.</p>	<p>The policy advocates the enhancement of coping capacities in the affected communities.</p> <p>It also calls for the integration of disaster risk reduction initiatives into development and poverty reduction programmes and the routine activities of all sectors at the three levels of government in Namibia.</p> <ul style="list-style-type: none"> • It calls for environmental and natural resource management initiatives. Social and economic development practices must include initiatives to reduce disaster risk that support and promote: <ul style="list-style-type: none"> ○ food security through water harvesting for crop irrigation; ○ the implementation of social safety net mechanisms; ○ income generating and livelihoods projects to assist the poor; ○ diversified income options for populations in high risk areas; ○ the development of financial risk sharing mechanisms, particularly insurance and reinsurance against disasters; ○ the establishment of public/private sector partnership to better engage the private sector in disaster risk management activities and to support and finance a culture of disaster risk management; and land use planning. • The National Disaster Risk Management Policy aims to facilitate the involvement of the private sector, non-governmental organizations, communities and volunteers in disaster risk management.

<p>Enhance information and knowledge management for disaster risk management.</p>	
<p>National Agricultural Policy (1995)</p>	
<p>Achieve growth rates and stability in farm income, agricultural productivity and production levels that are higher than the population growth rate;</p> <p>Ensure food security and improve nutritional status;</p> <p>Create and sustain viable livelihood and employment opportunities in rural areas;</p> <p>Improve the profitability of agriculture and increase investment in agriculture;</p> <p>Contribute towards the improvement of the balance of payments;</p> <p>Expand vertical integration and domestic value-added for agricultural products;</p> <p>Improve the living standards of farmers and their families as well as farm workers;</p> <p>Promote the sustainable utilization of the nation's land and other natural resources';</p> <p>Contribute to balanced rural and regional development based on comparative advantage.</p>	<p>The policy states that the Government's efforts will be limited to the provision of essential services, which the private sector is unwilling or unable to provide.</p> <p>The broad based participation of rural people and their organisations in efforts to help them realize their own development aspirations will be encouraged, thus reducing their dependence on Government interventions.</p> <p>In planning agricultural interventions, full recognition will be given to the increasing scarcity of water resources in most parts of the country.</p> <p>The Government will encourage the production of staple foods with the aim of achieving household self-sufficiency and food security, and regional self-sufficiency in areas with adequate potential. However, grain production will be encouraged only where comparative advantage exists, or can be established, and where economic and financial viability and environment sustainability will allow.</p> <p>Initiatives encouraging the diversification of smallholder crop-based systems will promote the integrated production of legumes and livestock. Sustainable harvesting, production and marketing of indigenous veld products will also be actively promoted.</p>
<p>National Water Supply and Sanitation Policy (2008)</p>	

<p>Water supply: Contribute to improved public health; Reduce the burden of collecting water; Promote community based social development taking the role of women into special account; Support basic water needs; Stimulate economic development; and Promote water conservation.</p>	<p>Local Authorities and Regional Councils will be responsible for the implementation of water supply and sanitation. Where possible, it should be left to the community itself to decide on internal priorities and the division of responsibilities. Community ownership and management of facilities should be adopted as the strategy of choice for the WSS sector in general.</p>
<p>Decentralisation Policy (1997)</p>	
<p>Devolution of powers to lower tiers of government: Regional Councils and Local Authorities. Regional councils represent non-urban areas, and also cover the area in which local authorities fall. Democratic participation in the development process and in service delivery.</p>	<p>Functions for decentralisation include: rural water development and management; management and control of communal lands; and physical and economic planning (including capital development projects). All government functions being implemented by line ministries at regional and local authority levels should eventually be decentralised either to Regional Councils or Local Authorities. The Regional Council makes the final decision on regional development plans. Regional Development Committees, comprising the heads of sectoral ministries at regional level and chaired by a Regional Office, recommends development strategies, programmes and projects to the Regional Council.</p>
<p>Draft Rural Development Policy (2011)</p>	
<p>The <i>overall objective</i> of the Policy is to achieve economic and social advancement in rural areas through a number of sub-objectives derived from Vision 2030:</p> <ul style="list-style-type: none"> • To ensure that all rural citizens are able to realize their full potential; • To accelerate broad based rural economic growth through rural infrastructure development, income generation and employment creation; 	<p>Two thirds if the Namibia population live in rural areas in social and economic exclusion. Key challenges in the implementation of the policy include:</p> <ul style="list-style-type: none"> • Weak planning and monitoring systems; • Poor coordination of rural development interventions; • Limited access to development funding; • Insufficient infrastructure facilities and services provision in rural areas; • Slow pace of Decentralization implementation process; • High level of poverty in rural areas; • High level of unemployment and unskilled labour force; • Rural-urban migration; • Limited skills; • Lack of ownership and community participation in rural development interventions; • Lack of access roads and poor transport systems in rural areas;

<ul style="list-style-type: none"> • To develop diversified, competent and highly productive human resources and institutions in rural areas; • To maximize the capacity of the rural areas to industrialization of the economy; • To ensure the sustainable management and development of natural resources; • To transform rural Namibia into a knowledge-based, technology driven and eco-friendly place; • To ensure rural community participation in formulation, planning, implementation, monitoring and evaluation of development plans; • To coordinate, strengthen and promote harmonized rural development interventions by different stakeholders. 	<ul style="list-style-type: none"> • Lack of electricity in rural areas; • Lack of rural market centers/system; • Lack of access to credit facilities and business development; • Low level of agricultural technology and diversification.
National Gender Policy (2010-2020)	
<ul style="list-style-type: none"> • Improve access to and control of productive resources and services such as land, credit, markets, employment and training for women. • Strengthen institutional mechanisms to address the needs of women. • Reduce gender inequalities in education. • Improve women's and girls' reproductive rights, health and HIV and AIDS status. 	<p>The first gender policy was adopted in 1997. Whilst it had some success, gaps were noted in an inadequate knowledge of gender mainstreaming, a lack of skills on gender analysis and poor coordination between stakeholders and the Ministry of Gender Equality and Child Welfare. In addition, new and emerging threats have influenced the attainment of gender equality such as the worsening of HIV/AIDS, climate change and human trafficking.</p> <p>The 2010 gender policy was designed to contribute to the attainment of the objectives of Vision 2030.</p> <p>Government gender policy (2010 – 2020) advocates for the empowerment of women, which will reduce poverty and vulnerability levels, by increasing the opportunities to engage in more productive sectors, investments in women and girls' access to training and education, employment, access to resources and improved livelihoods. Strategic actions include:</p> <ul style="list-style-type: none"> • Allocate financial, technical and human resources to incorporate women into the development of the natural resource sectors;

<ul style="list-style-type: none"> • Reduce the prevalence of gender based violence, and increase protection for women and children. • Increase women's access to decision-making and participation in the political and public spheres. • Promote women's access to information and communication technology, and eliminate negative media portrayals of women and girls. • Enhance the role and benefits of women in environmental protection and management. • Promote the human rights of women and increase women's access to justice. • Promote women's contribution to peace-building and natural disaster-management. 	<ul style="list-style-type: none"> • Request banks to simplify banking practices, for example reducing the minimum deposit and other requirements, that have prevented disadvantaged groups – women in particular – from opening bank accounts; • Educate and increase women's access to information and education; • Promote the use of knowledge, innovations and practices of women of indigenous and local communities; • Empower women as producers and consumers so that they can take effective environmental action in their homes and communities; • Encourage the design of projects that would specifically benefit women and be managed by women; • Increase the percentage of women, particularly at grassroots level, involved as decision-makers, planners, managers, scientists and technical advisers.
New Equitable Economic Empowerment Framework (NEEEF)	
<ul style="list-style-type: none"> • Overall objective is to create an equitable and socially just society in which the distribution of income becomes far more equitable than it is at present. 	<ul style="list-style-type: none"> • Framework under the Office of the Prime Minister. • NEEEF consists of policies designed to encourage the private business sector to become more equitable and to make a greater contribution towards national economic empowerment and transformation. The framework is set to operate for a 25 years from 2011-2036. • The represents a subset of the policies required to achieve greater equity in society. • The objectives of the NEEEF , but are not limited to the following: Ensuring the sharing of Namibian resources in an equitable and sustainable basis by the people of Namibia; Creating a socially just society; Implementation of measurable policies of redress and redistribution; Creating vehicles for empowerment; Removing barriers of socio-economic advancement in order to enable previously disadvantaged persons to access productive assets and opportunities for empowerment; Actively guarding against the repugnant tendencies of window-dressing, favouritism, nepotism and self-enrichment; Providing measurement of empowerment targets; Ensuring that an empowering act is meant to launch individuals to empower themselves in the future using the basis of their initial

	empowerment; Economic empowerment may be organised in the following forms of ownership: public, private, joint public-private, cooperative, co-ownership, and small-scale family owned; Equitable empowerment is addressing disparities occasioned by class, gender and generational relationships.
United Nations Partnership Assistance Framework (UNPAF 2013/4 -2017/8)	
<p>Development Cooperation Objectives</p> <p>The draft UNPAF (March 2013) outlines nine outcomes clustered around four pillars which are anchored in six of the 10 Outcomes of the NDP4. The UNPAF outcomes of relevance are as follows:</p> <p>O1: transparent accountability and participatory management; O7: poverty and vulnerability reduction O8: social protection system expanded to poor and vulnerable households; O9: implementation of policies and strategies which ensure that the poor and vulnerable are accessing productive resources and services for food security and income generation.</p> <p>These will be aligned to the NDP 4 strategic areas in five categories:</p> <p>DO 1: Institutional Environment DO 2: Education and Skills DO 3: Health DO 4 : Extreme Poverty DO 10 : Execution, Monitoring and Evaluation and Progress</p>	<p>Role and Relevance of UN development cooperation in Namibia</p> <p>The UN System is recognized as a trusted development partner in Namibia, and well-placed to undertake development cooperation strategies relevant to the specific context of the country, including:</p> <ul style="list-style-type: none"> • System-strengthening and performance management within key sectors; • Provision and facilitation of high quality technical expertise; • Facilitation of multi-disciplinary approaches for addressing development challenges; • Facilitation of South-South Cooperation including institutional linkages; • Promoting innovative public-private sector approaches to human, social and economic development financing; • Monitoring implementation of key international Conventions and agreements; • Knowledge generation and management; • Policy guidance and dialogue.

Annex 3: Risk Log

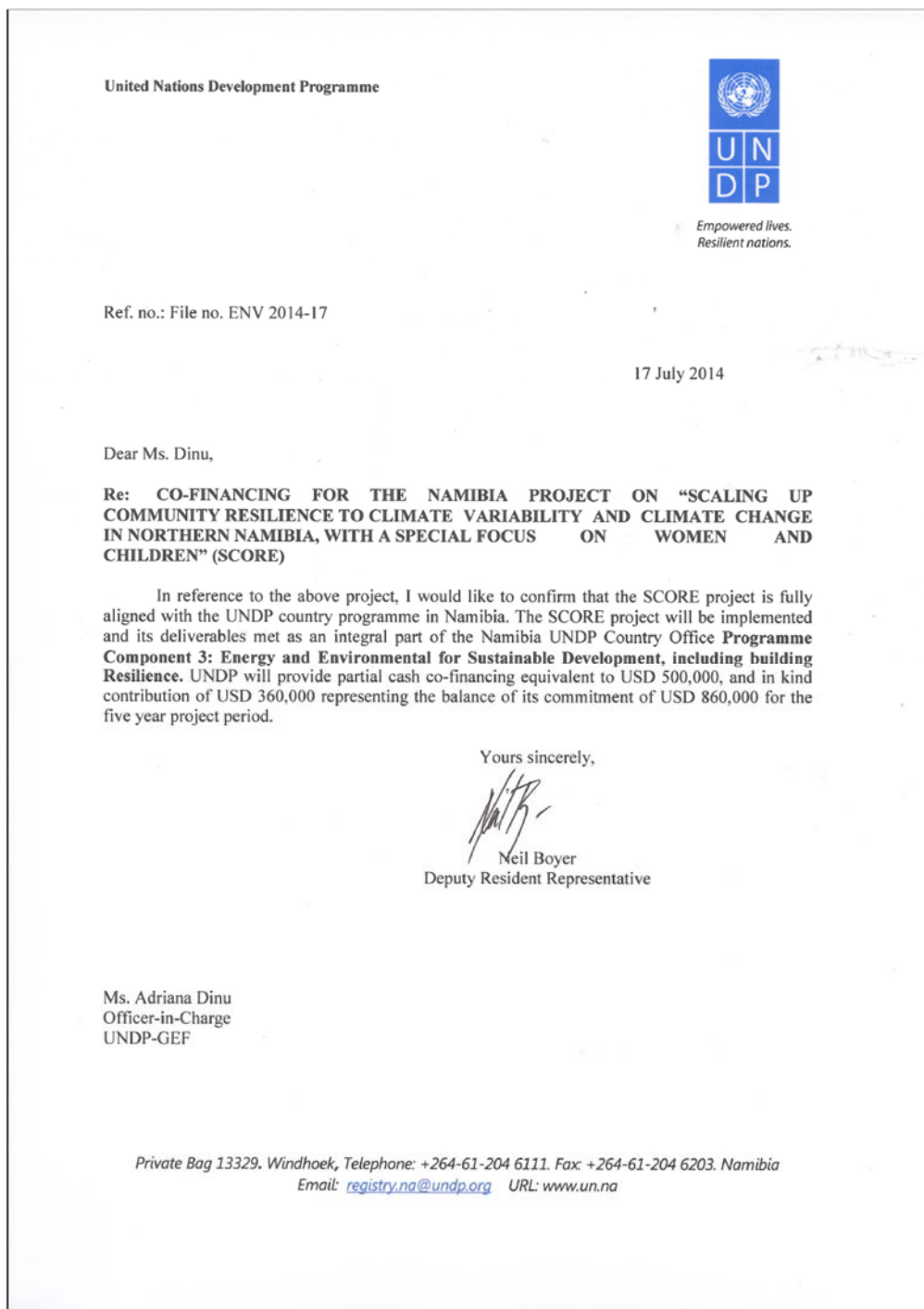
#	Description	Date Identified	Type	Impact & Probability	Countermeasures / Mngt response	Owner	Submitted, updated by	Last Update	Status
1	Mitigate the risk of droughts and floods in the project zones		Environmental	2	Harvesting flood water using the natural depressions of the CuvelaiBasin (Oshanas) for productive use by households.	MET, UNDP			
2	Prepare households for dry years (erratic rains) in order to ensure that food security is increased at the household level		Environmental	2	Implementing early land preparation and planting – and the planting of early maturing crops in drier than normal years. Make use of the existing weather and seasonal forecasting information from the MET service.	MET, UNDP			
3	Low and variable organisational capacities for implementation of the activities		Organisational	3	Delegating roles to the NGO and private sector by leveraging capacity and resources into the project, as well as adequate budget for capacity development and project management.	MET, UNDP			
4	Some of the smallholder farmers might be reluctant to be inclusive of the project due to the lack of knowledge on climate smart agricultural methods and the strong believe that the traditional ways of farming yield more harvests		Social and political	3	Only willing smallholder farmers will be included as project beneficiaries and care will be taken not to be biased when selecting the beneficiaries.	MET, UNDP			
5	Insufficient target group for the project – women, children and orphans are the most vulnerable to climate change and therefore the key target for the project		Social	2	A gender assessment was carried out in the PPG phase to mitigate against the risk – and experience shows that women are willing to participate in many developmental projects.	MET, UNDP			
6	The lack of support from the politicians and stakeholders to support the project		Political	3	Roles and responsibilities will be clearly defined through a consultative process – with all the various stakeholders.	MET, UNDP			

Types of Risks

Environmental	Financial	Organizational	Political	Operational	Regulatory	Strategic	Other
Natural Disasters: storms, flooding, earthquakes	EXTERNAL economic factors: interest rates, exchange rate fluctuation, inflation	Institutional Arrangements	Corruption	Complex Design (size: larger/multi-country project; technical complexity; innovativeness, multiple funding sources)	New unexpected regulations, policies	Partnerships failing to deliver	Other risks that do not fit in an of the other categories
Pollution incidents	INTERNAL:	Institutional/ Execution Capacity	Government Commitment	Project Management	Critical policies or legislation fails to pass or progress in the legislative process	Strategic Vision, Planning and Communication	Might refer to socioeconomic factors such as: population pressures; encroachment – illegal invasions; poaching/illegal hunting or fishing
Social and Cultural	Co-financing difficulties	Implementation arrangements	Political Will	Human Error/Incompetence		Leadership and Management	Poor response to gender equity efforts
Security/Safety	Use of financing mechanisms	Country Office Capacity (specific elements limiting CO capacity)	Political Instability	Infrastructure Failure		Program Alignment	
Economic	Funding (Financial Resources)	Governance	Change in Government	Safety being compromised		Competition	
	Reserve Adequacy	Culture, Code of Conduct and Ethics	Armed Conflict and Instability	Poor monitoring and evaluation		Stakeholder Relations	
	Currency	Accountability and Compensation	Adverse Public opinion/media intervention	Delivery		Reputation	
	Receivables	Succession Planning and Talent Management		Program Management		UN Coordination	
	Accounting/Financial Reporting	Human resources Processes and Procedures		Process Efficiency		UN Reform	
	Budget Allocation and Management			Internal Controls			

	Cash Management/Reconciliation			Internal and External Fraud			
	Pricing/Cost Recovery			Compliance and Legal			
				Procurement			
				Technology			
				Physical Assets			

Annex 4: Co-Financing Letters



for New



REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT AND TOURISM

Private Bag 13306
Windhoek
Namibia

Cnr. Robert Mugabe &
Dr. Kenneth Kaunda Street

Enquiries: Mr. Petrus Muteyauli

Date Received 13 AUG 2014			
File No.			
	Action	info	initial
RC			
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DRR			/ P
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Tel. no. 061 - 2842701
Fax. No. 061 - 240339
Email:

Date: 4 August 2014

OFFICE OF THE PERMANENT SECRETARY

Mr. Musinga T. Bandora
UNDP Resident Representative
38 Stein Street, Klein Windhoek
Windhoek, NAMIBIA

Dear Mr. Bandora,

SUBJECT: CO-FINANCING FOR THE NAMIBIA PROJECT ON "SCALING UP COMMUNITY RESILIENCE TO CLIMATE VARIABILITY AND CLIMATE CHANGE IN NORTHERN NAMIBIA, WITH A SPECIAL FOCUS ON WOMEN AND CHILDREN"

Namibia already is a water scarce country and impacts of climate variability and change are and will be felt so severely because livelihoods and production systems are so tightly linked to the availability of rain. Vulnerable groups, such as women-led households, and young people living in rural areas of northern Namibia are particularly dependent on subsistence agriculture in already marginal production areas. Other livelihood supports are not developed enough to provide a viable alternative. Frequently occurring extreme climate events, such as flooding in the Cuvelai drainage system and severe droughts throughout the regions damage infrastructure, agricultural production and health. These areas of vulnerability need to be addressed urgently.

This project aims to strengthen the adaptive capacity to climate change and reduce the vulnerability of 4,000 households; 80% of which are female headed, and children in 75 schools, to droughts and floods in northern Namibia by scaling up the most promising adaptation pilots from Namibia's CBA programme and a Global Environment Facility Strategic Priority on Adaptation project previously implemented.


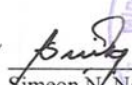
All official correspondence must be addressed to the Permanent Secretary

DRR
FNA
14/8

The Ministry of Environment and Tourism welcome the gesture by the Global Environment Facility and the United Nations Development Programme in supporting climate change activities in Namibia and the Ministry of Environment and Tourism herewith confirm that the following resources will be invested during the duration of the Scaling up Community Resilience to Climate Variability and Climate Change in Northern Namibia, with a special focus on women and children Project; US\$ 400,000 in kind based on our Climate Change coordination roles and activities over a five year period. These resources have been committed for the Medium Term Expenditure Framework period and will contribute to the attainment of National Development Plan 4.

Thank you very much for your attention to this matter.

Yours sincerely,



Simeon N. Negumbo
PERMANENT SECRETARY



REPUBLIC OF NAMIBIA

MINISTRY OF AGRICULTURE, WATER & FORESTRY

Tel: (061) 208 7690
Fax: (061) 2087482
Email: reino.engg@gmail.com

Office of the Permanent Secretary
Luther Street
Government Office Park
Private Bag 13184
Windhoek

Enquiries: S. Kasheeta

Date: 16 July 2014

Mr. Musinga T. Bandora
UNDP Resident Representative
38 Stein Street, Klein Windhoek
Windhoek, NAMIBIA

Dear Mr. Bandora,

CO-FINANCING FOR THE NAMIBIA PROJECT ON “SCALING UP COMMUNITY RESILIENCE TO CLIMATE VARIABILITY AND CLIMATE CHANGE IN NORTHERN NAMIBIA, WITH A SPECIAL FOCUS ON WOMEN AND CHILDREN”

Namibia’s agriculture sector is considered to be extremely vulnerable to climate change. The recently released IPCC WGIIAR5 report stresses that semi-arid areas will be under particular threat. Namibia already is a water scarce country and impacts of climate variability and change are and will be felt so severely because livelihoods and production systems are so tightly linked to the availability of rain. Vulnerable groups, such as women-led households, and young people living in rural areas of northern Namibia are particularly dependent on subsistence agriculture in already marginal production areas. Other livelihood supports are not developed enough to provide a viable alternative. Frequently occurring extreme climate events, such as flooding in the Cuvelai drainage system and severe droughts throughout the regions damage infrastructure, agricultural production and health. These areas of vulnerability need to be addressed urgently.

This project aims to strengthen the adaptive capacity to climate change and reduce the vulnerability of 4000 households; 80% of which are female headed, and children in 75 schools, to droughts and floods in northern Namibia by scaling up the most promising adaptation pilots from Namibia’s CBA programme and a GEF/SPA project previously implemented.


The Ministry of Agriculture, Water and Forestry welcome the gesture by the GEF/UNDP in supporting climate change activities in Namibia and the Ministry of Agriculture, Water and

All official correspondence must be addressed to the Permanent Secretary

Forestry herewith confirm that the following resources will be invested during the duration of the SCORE Project; Dry Land Crop Production Programme (US\$ 13,608,247) Green Scheme (US\$82,474) Comprehensive Conservation Agriculture (US\$ 5,066,542). These resources have been committed for the Medium Term Expenditure Framework period and will contribute to the attainment of National Development Plan 4.

Thank you very much for your attention to this matter.

Yours sincerely,


Joseph S. Iita

PERMANENT SECRETARY



Annex 5: Stakeholder involvement plan

Table 11 Summary of planned stakeholder involvement as per Outcomes and Outputs

Outcomes	Outputs	Stakeholders
<p>Outcome 1: Smallholder farmer adaptive capacity for implementation of climate resilient agricultural production practices strengthened</p>	<p>Output 1.1: Smallholder advisory and mentorship programme that promotes drought resilient land management and crop production practices established to scale up good practice for 4000 smallholder farmers.</p>	<p>Min of Environment & Tourism Min of Agriculture, Water & Forestry Relevant line Ministries such as MRLGHRD Representatives of RCs (CDC/VDCs) CES, CBOs, End-users at regional and local levels in six pilot zones</p>
	<p>Output 1.2: Community self-help groups formed to promote implementation and replication of climate-smart methods.</p>	<p>CES, Min of Environment & Tourism Min of Agriculture, Water & Forestry Relevant line Ministries such as MRLGHRD, Representatives of RCs (CDC/VDCs) CBOs End-users at regional and local levels in six pilot zones</p>
	<p>Output 1.3: 200 trained farmer field school leaders and coordinators in drought resilient land management practices serving 4000 households.</p>	<p>CES, Min of Environment & Tourism Min of Agriculture, Water & Forestry Relevant line Ministries such as MRLGHRD, Representatives of RCs (CDC/VDCs) CBOs End-users at regional and local levels in six pilot zones</p>
	<p>Output 1.4: 4000 smallholder farmer land planted in time to catch first rains.</p>	<p>CES, Min of Environment & Tourism Min of Agriculture, Water & Forestry Relevant line Ministries such as MRLGHRD Representatives of RCs (CDC/VDCs) CBOs End-users at regional and local levels in six pilot zones</p>

	Output 1.5: Fresh vegetable production through soil improvement and micro-drip irrigation practiced by 2000 households.	CES, Min of Environment & Tourism Min of Agriculture, Water & Forestry Relevant line Ministries such as MRLGHRD, Representatives of RCs (CDC/VDCs) CBOs End-users at regional and local levels in six pilot zones
	Output 1.6: Livelihood diversified away from traditional crop production for 75% of households.	CES, Min of Environment & Tourism Min of Agriculture, Water & Forestry Relevant line Ministries such as MRLGHRD, Representatives of RCs (CDC/VDCs) CBOs End-users at regional and local levels in six pilot zones
	Output 1.7: Savings and loan scheme tested among smallholder farmers to promote replication and up-scaling of adaptive practices and technologies.	Agribank, Fides, Kongalend, Min of Environment & Tourism, Min of Agriculture, Water & Forestry End-users at regional and local levels in six pilot zones
	Output 1.8: Market linkages established for dryland products working with the private sector.	AMTA, Min of Agriculture, Water & Forestry
	Output 1.9. Documentation of best practices	All implementing partners,
Outcome 2: Reduced vulnerability to droughts and floods through restoration of wells and harvesting of floodwater for food security	Output 2.1: Flood control measures provided smallholder farmers in flood-prone areas.	MAWF, CES, other NGO's such as red cross, NNFU Academic institutions e.g. PoN and UNAM, OPM
	Output 2.2: Climate-smart irrigation practiced.	MAWF, CES, End-users at regional and local levels in six pilot zones

	Output 2.3: Climate-smart fish Farming practiced.	MFMR, End-users at regional and local levels in six pilot zones, CES
Outcome 3: Mainstream climate change into national agricultural strategy/sector policy, including adjustments to budgets for replication and up scaling	Output 3.1: Impact Assessment carried out.	Min of Environment & Tourism, Representatives of Regional Councils, Relevant line Ministries such as MRLGHRD, MAWF, MLR
	Output 3.2: Results-based management plan for climate smart agriculture monitored by main stakeholder groups, to be led by the Regional Councils.	Representatives of Regional Councils, Min of Environment & Tourism, Relevant line Ministries such as MRLGHRD, MAWF, MLR
	Output 3.3: NNFU advocacy messages developed and delivered in policy fora to promote scale-up of climate-smart agricultural methods.	National Planning Commission, Min of Environment & Tourism, Relevant line Ministries such as MRLGHRD, MAWF, MLR
	Output 3.4: Regional Councils, line ministries and other partners include climate-smart agricultural methods and water harvesting and storage in their annual plans and budgets.	Min of Finance, Representatives of Regional Councils, Min of Environment & Tourism, Relevant line Ministries such as MRLGHRD, MAWF, MLR
	Output 3.5: Policy recommendations and replication plan developed for continuation of good practice and presented at final project closure workshop.	National Planning Commission, Min of Environment & Tourism, Relevant line Ministries such as MRLGHRD, MAWF, MLR, Min of Finance, Representatives of Regional Councils

Annex 6: Terms of Reference for project staff/consultants

Terms of Reference (ToRs) for suggested project key staff/consultants are included in the below. The TORs may be reviewed and adjusted during the inception phase.

- National Project Manager
- Accountant officer
- Administration/Procurement officer
- Regional Project Coordinators (*3)

A. National Project Manager

Background
<p>The Project Manager works at national level and has overall responsibility for delivering the project successfully. The Project Manager (PM) shall head the Project Management Unit (PMU) and shall be responsible for the overall day-to-day management, co-ordination and supervision of both the technical and administrative aspects involved in the implementation of the SCORE project activities. The PM shall report directly to the MET Environmental Commissioner as the designated National Project Director (NPD). S/he shall also liaise with designated officials of MAWF, and other bodies as indicated in the project organogram, with copies of reports to UNDP.</p>
Duties and Responsibilities
<ul style="list-style-type: none"> • Ensure the timely implementation of planned activities under the project as stipulated in the work plan. The PC should provide the lead role in implementing such activities; • Liaise with the NPD, UNDP and Steering Committee on the preparation of annual workplans for the project; • Develop scopes of work and terms of reference and other procurement documentation required to solicit the procurement of technical assistance and other services, if such should be required; • Supervise and delegate work to full time and contract (if any) staff members on the PMU; • Prepare the requisite quarterly and annual project reports in a timely manner; • Participate in the regional Inter-ministerial Steering Committee and ensure that information and updates regarding the implementation of the project activities is channelled to the national Project Committee Meeting (PCM) via the NPD; • Liaise with partners (MAWF, MET, RC, UNDP) on project implementation; • Coordinate and facilitate meetings, workshops and awareness raising activities as stipulated in the work plan; • Facilitate coordination and synergy with other relevant programmes, projects and activities; • Interact closely with relevant stakeholders and support the involvement of all stakeholders in the project activities.
Qualifications
<ul style="list-style-type: none"> • A Master's degree in environment-natural resources or agriculture related studies or other related disciplines; • Good understanding of climate change and other environmental issues in Namibia; • Eight (8) years experience relevant to the project; • Demonstrated experience in implementation of climate change projects or farmers action research projects and project management;

- Demonstrated experience in working with government, NGOs, private sector, donors and the United Nations system;
- Excellent inter-personal skills as well as the ability to establish and maintain effective working relations with people;
- Fluency in English (written and oral) with a working knowledge of Namibian local languages (preferably Oshiwambo and Rukwangali) considered a bonus;
- Good computer skills and proficiency in standard computer applications (MS Word, MS Excel, etc.);
- Be willing and prepared to be based in North-Central Namibia or travel frequently to these Regions.

B. Accountant officer

Background
The Project Accountant shall be responsible for the overall financial management of the project, under the supervision of the Project Manager.
Duties and Responsibilities
<ul style="list-style-type: none"> • Ensure that all procurements and disbursements are carried out in accordance with the UNDP/GEF and Government of the Republic of Namibia requirements, which requires familiarity with the financial management procedures; • Ensure that project-related disbursements are carried out in a timely and efficient manner; • Ensure the smooth flow of funds to enable the timely implementation of project activities, including the timely replenishment of the project account; • Compile the quarterly and annual financial reports in a timely manner, with a focus on the financial delivery of the project; • Prepare a monthly project bank reconciliation; • Maintain a logical and comprehensive record of financial transactions, with supporting documentation, for reference and audit purposes; • Provide the necessary assistance and documentation for the statutory audit of annual financial statements; • Perform all other duties as requested by the PM; • Perform any other duty relevant to the assignment.
Qualifications
<ul style="list-style-type: none"> • At least a Bachelor’s Degree in Accounting, Economics or Commerce; • Knowledge of accounting policies and principles; • At least four (4) years work experience in financial management, of which at least one year was closely related to support of project / programme activities; • Capable of working fairly independently; • Excellent organizational skills; • Excellent communication skills (oral and written); • Excellent inter-personal skills and the ability to establish and maintain effective working relations with people; • Fluency in English (written and oral); • Good computer skills and proficiency in standard computer applications (MS Word, MS Excel, etc.).

C. Administration/Procurement officer

Background
The Project Accountant shall be responsible for the overall administration and management of the project, under the supervision of the Project Manager.
Duties and Responsibilities
<ul style="list-style-type: none">• Ensure that all procurements and disbursements are carried out in accordance with the UNDP/GEF and Government of the Republic of Namibia requirements, which requires familiarity with the financial management procedures;• Ensure that project-related disbursements are carried out in a timely and efficient manner;• Ensure that office equipments and furnitures are procured for;• Responsible for meeting agendas and booking of meeting venues and related workshops;• Responsible for Vehicle fleet management;• Perform all other duties as requested by the PM;• Perform any other duty relevant to the assignment.
Qualifications
<ul style="list-style-type: none">• At least a Bachelor's Degree in Business Administration;• Knowledge of accounting policies and principles;• At least four (3) years work experience in administration, of which at least one year was closely related to support of project / programme activities;• Capable of working fairly independently;• Excellent organizational skills;• Excellent communication skills (oral and written);• Excellent inter-personal skills and the ability to establish and maintain effective working relations with people;• Fluency in English (written and oral);• Good computer skills and proficiency in standard computer applications (MS Word, MS Excel, etc.).

D. Regional Project Coordinators x 3

Background
The three Project Coordinators shall be responsible for supervising the project activities and shall create linkages to between the communities and the Project Management Unit (PMU). S/he shall directly report to the Project Manager (PM).
Duties and Responsibilities
His/her responsibilities will include, but not be limited to the following:

- Supervising demonstrations, piloting and testing of activities on farms with communities;
- Gather relevant information from farmers and partners;
- Advice on, and conduct training and outreach programmes for farmers;
- Create linkages between farmers and service providers (CBOs, NGOs, Government);
- Participate in relevant meetings and workshops;
- Prepare reports in a timely manner.

Qualifications

- Preferably a Bachelors Degree or Postgraduate Diploma in environment-natural resources, agriculture, community development related studies or other related disciplines;
- Good understanding of climate change and other environmental issues in Namibia;
- Six (6) years experience relevant to the project, especially that of a field facilitator, would be an added advantage;
- Demonstrated experience in working with rural communities, government, NGOs, private sector, donors and the United Nations system;
- Knowledge and work experience in North-Central geographic regions of Namibia is essential;
- Excellent inter-personal skills and the ability to establish and maintain effective working relations with people;
- Fluency in English (written and oral) with a working knowledge of Namibian local languages (preferably Oshiwambo or Rukwangali) considered a bonus;
- Good computer skills and proficiency in standard computer applications (MS Word, MS Excel, etc.).

Annex 7: Summaries of Technical Reports from PPG phase

This section provides a summary in English of each study carried out during the PPG phase (available from UNDP Country Office).

Stakeholder consultations 1: Technical stakeholder workshop report (by MET/UNDP)

The main purpose of this consultative workshop was to involve the stakeholders through direct consultation on the draft Project Identification Form (PIF) and incorporation of comments and amendments to this document.

Stakeholder consultations 2 & 3: Technical stakeholders and Regional Councillors workshop report (by CorlenMasunda)

This workshop, which is also the report of the national lead facilitator, provides an overview of the team's findings on the project design and implementation arrangements, as well as stakeholder involvement plans from both the technical stakeholders as well as the Regional Councillors from the regions. Both consultations were aimed at elaborating the mentioned aspects and validating on how this would suit the needs of this project. In brief, the report confirms stakeholder demand for the project, and the good fit with existing institutional frameworks at sub-national levels.

Community report 1: Kavango West and Kavango East findings (by MutjindeKatjiua, Polytechnic of Namibia)

This report described the baseline data on the livelihood options, climate change related hazards and responses from communities to these hazards of the sites. These were also attempts for site selections for the project in the Kavango West and Kavango East regions. Of the identified hazards, the communities described the aspects of their livelihood that are affected and the results are presented in table 7 and 8 for Kavango West and East respectively. The major hazards were drought and floods.

Community report 2: Omusati, Oshana and Oshikoto findings (by MutjindeKatjiua, Polytechnic of Namibia)

This report, similar to the above, described the baseline data on the demography, livelihood options, climate change related hazards and responses from communities to these hazards of the sites. These were also attempts for site selections for the project in the Omusati, Oshana and Oshikoto regions. Of the identified hazards, the communities described the aspects of their livelihood that are affected and the results are presented in this report.

Annex 8: Expert review of micro-finance sections

Input into the design of the microfinance component of the UNDP/GEF financed project: “Scaling up community resilience to climate variability and climate change in Northern Namibia” in cooperation with the Namibian Ministry of Environment and Tourism and the Ministry of Agriculture, Water and Forestry, by MZ Nyleti Consulting - Inclusive Financial and Rural markets

1. Background

UNDP Namibia and the Namibian Government through specifically the Ministry of Environment and Tourism (MET), the Ministry of Agriculture, Water and Forestry (MAWF) have developed and started to implement a project titled “Scaling up community resilience to climate variability and Climate change in Northern Namibia”. The project will be implemented over a period of 5 years and has a volume of about 43 Mio US\$. The project’s special focus is women and children.

The overall objective of the programme is to strengthen the adaptive capacity to reduce vulnerability of rural communities in responding to drought and floods in Northern Namibia. It is planned to achieve the following 3 outcomes:

Outcome 1: Smallholder farmer adaptive capacity for implementation of climate resilient agricultural production practices strengthened.

Outcome 2: Reduce vulnerability to droughts and floods through restoration of wells and harvesting of floodwater for food security.

Outcome 3: Mainstream climate change into national agricultural strategy/sector policy, including adjustments to budgets for replication and up-scaling

It is envisaged to achieve these outcomes by elaborating variety of outputs ranging from various areas - two such outputs which are subject to this paper are related to the financial sector including microfinance as well as the regulatory framework of the financial sector.

Output 1.8: Savings and loan scheme tested among small holder farmers to promote replication and up-scaling of adaptive practices and technologies (Micro-level)

Output 3.5: Recommendations prepared on additional regulatory and policy needs to encourage credit provision to private sector for investments in adaptive practices (Macro-level)

Over the last two decades many advances have been achieved on the side of microfinance, rural and agriculture finance as well as financial sector development per se leading to an increased financial inclusion of the population but also to improvement of the efficiency of country’s financial sectors.

Progress has not only been achieved in the urban but also in the rural context: Today we can report on advances in institutions, products, services, processes, outreach and sustainability and finally in the macro environment in the provision of rural and agricultural financial services.

2. Review related to Output 1.8: Micro level

As per proposal the following is envisaged:

Output 1.8: Savings and loan scheme tested among smallholder farmers to promote replication and up-scaling of adaptive practices and technologies.

The CBA pilots show that smallholder farmers can make good returns on their plots by practicing low tillage land preparation and other climate-smart agricultural practices, and that even very poor smallholder farmers are able to save something every month. Preliminary discussions with various lenders show an interest to provide financial services to smallholder farmers. The proposal is that grant financing would be used to establish the advisory and mentorship programme and other institutional arrangements in years 1 and 2 of the project, and that in years 3, 4 and 5 of the project, a financial services provider would be step in to take the place of grant financing, based on results from years 1 and 2. The PPG phase will explore the potential for group saving and lending schemes, based on the formation of Self Help Groups described under Output 1.2; as well as lending on the basis of mobile assets, i.e. small-stock. Initial discussions with the Director of Agribank in the northern regions branch revealed their willingness to revive a group loan scheme for inputs and land preparation services. Using mobile collateral to secure loans is already being practiced successful in Namibia in relation to cattle by the Namibia Meat Board. By the end of the project, it is expected that beneficiary households (smallholder farmers) would be able to afford to pay for land preparation services, that they would have the financial services and business planning skills to be able to grow their agricultural livelihoods, and have livelihoods that generate good returns.

Savings and credit schemes will be brought in to take the place of grant financing. The project will explore the potential to put into place group schemes using the SHGs as the saving and borrowing entity and mobile credit using small stock as collateral.

2.1 International experiences in the micro-finance sector

Taking the international and the Namibian context especially institutional landscape into account, the below set-out principles should guide the detailed design and implementation of the microfinance component of the SCORE project.

Microfinance as institution and financial sector building

During the last decades the provision of financial services in comparison to credit has advanced a lot. Savings, micro insurance, and other financial products have made their entry into programme design and especially women and children benefit from the opening up of credit products. Interventions in the financial sector have now been better understood with their negative and positive implications. Financial sectors are treated nowadays as key sectors to drive development in countries, instead of been seen as mere conduits to facilitate transactions. A stable undistorted financial sector helps development more than any subsidised well-meant hand out project considered as socially necessary. With a strict commercial approach to financial sector development, much has happened and competition increased in some countries in the world, seeing banks entering out of competitive considerations into green finance, gender finance, and finance for the poor, and so on. These developments often took place through initial donor support, but taking off due to market forces. Only the private sector can service the demand for

access to finance for all in a sustainable way, not marginally scattered short term grant funded projects. It is a long time ago that clients were called beneficiaries, and subsidised interest rates have been substituted by commercial viable ones giving financial institution an opportunity to cover their costs and so guarantee long term access to financial services by the excluded population. This approach can produce viable demand driven financial institutions reacting to an ever changing environment instead of 3- 5 year long donor programmes who offer short-term relief and create an artificial, rent seeking non-viable market for the services on offer. Often donor projects attach a credit component to their project to make their new products “flow”- this rather hinders then help development as it often proves as unviable as soon as donor funds dry up.

Lending to Groups

The Nobel Prize laureate Mohammed Yunus proved with his Grameen Bank worldwide that unsecured lending to groups of poor people can be feasible; many have replicated this methodology confirming the feasibility of group lending. Different models in different countries and contexts have been developed to show that credit and/or savings to groups can be successful in terms of outreach and sustainability. It minimises transaction costs for the financial institutions as well as its clients. Nonetheless the group concept might be a cost saver, though certain group building strategies have to be observed in order to be successful. A demand driven participatory approach has to be followed and a certain degree of service orientation in not yet fully competitive markets have to be taken into account to obtain the desired results: financial institutions serving the target clientele and clients repaying their loans in a timely fashion as stipulated in their contractual agreements.

What is of utmost importance is how groups are formed. Is it the project staff putting groups together or are the members themselves the driving force in the group building process? Only the latter is the key to success in reaping the gains of building up peer pressure and ownership.

Informal versus formal sector

The intervention can be based on informal, semi-formal or formal arrangements. Basically there is nothing wrong with any of these but sometimes project designers and politicians prefer a formal approach to financial service delivery. But it is often self-defeating as all the rules and regulations attached to it are counterproductive and rather limit access of poorer population segments to financial services and technological advances. Keeping it simple and understandable is vital for the project success. Especially in Africa informal arrangements like Rotating or Accumulating Savings and Credit Associations (ROSCAs and ASCAs), known as tontines, xitiques, stokvels etc. are thriving. For example, these informal saving and loans groups rely on their intimate knowledge among its members exercising peer pressure which would not be allowed if transformed to a formal arrangement. These institutional arrangements are informal but more efficient than any artificially created formal approach.

Action: *The project should research in the pilot phase what informal arrangements are used by the population and mimicry these elements in the final design of the microfinance component.*

Possible Linkages

It is possible to link informal group lending mechanisms with the formal financial system. Many central banks are “concerned” if money circulates uncontrolled between savers and lenders in an informal way by Roscas or Ascas not accounted for in the financial system. Poor people especially women move a lot of money around under non supervision by financial authorities. Rather than forbidding these informal

saving and credit mechanisms, policy makers should encourage these efforts and try to integrate them slowly into the formal financial system. If people save up due to higher returns through their increased adaptive capacity to implement climate resilient agricultural production practices, opportunities should be offered to the target group to invest their savings into interest bearing accounts.

Action: *Research options how the groups can be linked for example to a post savings account, to safeguard their deposits keeping them safe and secure and produce a return.*

Multipurpose groups

Savings and Loan groups are different from community groups set up, for example, for water management issues. Money requires a different sort of bond and trust among people. So group cohesiveness is an important factor to make or break a group which deals with monies of its members. Groups behave differently when outside money is involved and are less prudent in its management as if it is their own.

Action: *Evaluate existing groups (CLUSA) in terms of cohesiveness and soundness. Financial literacy and other mentoring might be required to strengthen the bond among group members.*

Grants versus commercial oriented products

This is the most uncontroversial issue in theory and practice valid in all different county contexts. Basically you will never make anyone pay its real price for a product if a person has received this service or product for free or subsidised terms before. The project even in its pilot phase has to make it clear, right from the beginning that clients have to pay a market price for the product. There is no way to instil a commercial approach thereafter.

Action: *Set up the loans and savings component right from the beginning according to commercial terms, or in turn let the groups decide about their pricing policy without subsidising them.*

2.2 Recent developments on micro level in Namibia's microfinance sector

Namibia was never famous for having applied microfinance best practices. Namibia is scattered with partially very exploitative cash lenders operating mainly on salary based loan products. The more developmental micro lenders were few, and on top of it small and unprofitable. The only developmental microfinance institution with some sort of outreach and sustainability, concentrating in the Namibian North, the Fides bank, was just sold to Trustco as shareholders were unhappy about its performance. As it is still early stage, the outcome of this move is unknown. It is rumoured that the central Bank has "forced" Trustco to stick to the microfinance market and not to allow a mission drift, but often if the Government dictates and interferes in private sector decision and does not leave the market operate according to supply and demand, the well-meant inference is self-defeating and crowds out the beneficiaries the policy tried to protect in the first place.

These are not good news for outside investors and the Namibian microfinance sector per se. No new players will be attracted and existing ones will be even more cautious to enter the target market or experiment with new financial products. That means for the UNDP programme that now there are even fewer choices to link up the microfinance component with formal financial institutions as commercial banks are not able and interested to service the target market.

Action: A detailed actor analysis has to be conducted to see who is still on the ground and what products and terms and conditions are available to build on. The product offering of Agribank, the development bank, commercial banks and the newly to be established SME Bank should be analysed. There is also a Namibian development microfinance institution with offices in Windhoek, Ondangwa, Oshakati, Rundu and Walvis Bay, offering a wide range of credit products, including, SME finance, green energy finance, group loans and agribusiness finance, targeting small holder farmers in the northern Namibia crop producing regions, with particular focus on those practicing conservation tillage methods. It seems there are still small and not geographically present all over, but it is worth a try. Most of these financial intuitions only start with loan sizes around US\$ 10,000 most probably a too high amount for the target group. Cash lenders have often a negative imagine, but is worthwhile to consults them as they play an important role in some countries in the provision of microfinance opportunities for a clean energy future. Also, the products of players like, MeatCo should be researched and lessons learnt incorporated into the final project design. They also use a movable collateral approach which the project intends to use, but it should be noted that putting too much emphasis on collateral based lending might not be the right approach. If the income generating activity is not viable, the best collateral will not make it profitable. No collateral substitutes for a lack of peer pressure in savings and loan groups and willingness to repay their loans; though it can signal that prospective members are serious about their obligations.

2.3 Summary of priorities for this component based on lessons learnt internationally

1. Understand strength and weaknesses of existing groups and analyse their suitability for administering loans and savings products.
2. Conduct mini Due diligence for prospective financial partner institutions.
3. Avoid politicised lending.
4. Analyse whether informal, semi-formal or formal mechanisms are most efficient in the project context.
5. Offer right from the project inception only cost covering financial products – avoid direct subsidise.
6. Use financial sector specialist for component definition and implementation throughout project duration.
7. Microfinance not to be used as a mechanism to achieve project results but rather base on financial sector development.
8. Focus intervention not only on credit, but savings and micro insurance might be at least equally important in particular for women and children.
9. Consider micro insurance mechanism to diversify risks also related to climate change. This benefits the entire household and food security. Namibia has some experiences to offer in the micro insurance market.
10. Coordinate with all major players (government, non-Government and donors) so that the project component is embedded into national financial sector development policies.
11. Be clear and realistic about that commercial players only come in if the financial product will be profitable in the long-term. Therefore products need to have a prospect of reaching large numbers of customers to reach economies of scale otherwise it will be a one shot initiative and dry up as soon as subsidies vanish.

3. Review related to Output 3.5.: Macro Level

As per proposal the following is envisaged:

Output 3.5: Recommendations prepared on additional regulatory and policy needs to encourage credit provision to private sector for investments in adaptive practices based on project experience

There are many national policies at play in this project, like rural development policy, national development plan, Youth, Women, Environment policies etc. all of them carry some elements of financial sector invention as shown below. Though the financial sector is a primary sector which drives development and not vice versa it is treated in most policies as a facilitator. Namibia has developed a Financial Sector Strategy for the period 2011- 2021. This should be an integral part of the planning and design of the SCORE project. Financial sector development drives development and not the other way round. Distortions in this sector delay rather than accelerate development. It should not be “misused” as a mere mechanism to market products which would not be viable when tested by the market forces of supply and demand. An artificially set up “market” based on subsidies by donors or Namibian taxpayers will hardly survive in the medium term when subsidies are lifted.

Action: *The Financial Sector Strategy foresees and has established various working groups to help drive implementation thereof. There is a working group shared by the Governor and his Deputy to promote financial inclusion of the Namibian population, which would cover the planned UNDP SCCF climate change project. It is important that all interventions are coordinated. It seems in reality each Ministry is working within their mandate with little interministerial collaboration: there is the Central Bank and the Ministry of Finance tasked to safeguard and develop the financial sector appointed by the Government to formulate financial policies and regulations, but other Ministries like Agriculture, Water and Environment, Ministry of Commerce and Industry, Women, Family and Social Welfare formulate programmes which interfere and sometimes even contradict developed financial sector policies. For example, the Central Bank strives to encourage financial institutions to develop viable unsubsidized products and downscale their operations. Other Ministries roll out their programmes often with a microfinance component attached, actually being counterproductive to mainstream policies.*

Often these objectives are not mutually exclusive but can be a win-win situation for both sides if coordinated and mutually agreed upon and not implemented in a vacuum which leads to duplication of efforts and often mismanagement of scarce resources. Therefore it is recommended that this project component tries right from the beginning e.g. design phase and throughout its implementation tries to seek an integrated and coordinated approach with especially the financial sector authorities and is embedded in other national policies.

The project document aims at developing policies to encourage the financial sector to extend credit to the target group to enable them to adapt to climate change and reducing their vulnerability. This should be done together with the private sector and rather focus on helping to push research and development that leads to new innovative products serving the market and not through subsidized interest rates which just distorts the market and is most often exploited by politicians. In discussion with Namibian financial sector experts, a leasing product for asset based finance related to climate change, might be one way to go forward.

Annex 9: Lessons learned from the SPA/CCP and CBA projects

Box 1 Lessons learned from the SPA/CBA projects provide a strong basis to upscale and adopt best practices

CBA project had three target interventions that provided a strong basis to adapt and upscale climate smart agriculture in Namibia (UNDP, 2010):

1) Soil conservation-OIKE group farmers, including key women farmers, undertook conservation tillage in Onakapya and Omungwelume using a “ripper” (a ploughing implement that is being popularized in the region for soil tilling). Through a partnership forged with CES, the group received hybrid seeds for a number of crops types in the region, which are producing excellent results. Through the application of CONTILL conservation agriculture and use of hybrid seeds, communities were able to harvest 10 of 57 kg bags per hectare. This is comparable to normal harvesting figures for this drought/flood stricken area, which are 1.33 of 50 kg bags per hectare.

2)Water harvesting and hand-made wells-With support from CES, the OIKE group has identified appropriate water harvesting techniques (e.g. micro-catchments for dryland’s agriculture) and visited local sites to learn and exchange ideas on water harvesting for collective community use. In addition, the installation of hand pumps on existing traditional wells took place in the Onkaankaa village and surrounding areas. Thirty households and four primary schools in Onkaankaa, Onkani, Omungwelume, and Uuvuudhiya are participated in a water-harvesting pilot initiative to demonstrate water-harvesting techniques in community institutions. The water collected was used to irrigate small gardens and provide food and drinking water. The participating schools were issued tanks to store water for school and community use. The CBA SHGs pilot revivals of flood and rain water harvesting in traditional wells, or the digging of new earth ponds as an adaptive measure proved an effective and welcomed method by rural dwellers due to the increasing negative impacts of floods on livelihoods.

3) Good practices for Climate Change Adaptation-OIKE community members mobilized into Self Help Groups to build awareness on good practices to cope with the stresses of climate change adaptation. For water and food security), flood and rainwater harvesting for irrigated agriculture and livestock and fish farming were promoted Improved dry land crop production through soil improvement/conservation strategies such as composting, bio char, crop rotation and conservation agriculture were also promoted. New agricultural practices were introduced, using new flood and drought resistant staple and other crops, which boost human nutrition and increase fodder security for livestock, chicken, and fish, and safeguard sector related incomes.

(http://www.undpalm.org/sites/default/files/downloads/undp_f2_namibia_final1.pdf)

Box 2 CCA project lessons learned per outcome

Lessons learned from the CCA project under the different outcomes are as follows:

Outcome 1) Climate change adaptation measures of rural communities in agricultural production piloted and tested - Adaptation measures and coping mechanisms were piloted and tested in the 12 constituencies in Omusati Region that included; water harvesting, aquaculture, seeds, livestock, conservation agriculture and drip irrigation. Positive response in reducing the vulnerability of farmers has been significant, notably in the interventions of livestock improvement programme, dry-lands crop farming: conservation agriculture (CA) and improved seeds, horticulture production using drip irrigation systems, as well as in livelihood options that entails rearing of chickens and guinea fowls and water storage facilities. In this context and as per impact assessment, the project intervention boosted yield in dry-land production areas.

Outcome 2) Improved information flows on climate change, including variability such as drought between providers and key users-Trained technicians were engaged in disseminating climate risk information to farmers at constituency level to ensure that key resource users (farmers) made informed decisions when farming in varying climate. The training of AETs and other officers were also aimed at integrating climate change issues into regional development planning. The information toolkit developed with farmers in Omusati region has been tested and applied since then throughout Namibia including Erongo, Hardap, Karas and Khomas regions.

Outcome 3) Climate change issues integrated into planning processes-The project in collaboration with MET, NAM AAP, UNDP and the CCA Project Steering Committee took a strategic decision to withdraw plans of developing constituencies and a regional climate change adaptation strategy on the basis that the intervention could result duplication of resources to have a regional climate change strategy and strategies per 12 constituencies before the Namibia's Policy on Climate Change is in place. However, lessons learned from the CCA project has immensely contributed to the formation of Namibia's Policy on Climate Change, which was officially approved by Cabinet in May 2011. In conclusion, besides the Namibia's Policy on Climate Change, there is no firm evidence of mainstreaming budgets and promoting key investments for climate change.

Annex 10: Impact Assessment Methodology

Short proposal for Namibia Impact assessment by UNAM: Scaling up community resilience to climate variability and climate change in Northern Namibia, with a special focus on women and children.

The project will strengthen the adaptive capacity and reduce the vulnerability of 4000 households (25,000 people), 80% of which are female-headed, and children in 75 schools, to droughts and floods in Northern Namibia by scaling up climate-smart livelihoods which have been piloted in the CBA programme and the SPA project. The project will be implemented in five regions in North-Central Namibia. Potential replicability is for 150,000 households in the North and North Central Namibia.

The project aims to deliver three Outcomes with a grant of \$3 million:

- Outcome 1: Smallholder farmer adaptive capacity for implementation of climate resilient agricultural production practices strengthened.
- Outcome 2: Reduced vulnerability to droughts and floods through restoration of wells and harvesting of floodwater for food security.
- Outcome 3: Mainstream climate change into national agricultural strategy/sector policy, including adjustments to budgets for replication and up-scaling.

The expected outcomes will benefit 4000 smallholder farmers practising climate resilient agricultural production for food security, rainfall and flood water harvesting, and diversification of their livelihoods. Food security will be improved: agricultural will move from being as a subsistence livelihood to a livelihood that provides income and economic resilience to future climate shocks. The metric for vulnerability reduction will be established during the PPG phase.

A quasi-experimental impact assessment methodology was designed during the PPG phase in order to ascertain in scientific, evidence-based terms the effectiveness of the two project interventions in delivering adaptation benefits and their replicability to other communities in Namibia. The findings will be packaged into a user-friendly publication on policy recommendations and results will be disseminated. The impact assessment will be an additional tool to help mainstream adaptation into policies and budgets.

The 'treatments' that will be assessed for its effectiveness in reducing vulnerability to climate change is taken from Outcome 1 of the project (budget \$1.9 million) and are as follows:

Output 1.1: Smallholder advisory and mentorship programme that promotes drought resilient land management and crop production practices established to scale up good practice for 4000 smallholder farmers

An advisory and mentorship programme will be established to deliver an integrated package of support services to communities. The mentorship programme would provide advice and facilitate access to land preparation services, and inputs such as indigenous seeds, fertilizer, manure, technical training, advisory inputs and credit, mobilized in time to prepare for the first rains in November. The programme would be contracted to proven organizations with a track record in climate-smart agriculture focused on the smallholder farmer. Women-headed organizations will be given special consideration, given the predominance of women-headed households in the northern regions. Experts in the field estimate that

the cost of a mentorship programme could be in the region of N\$500 per hectare, which is lower than the demonstrated returns of climate-smart agriculture in Namibia.

Output 1.8 Savings and loan scheme tested among smallholder farmers to promote replication and up-scaling of adaptive practices and technologies.

The CBA pilots show that smallholder farmers can make good returns on their plots practicing low tillage land preparation and other climate-smart agricultural practices, and that even very poor smallholder farmers are able to save something every month. Preliminary discussions with various lenders show an interest to provide financial services to smallholder farmers. The proposal is that grant financing would be used to establish the advisory and mentorship programme and other institutional arrangements in years 1 and 2 of the project, and that in years 3, 4 and 5 of the project, a financial services provider would be step in to take the place of grant financing. The PPG phase will explore the potential for group saving and lending schemes, based on the formation of Self Help Groups described under Output 1.2; as well as lending on the basis of mobile assets, i.e. small-stock. Initial discussions with the Director of Agribank in the northern regions branch revealed their willingness to revive a group loan scheme for inputs and land preparation services. Using mobile collateral to secure loans is already being practiced successful in Namibia in relation to cattle by the Namibia Meat Board. By the end of the project, it is expected that beneficiary households (smallholder farmers) would be able to afford to pay for land preparation services, that they would have the financial services and business planning skills to be able to grow their agricultural livelihoods, and have livelihoods that generate good returns.

Background

In Namibia climate change is expected to result in higher temperatures and high evaporation and evapotranspiration, reduced water resource availability, changes in rainfall patterns affecting agricultural seasons and changes in vegetation. The majority of Namibians depend on rainfed subsistence agriculture, characterized by declining levels of productivity. Major constraints include lack of water and poor soils, low use of farm inputs, lack of affordable credit and market access. The capacity for social organization and support is dwindling due to the impact of HIV/AIDS.

Agricultural policy has been draft for a number of years. Two high profile government agricultural programmes are focused on intensive, high consumption agricultural, poorly suited to smallholder farmer needs.

Objectives of the impact assessment

- To assess the main factors causing vulnerability;
- To determine which indicators best measure adaptation progress among smallholder farming community;
- To assess effectiveness of two adaptation measures in reducing vulnerability;
- To assess extent of replicability of the interventions to the smallholder farming communities in Namibia;
- To quantify potential macro-impact of vulnerability reduction e.g. national level food security;

- Recommendations for policies and measures to promote replicability.

The methodology

The steps to be undertaken for the impact assessment are as follows:

<p>Participatory monitoring and evaluation process set up</p> <p>Focus group discussions will provide the qualitative basis for the quantitative research on measuring vulnerability reduction. Aims: to understand how vulnerability is understood, factors causing vulnerability and community strategies to reduce vulnerability. The focus group discussions will validate the relevant outcome and explanatory variables to include in the quantitative research plus indicators. Communities will select indicators that could be used to measure reduced vulnerability. <u>Financed from PPG budget.</u></p>
<p>Establish treatment groups and control groups</p> <p>Distinguish treatments (interventions) to be monitored and assessed</p> <p>Establish when measurement of behavioural change will be taken</p>
<p>Questionnaire developed</p> <p>Semi structured to provide measurements for determinant variables</p>
<p>Questionnaire pilot tested</p> <p>To ensure that a) all questions are understood as intended b) that no question leads the respondent into a particular answer nor influences any other question i.e. the questionnaire should be as neutral as possible c) that the questionnaire is complete, avoids duplication and avoids redundant questions.</p>
<p>Sampling and baseline data collection</p> <p>Sample measurements will be taken from 260 households in the region (total population: 800 households). The sample may be widened to allow for attrition.</p> <p>Control groups will be chosen the following way: choose a constituency in each region that is furthest away from the beneficiary constituencies to minimize the risk of spill over effects. Choose a community that has similar characteristics to the beneficiary communities using GIS to compare land characteristics and through comparison of income and health statistics and livelihood characteristics (using national data sources).</p>
<p>Data collection: year 2</p> <p>Focus groups</p> <p>Survey</p> <p>Assess significance of treatment effect and main determinants</p>
<p>Data collection: year 3</p> <p>Focus groups</p> <p>Survey</p> <p>Assess significance of treatment effect and main determinants</p>
<p>Preparation of policy implications</p> <ul style="list-style-type: none"> • Benefits extrapolated to other similar communities in Namibia

- | |
|------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none">• Quantification of impacts from a CCA project• Policy implications |
|------------------------------------------------------------------------------------------------------------------------------|

Establishment of the treatment groups and control groups. Beneficiary groups will be selected by the Government of Namibia. Control groups will be selected that match the characteristics of the beneficiary communities but that are geographically separated in order to minimise spill-over effects. The effects of the CCA measures tested can then be observed. Use GIS mapping software to determine similar topography and land quality.

Two interventions (treatments) will be implemented:

1. An integrated package of measures which comprise: mentorship for the formation of self-help groups, provision of agricultural inputs such as tractor services, fertilizer and seeds;
2. A savings and loan scheme (that will eventually replace the project grant).

The changes in the dependent variable (vulnerability) will be measured using observable variables such as: i) hectares planted in time for rains or ii) yields of diversified agricultural production away from traditional grains). Treatment 1 will be introduced in years 1 and 2 of the project. Observational change could be measured in year 2.

Treatment 2 will be introduced in year 3 of the project. Research will determine effectiveness of the policy alternative (financial services vs grant), using the same indicators for comparability across groups. A subset of households of the project beneficiaries is expected to be the population for this treatment. A sample of this smaller population will be taken to measure the effectiveness of the treatment.

Due to funding constraints and given the pilot nature of this work, the research will likely take place in two of the five regions.

The University of Namibia, Multidisciplinary Research Centre, and Life Science Division will implement the impact assessment.

Budget

The budget covers the fees for a principle researcher, researchers, enumerators, interpreters, note takers/transcribers and data entry clerks.

Table 12 Budget for Impact Assessment

First data collection and analysis	USD
Training of data collectors	10500
Data Collection	17750
Data Management (Statistical Analysis)	17625
Travel and Subsistance	1800
Sub-total	47675
Institutional overheads (10%)	4767.5
Total	52,442.50
Multiplied by three for addition two data collection phases	157,327.50

Annex 11: Detailed review - Climate change, environmental and socio economic context

Context

Namibia is a middle income country in Southern Africa. Since Independence in 1990, Namibia has enjoyed political stability and economic growth. Generally, Namibia is on a steady development path and policy makers are becoming increasingly aware of the importance of addressing climate change risks, demonstrated, for example, through the setting out of a National Climate Change Policy²³ as well as a National Climate Change Strategy and Action Plan²⁴. Overall, the adaptive capacities of Namibia are relatively stronger than in most other African countries, given the quite stable political and economic situation. However, it is also clear that there are high levels of disparity in Namibia, and adaptive capacities in certain areas are much weaker than elsewhere. Overall, it is apparent that climate change policy and responses are still in a starting phase, and a significantly more concerted effort is needed to assist the country in building meaningful adaptive capacity.

Considering the draft report of the International Panel for Climate Change (IPCC) Working Group II contribution to the IPCC Fifth Assessment Report WGIIAR5, released in March 2014, it is clear that more investments into adaptation research, planning and implementation are needed throughout the World, but particularly Africa, to prepare for the significant changes projected by mid-century (Box 1). The IPCC report states that for Africa, already significant changes in climates are observed, affecting millions of people across the continent²⁵. In a 2011 study²⁶, Namibia has been classified to be the 7th most at direct risk country in the World in terms of agricultural production losses due to climate change (Figure 1). This ranking is motivated by the already arid conditions prevailing in Namibia, naturally providing difficult climatic conditions for agriculture, which are further exacerbated by ongoing and future aridification and warming. The notion that semi-arid areas in Africa will be particularly affected by climate change was recently renewed and strengthened by the IPCC WGIIAR5²⁷. And although the ranking does improve when factoring in potential adaptive capacity to number 62 on a global scale, the identified vulnerability to direct climate risks to agriculture – and consequently food security, health, household economics and other livelihood relevant aspects – will likely be severe. This is particularly so for rural households and small-scale farmers that depend on subsistence farming and further more so for marginalized groups of society, such as women, women-led households and children. Supported by evidence presented in chapter 22 of the IPCC WGIIAR5 Africa report, the particular vulnerability of these groups is highlighted and a strong call for gender mainstreaming approaches in adaptation responses is presented, - all relevant to the Namibia's context.

²³ Namibian National climate change policy of 2011

²⁴ National Climate Change Strategy and Action Plan of 2013

²⁵ IPCC Fifth Assessment Report WGIIAR5 2014. Available at: <http://www.ipcc.ch/report/ar5/wg2/>

²⁶ Wheeler, D., (2011) www.cgdev.org

²⁷ IPCC Fifth Assessment Report WGIIAR5 2014. Available at: <http://www.ipcc.ch/report/ar5/wg2/>

Text box 1: The IPCC WGIIAR5 report's Executive Summary states:

Evidence of warming over land regions across Africa, consistent with anthropogenic climate change, has increased (*high confidence*). Decadal analyses of temperatures strongly point to an increased warming trend across the continent over the last 50-100 years.

Mean annual temperature rise over Africa, relative to the late 20th Century mean annual temperature, is *likely* to exceed 2° C in the A1B and A2 scenarios by the end of this century (*medium confidence*). Warming projections under medium scenarios indicate that extensive areas of Africa will exceed 2° C by the last two decades of this century relative to the late 20th Century mean annual temperature and all of Africa under high emission scenarios. Under a high RCP, that exceed could occur by mid-century across much of Africa and reach between 3 and 6° C by the end of the century. It is *likely* that land temperatures over Africa will rise faster than the global land average, particularly in the more arid regions, and that the rate of increase in minimum temperatures will exceed that of maximum temperatures.

A reduction in precipitation is *likely* over Northern Africa and the south-western parts of South Africa by the end of the 21st Century under the A1B and A2 scenarios (*medium to high confidence*). Projected rainfall change over sub-Saharan Africa in the mid- and late 21st Century is uncertain. In regions of high or complex topography such as the Ethiopian Highlands, downscaled projections indicate *likely* increases in rainfall and extreme rainfall by the end of the 21st Century.

African ecosystems are already being affected by climate change, and future impacts are expected to be substantial (*high confidence*). There is emerging evidence on shifting ranges of some species and ecosystems due to elevated CO₂ and climate change, beyond the effects of land-use change and other non-climate stressors (*high confidence*). Ocean ecosystems, in particular coral reefs, will be affected by ocean acidification and warming as well as changes in ocean upwelling's, thus negatively affecting economic sectors such as fisheries (*medium confidence*).

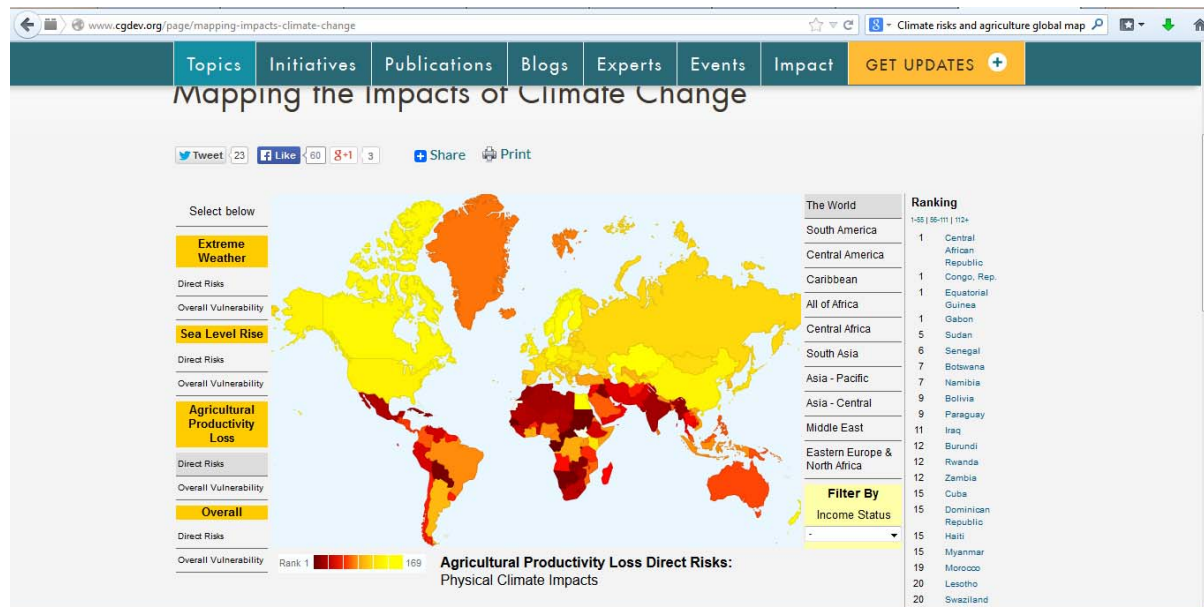
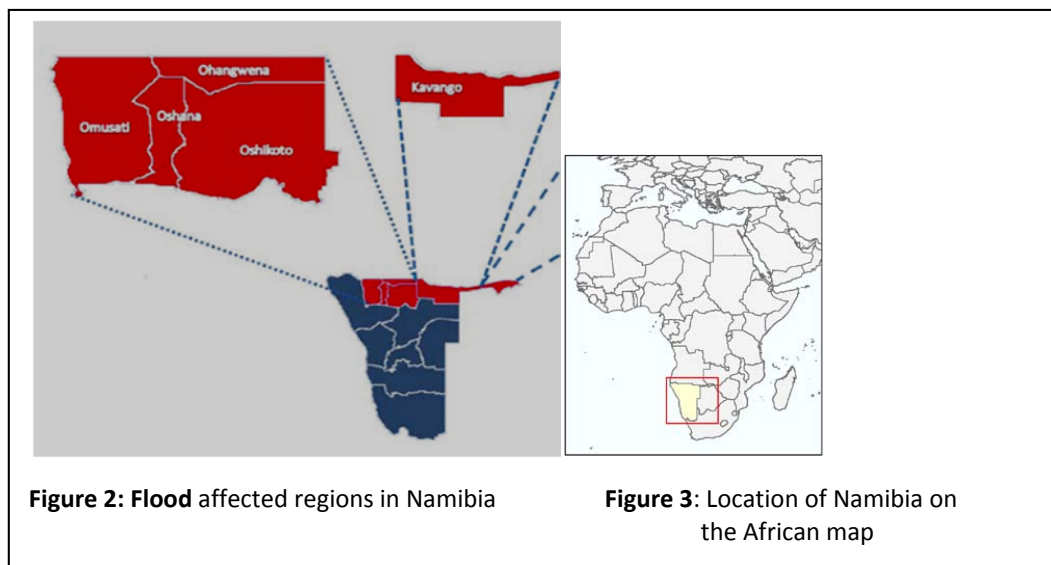


Figure 1: Globally, in terms of direct risks of agricultural productivity loss due to climate change impacts, Namibia is rated to be the 7th most at risk nation in the world (Wheeler, D., 2011; www.cgdev.org).

Geography, environment and key production systems

Namibia is situated in southern Africa, covering an area of about 823 680 km. It is bordered by the Atlantic Ocean in the west, Angola in the North, Botswana in the north east and South Africa in the south. Namibia is classified as the most arid country in sub-Saharan Africa, with naturally highly variable climates. The country is located between two climatic systems; the Intertropical convergence zone, which feeds in moisture from the north and the Subtropical high pressure zone, which pushes the moist air back with the dry air, thus the absence of moisture in the atmosphere, rather than the absence of rain, gives Namibia its dry weather conditions, leading to the classification of Namibia as arid²⁸.



Most surface water is held in ephemeral and only three perennial border rivers, small channels, as well as pans and a few, mostly ephemeral, lakes, the Etosha pan being the largest. A significant amount of water is abstracted from the Border Rivers, i.e. the Kunene, Okavango, Orange and Zambezi rivers. Namibia uses underground water resources, with active and fossil aquifers being exploited²⁹. Only about 1% of rainfall replenishes the groundwater aquifers that many Namibians depend on, and 2% runs off into surface water resources, which have high evaporation rates³⁰. Water is mostly abstracted through boreholes, and in communal areas through hand dug wells. Namibia is classified as a water-scarce country, where water is considered the most limiting factor of development.

Namibia's biomes and ecosystems are following a west to east and south to north rainfall gradient. The four key biomes classified are the Namib Desert, Nama Karoo, Succulent Karoo, and the Tree and Shrub Savannah. About 70% of Namibia's vegetation is classified as Savannah. Namibia is endowed by a unique biodiversity, and wildlife prospers in State and non-state conservation areas 13.8%³¹ of Namibia's land area is under conservation status. Community-based conservation is supported as a key management strategy, and several so-called conservancies and community-forests are situated in the regions targeted

²⁸Derived from the SCORE PIF document

²⁹Mendelsohn, J., Jarvis, A., Roberts, C., and Robertson, T. (2002). Atlas of Namibia. A portrait of the land and its people.

³⁰Dirkx, E., Hage, C., Tadross, M., Bethune, S. and Curtis, B., (2008). *Climate change vulnerability and adaptation assessment*.

³¹National Climate Change Policy of Namibia 2010

by this project. Local people often use non-timber forest products and other, so called veld products, to supplement diets and livelihoods.

In terms of production systems, five major farming systems are distinguished, i.e. (1) small-scale cereal, (2) livestock, (3) mixed cattle ranching, (4) intensive agriculture, and (5) natural resource production³². The farming sector is usually divided into small-scale and large-scale commercial producers. In the north-central regions, approximately 50%³³ of farmers are classified as small-holder farmers³⁴. They produce cereal crops such as pearl millet, sorghum and maize under rain fed conditions. They usually also farm with cattle, small livestock such as goats, and keep donkeys, pigs and chickens³⁵. Some levels of irrigation farming exist, however, due to the limited water resources; large-scale irrigation is not sustainable³⁶, although dryland cropping is an alternative.

Social context

Namibia's total population is 2.1 million (2011³⁷), with a national population density of 2.5 persons³⁸ per km², a low density characteristic for arid ecosystems. Fifty-eight (58%) of Namibians live in rural areas, and approximately two-thirds of those live in the north-central regions. Although Namibia is classified as middle-income country, about 20% of the population is classified as poor and about 9.6% as severely poor³⁹. The regions with the highest incidence of poverty are Kavango (57%), Ohangwena (45%) and Oshikoto (41%)⁴⁰, 51.64% of Namibians are female, 48.36% male and 23%⁴¹ of the total population are under the age of 15. The overall age expectancy is 66 years for females, and 63 years for males⁴². Looking at the percentage of stunted children, nutrition and ultimately health and development indicator, the average stunting in the country is 29%. The number of stunted children in the Kavango Region is 40%, in Ohangwena Region 34%, Omusati Region 28%, Oshana Region 28%; and Oshikoto Region 32%, respectively⁴³. These rates can be considered as high for Namibia, anticipated climate change impacts are likely to worsen performance on such an indicator. Namibia records one of the highest levels of HIV/AIDS prevalence in the World, especially in the northern regions⁴⁴, which adds to local vulnerabilities especially at the family and household level.

About 630 094⁴⁵ Namibians are in the labour force of which, twenty-seven point four percent (27.4%) of these are employed in the agriculture sector, where more women are subsistence farmers (19.6%) in

³²Mendelsohn, J., Jarvis, A., Roberts, C., and Robertson, T. (2002). Atlas of Namibia. A portrait of the land and its people.

³³<http://www.ruralpovertyportal.org/country/geography/tags/namibia>

³⁴The term small-scale farmers and communal farmers are interchanged with smallholder farmers in this document.

Smallholders are classified as farmers that own at least more than 2 Ha of land. Commercial farmers are classified as falling south of the red line.

³⁵Mendelsohn, J., Jarvis, A., Roberts, C., and Robertson, T. (2002). Atlas of Namibia. A portrait of the land and its people.

³⁶Hyens P (2005). Water institutional reforms in Namibia

³⁷Namibia Household and Expenditure Survey 2009/10

³⁸Namibia 2011 Census

³⁹Namibia Household Income and Expenditure Survey 2009/10

⁴⁰Namibian Statistic Agency Poverty profile

⁴¹This is according to the Namibian Statistics Agency Population and Housing Census Indicators for the year 2011

⁴²These are the life expectancy values recorded in the NHIES reports of 2009/2010

⁴³According to a landscape analysis on maternal and child nutrition in Namibia conducted by the World Health Organisation and the Namibia Alliance for Improved Nutrition (2012)

⁴⁴Derived from the SCORE PIF document

⁴⁵Namibia Labour Force Survey 2012

comparison to males (16%)⁴⁶. More importantly, for many households, improving agriculture is secondary in importance to gaining waged jobs. Agricultural productivity is no longer sufficient to ensure household food security, let alone to generate cash income. Instead, households rely on cash income from non-agricultural sources to supplement food production. Thus, off-farm employment and income generation are central components of agricultural and rural development in Namibia. The official unemployment⁴⁷ rate in Namibia is 27.4% in 2012⁴⁸. However, non-governmental sources peg the figures as high as 50% and more⁴⁹. Unemployment amongst the youth is particularly high, at 42.8%. Almost two-thirds of these are young females. Youth unemployment is endemic in Khomas, Erongo, Kavango, Oshana and Ohangwena regions⁵⁰.

Other relevant socio-economic key indicators are depicted in table 1, below:

Table 2. The key socio-economic indicators for Namibia based on the National Accounts, Labour Force and Census reports⁵¹

Population	2,104,900 million
Economically active population	70.8%
Income per capita	US\$ 14 559
Real Gross Domestic Product (GDP) growth	4%
Inflation rate	6.5%
Illiteracy rate	13%
Life expectancy at birth	64% male, 66% females
Access to health/safe water	80%
% below poverty line (%)	29%

Economic context

GDP growth (4% in 2013, primarily in the secondary and tertiary industries that recorded growth rates of 8.7% and 6.4% respectively) has been also quite unequal in social and geographic terms. The primary industries recorded a decline of 9.3% in 2013 compared to a growth of 16.7% in 2012. This is mainly as a result of the poor performance of the agriculture, fishing and mining and quarrying sectors, all of which dropped in 2013. The estimated annual GDP per capita was USD 14 559⁵² in 2011. The GDP per capita for men (N\$ 18 223) is presently almost double that of the GDP per capita for women (N\$ 9 908). Namibia has a high level of income disparity, with a Gini coefficient of 0.6 and ranking 128⁵³ in the global ranking

⁴⁶According to the Namibian Labour force survey (2012) in addition to women making up a larger portion of the subsistence farming sector they also make up a larger percentage of unpaid family labourers at 7.3% compared to males that lie at 4.9 %.

⁴⁷ Described as unemployed in the broad sense which includes all persons within the economically active population or working age group who meet the following two criteria, irrespective of whether or not they are actively seeking work: being without work and being available for work.

⁴⁸Namibia Labour Force Survey 2012, available at

http://www.nsa.org.na/files/downloads/0df_The%20Namibia%20Labour%20Force%20Survey%202012%20Report.pdf

⁴⁹Mendelsohn, J., Jarvis, A., Roberts, C., and Robertson, T. (2002). Atlas of Namibia. A portrait of the land and its people.

⁵⁰Labour force 2012 Basic report, available at http://www.nsa.org.na/files/downloads/e8c_youth-employment.pdf

⁵¹Namibian Statistic Agency National Accounts report

⁵²Annual economic development report 2012, available: http://www.npc.gov.na/?wpfb_dl=201

⁵³UNDP Human Development Report 2013

of 187 countries for which the Human Development Index (HDI) is calculated, amongst the highest in Africa.

The informal sector remains large in Namibia. The major source of income for more than 40% of households is subsistence agriculture, a social grant, or other source outside of formal sector employment⁵⁴. Own account workers and contributing workers are highest in the Omusati region with over 30%, with Oshana, Ohangwena, Kavango, Otjozondjupa and Oshikoto showing percentages of approximately 29%, 27%, 14%, 10% and 7%⁵⁵ respectively.

Namibia's most important economic sectors are agriculture, fisheries, mining and tourism. The economy of the country is highly based on natural resources, but it is increasingly diversifying into natural resources processing, as well as an expanding tourism sector, which, in Namibia is closely linked to natural resources⁵⁶. Mining and fisheries are the first and second largest contributors of foreign exchange to the Namibian economy, while tourism follows closely at third place.

The **agriculture** sector, a priority sector under Namibia's National Development Plan 4 (NDP4, 2012/13 to 2016/2017⁵⁷). The sector has recorded a slowed growth of 5.3% in real value added for 2012, compared from a growth of 10.6% registered in 2011. The deceleration in the growth rate of agricultural output was reflected in both subsectors, namely livestock and crop production that registered lower growth rates of 3.6 percent and 6.5%, respectively. These sectors are highly dependent on rainfall amount received, for productivity. The comparative growth rates for 2011 were 13.2% and 9.0%, respectively. The agricultural sector is estimated to have declined by 26.9%, due to the drought⁵⁸. The slow growth witnessed in the livestock subsector was caused mainly by a decrease in the number of cattle marketed, as farmers were more reluctant to sell their livestock off after drought seasons, in order to raise their stocks. Agriculture is important in terms of economics and food security two thirds of the country practice farming at a subsistence level, with majority of these farmers found in the northern regions of the country. One of the most vulnerable groups is women employed on farms or who are in households in which the principal breadwinner is a labourer on a commercial farm. Over 36,000 farm workers support an estimated 230,000 dependents, on wages ranging between N\$80-380/month. The main contributor to subsistence across households is cash income directly from formal employment or by way of cash and non-cash remittances from an absentee member. In the absence of income from remittances or formal employment, women rely more heavily on cash or barter from informal sector trading, such as beer brewing or crafts, casual labour or piecework is also increasing in importance⁵⁹.

In recent years the Namibian government has been working towards improving food security in the country, especially in the Northern parts of the country, through national agricultural projects. Three main projects in the country that are currently aimed at raising food security for smallholder farmers are: Green Scheme, National Horticulture Development Initiative, and Dryland Crop Production Programme (DCPP).

⁵⁴NHIES 2009/2010

⁵⁵NHIES 2009/2010

⁵⁶Tourism Satellite Account 4th edition, 2013

⁵⁷National development Plan 4. Available at : http://www.npc.gov.na/?wpfb_dl=37

⁵⁸ The Namibian Economist, Available at <http://www.economist.com.na/markets?start=20>

⁵⁹ Women, agriculture and rural development: national sectoral report for Namibia. Available: http://www.fao.org/docrep/x0174e/x0174e03.htm#P318_65910

The Green Scheme has a total land allocation of 9,429 hectares (ha) of which 3,435 ha are under production in the Karas, Kavango, and Caprivi and Omusati regions. The Programme makes provision for Small Scale Farmers, occupying a total of 825 ha. The DCPD aims to promote food security at household level through provision of improved seeds and fertilizers as well as ploughing and weeding services, in 2011/12 financial year, 15 294 subsistence farmers benefited from the programme. These numbers indicate that Namibia is well underway in improving food security through these programmes, but despite these accomplishments a shortfall of 125 100 mt⁶⁰ of coarse grain was noted in 2012 and a 2% below average cereal production is predicted for 2014⁶¹. The 2014 Household and food security report indicated that food security has dropped in the NCA due to poor harvest in the previous season, as food supplies only lasted up to August 2013 for majority of the farmers, and they are now heavily dependent on the market and drought relief food assistance for food access. Recent year's floods and droughts resulted in the Namibian government spending millions on food and other supplies for the affected regions, showing that much support and effort is still needed to obtain food security in the country.

The dominant part of the **Inland Fisheries** contribution to Namibia's economy is from marine fisheries. The real value added of fishing and fish processing sector is estimated to have declined by 4.7% in 2012 as compared to a growth of 6.2% recorded in 2011⁶². This sector has an indirect effect on household economics in the north-central regions, with migrant workers flocking to the coast and to sea, including from the regions considered in this project. Migrant labour is mostly undertaken by men; with knock-on effects on gender composition at household/farm level are experienced. Additionally, important fresh water fisheries are found i.e. in the Caprivi and Kavango regions, and in those areas that form part of seasonal floodplains such as the so-called Oshanas⁶³. There are more than 1 million hectares of flood-plain wetlands with fisheries potential as a result of the country's perennial rivers and additional seasonal wetlands fed by rainfall run-off e.g. in Angola. It is estimated that inland fish resources provide approximately half of the rural population in the north-central regions, with food, nutrition, income and informal employment⁶⁴. Aquaculture is still a very new concept in Namibia, but it may have development potential⁶⁵.

The value added of the **mining and quarrying** sector is estimated to have rebounded significantly to 11.2% in 2012 from a decline of 7.9% registered in 2011. The increase was reflected in subcomponents, diamond mining and other mining (uranium, copper, zinc and quarrying of stones) subsectors that recorded growth rates of 9.0% and 18.8%, respectively. Similar to the fishing sector, the mining sector has an indirect effect on household economics (see above).

⁶⁰ Iita, J (2012). Food Security Situation in Namibia

⁶¹ However cereal production showed a 50% increase from last year's cereal production, but much of the improvement comes from the commercial section which is under irrigation.

⁶² [Annual Economic Development Report 2012](#)

⁶³ Oshana is the Oshiwambo term used to refer to the seasonal floodplains found in the northern regions of Namibia. When these floodplains fill after the rainy season communities utilized them for fishing, which provides an important source of proteins.

⁶⁴ FAO Information on fisheries management in the Republic of Namibia.

⁶⁵ FAO available at <http://www.fao.org/fi/oldsite/FCP/en/NAM/BODY.HTM>

In 2011, the **travel and tourism sectors** direct impact contributed 3.9 % to the Namibian GDP, while the direct plus indirect impact according to the industry made up 15.7 % of GDP⁶⁶. The travel and tourism economy saw consistent growth over the last seven years. This sector remains a major exporter of services with international visitors injecting foreign exchange directly into the economy. Although much of the tourism sector focuses outside the regions that are the focus of this project, there are relevant links in terms of migrant labour, but also in terms of future potential for further developing the tourism industry. A promising approach has been Namibia's commitment to support communal conservancies and community-based tourism development. The national community-based natural resource management (CBNRM) programme, including conservancies and community forests, is both a conservation and rural development initiative, improving rural livelihoods while ensuring the sustainable use of natural resources and the protection of the Namibian environment. The total income from CBNRM to rural Namibians grew from zero before 1998 to over 42 Million Namibian dollars in 2009⁶⁷. Conservancies are contributing to an improved rural democracy and are empowering individuals, especially women, to actively participate in decision-making⁶⁸. Such tourism can potentially become a significant option for diversification, which might be more climate change resilient compared to other sectors.

Non-timber products such as wild fruits and oil, roots, thatching grass, palm leaves for basket making and palm sticks for fencing contribute to rural development and poverty reduction, through enhancing rural income and generating diversity land use systems away from traditional systems based on livestock and agriculture, and in this way diversify rural income sources and livelihoods. Aquatic plants abound in the warm, nutrient-rich water of the Cuvelai system and are used as food and medicine, as well as for building material and craft⁶⁹. All of these benefits improve the capacity of rural ecosystems, rural land use systems, and rural livelihood systems to adapt to the effects of climate change. However damage to ecosystems that provide these non-timber products may be at risk due to changes in temperatures and water regimes, as well as anthropogenic factors such as pollution and over exploitation and good management of these ecosystems are critical for adaptation and diversification of livelihoods.

Climate Change Context

Current climate

Namibia is one of the driest countries south of the Sahara. The mean annual rainfall ranges from just above 700 mm in the northeast to less than 25 mm in the southwest and west of the country. Most rain falls in the summer months (November to February) in the form of thunderstorms and showers. High solar radiation, low humidity and high temperatures lead to very high evaporation and evapo-transpiration rates. Average maximum temperatures vary between 30°C and 40°C while minimum temperatures vary between 20°C and 10°C. Overall about 22% of the country is classified as desert, 70% as arid to semi-arid and about 8% as dry sub-humid⁷⁰.

⁶⁶ Namibian tourism satellite account 4th edition, 2013

⁶⁷NASCO (2011). Living with Wildlife: The Story of Namibia's Communal Conservancies

⁶⁸ NASCO (2011). Living with Wildlife: The Story of Namibia's Communal Conservancies

⁶⁹Dirkx, E., Hage, C., Tadross, M., Bethune, S. and Curtis, B., (2008). *Climate change vulnerability and adaptation assessment*.

⁷⁰Mendelsohn, J., Jarvis, A., Roberts, C., and Robertson, T (2002). Atlas of Namibia. A portrait of the land and its people.

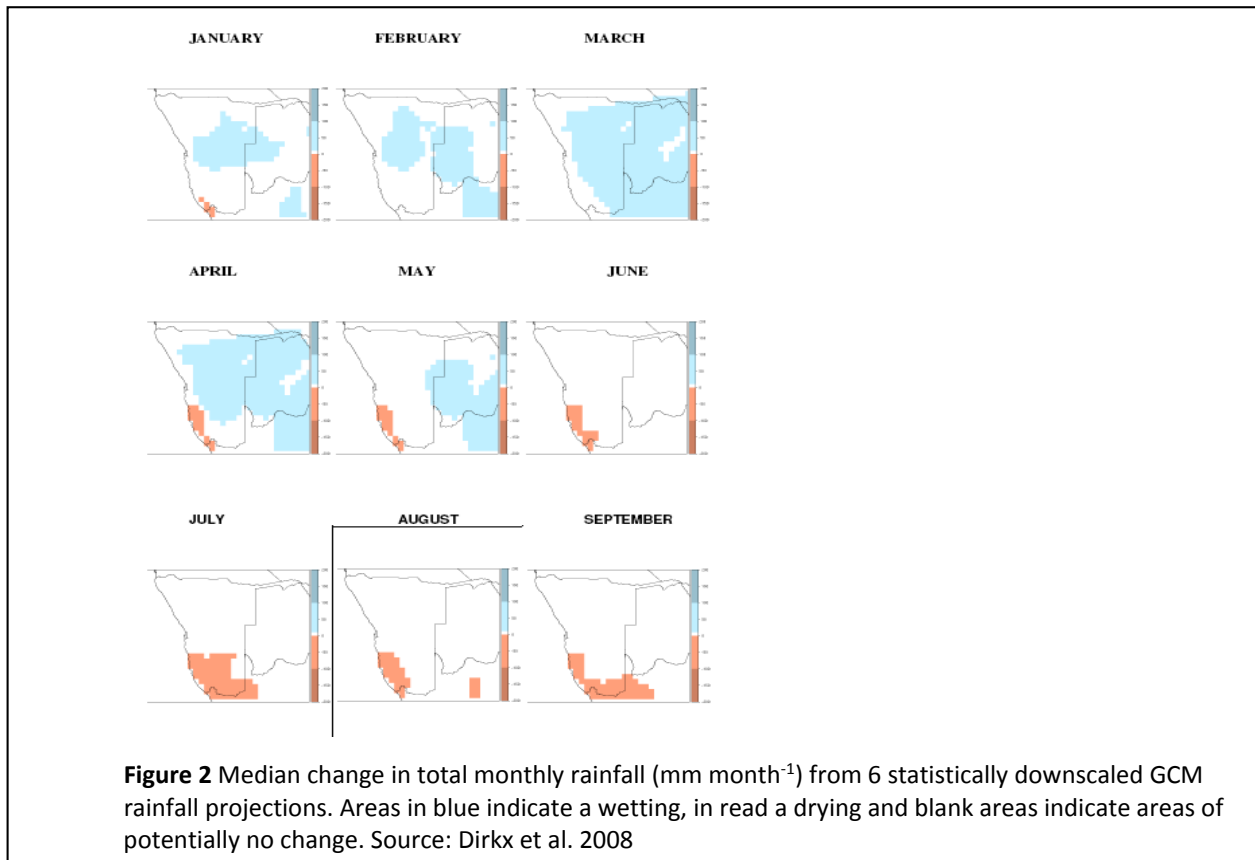
National Climate Change projections

The Second National Communication (SNC, 2011) and particularly the Climate Change Vulnerability and Adaptation Assessment report (2008), which was compiled in preparation of the SNC, provide a first detailed description of the observed climate trends and climate change projections for Namibia. Other

Text box 2: Summary of observed climate trends and projected climate change for Namibia (Source: MET, 2011)

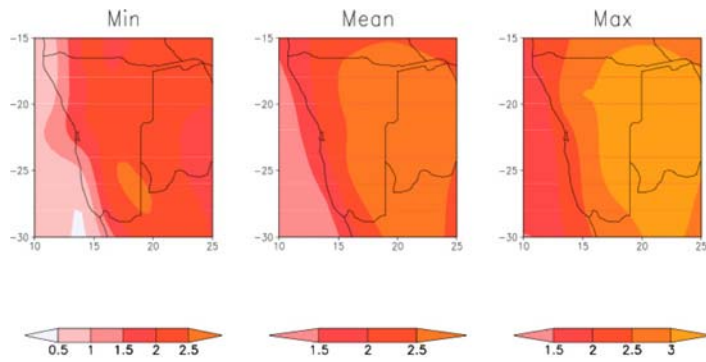
- Stronger **variability** is likely to remain the key aspect of Namibia's climate in the future.
- Maximum **temperatures** have been getting hotter over the past 40 years, as observed in the frequency of days exceeding 35°C, and there are fewer frequencies of days with temperatures below 5°C, suggesting an overall warming. Expected impacts, with a high degree of certainty, are for Namibia to become hotter throughout the year, with a predicted increase in temperatures of between 1°C and 3.5°C in summer and 1°C to 4°C in winter in the period 2046 - 2065. By mid-century, days exceeding 34°C are predicted to increase from 67 to 118 days, and average maximum temperatures will likely increase from 33.0°C to 34.4°C, which exceeds the heat stress threshold for some popular livestock breeds in Namibia. Indigenous livestock breeds such as Nguni, being smaller animals, require lower maintenance, more easily met by the available rangelands compared to European and other less adapted breeds.
- The northern and central regions of Namibia appear to be experiencing a later onset and earlier cessation of **rains**, resulting in shorter seasons in most vicinity. There has been a statistically significant decrease in the number of consecutive wet days in various locations, and increases in measures of rainfall intensity could be observed. Projections indicate that intensity is likely to be increased, with an increase in late summer rainfall over major parts of the country. Increases in rainfall are most obvious during the January to April period, especially in the central and north-eastern regions. A reduction of 10-20% in rainfall by 2045-2065 over the Angolan catchments of the Zambezi, Kavango, Cuvelai and Kunene rivers is expected to lead to a reduction in runoff and drainage in these river systems by +/- 25%.
- It is predicted that, even without the additional stresses of climate change on the water resources, demand will have surpassed the installed abstraction capacity by 2015. The projected temperature increases will result in **evaporation and evapo-transpiration** increases in the range of 5-15%, further reducing water resource availability and dam yields. Floodplains in the Caprivi and oshanas (ephemeral rivers and pans formed in the shallow depressions of the Cuvelai system in the north) remain particularly vulnerable, as smaller areas will be inundated, and because they may dry out more rapidly due to increased evaporation.
- The **minimum, mean and maximum expected changes in surface wind** for the 2046-2065 period is as follows; During summer minimum changes are mostly around zero whereas maximum changes are for onshore flow from the southwest, which are highest (approximately 0.8 ms⁻¹) towards the south. The mean changes are of a similar pattern (though lower magnitude) to the maximum changes and are consistent with increased convective activity and an associated low-pressure trough over the continent during summer. Both mean and maximum wind changes during winter indicate a similar (though stronger –approximately 1 ms⁻¹) pattern of change to that during summer. However, the minimum projected change also indicates increases in winds from the southeast over the ocean towards the south. Both the maximum and mean projected changes indicate increases in the southerly component of wind over the ocean. These projected changes are consistent with a retreat of mid latitude storms (which normally bring northwesterly winds) towards the south and an increase in the south Atlantic high-pressure system which drives winds from the south.

studies include an assessment commissioned to the Tyndall Centre by UNDP⁷¹. A summary is provided in Box 2.



⁷¹ <http://www.geog.ox.ac.uk/research/climate/projects/undp-cp/>

(a) January to March



(b) July to September

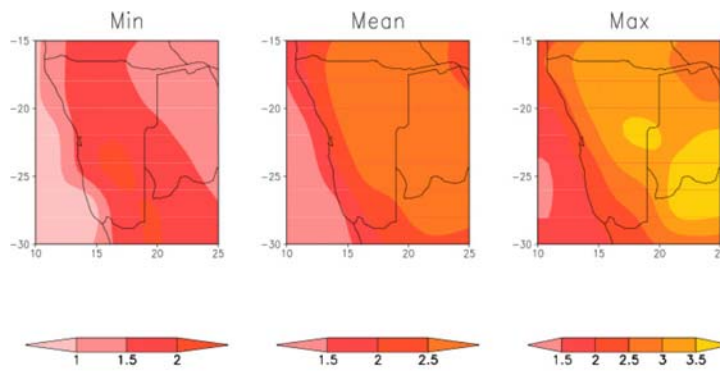


Figure 3 Minimum (left), mean (middle) and maximum (right) projected change in a) January-March and b) July-September mean surface air temperature (°C) from 13 GCMs. Source: Dirkx et al. 2008

Impacts and vulnerabilities

Most key sectors of the economy will be affected by climate change, even if they are generally already highly adapted to the naturally extremely arid and highly variable climate conditions. Overall the frequency and intensity of extreme events (e.g. drought and floods) is expected to increase, affecting, for example, water availability i.e. reducing grazing distances and hydropower production, vegetation and land degradation, ecosystems and biodiversity, with negative impacts on poverty, economic development, health, and food production⁷². The country's poor rural population, particularly pastoralists and drylands populations, will be affected most⁷³.

Some of the expected impacts directly relevant to the project zones are described below, giving an indication of how climate change may affect people in their daily lives.

Agriculture: Namibia's agriculture sector is already adapted to naturally arid and semi-arid conditions, high variability and the sporadic occurrence of prolonged droughts. Much of the land used for agricultural purposes is already marginal in Namibia, partially also in the North Central Namibia. Climate change will affect agricultural yields directly through changes in temperature and precipitation, and indirectly through changes in soil quality, introduction of pests, and diseases. Increased aridity is expected to lead to an increased grazing stress and deteriorating vegetation, resulting in a reduction of livestock productivity. Animal health is affected by heat stress and reproductive rates of livestock may decline, especially of breeds that are not well adapted to the local climatic conditions. A reduction of crop yields is expected, resulting in temporary or even longer-term food shortages, poor nutrition and malnutrition, dependency from others. However, there might also be positive effects due to higher CO₂ levels, which may increase productivity especially in so-called C₄ plants⁷⁴. Seasonal shifts in the rainy season are expected to lead to a shortening of the growing season, especially reducing the time for crops to ripe. This may have a significant impact on grain production, and may require an adjustment of currently prevailing agricultural calendars and practice. Overall, a loss of dryland crops and of rangeland capacity is predicted.

Water and Inland fisheries: Under the likely scenario of decreased rainfall and increased evaporation, Namibia is likely to face severe water shortages⁷⁵. Even without climate change, Namibia faces absolute water scarcity by 2020⁷⁶. The rivers most likely to be affected by the predicted decrease in flow from Angola are the Kunene and the Cuvelai system. Changes in air temperature and in evapotranspiration will affect the temperature of surface water, including the Oshanas. An increase of temperature may

⁷² University of Gothenburg (2008). Namibia Environmental and Climate Change Policy Brief

⁷³ Reid, H., Sahlen, L., Stage, J. & MacGregor, J (2007). *The economic impact of climate change in Namibia: How climate change will affect the contribution of Namibia's natural resources to its economy*. Environmental Economics Programme Discussion Paper 07-02

⁷⁴ C₄ plants possess biochemical and anatomical mechanisms to raise the intercellular carbon dioxide concentration at the site of fixation, and this reduces, and sometimes eliminates, carbon losses by photorespiration. C₄ plants, which inhabit hot, dry environments, have very high water-use efficiency, so that there can be up to twice as much photosynthesis per gram of water as in C₃ plants, but C₄ metabolism is inefficient in shady or cool environments. Less than 1% of earth's plant species can be classified as C₄.

⁷⁵ Reid, H., Sahlen, L., Stage, J. & MacGregor, J (2007). *The economic impact of climate change in Namibia: How climate change will affect the contribution of Namibia's natural resources to its economy*. Environmental Economics Programme Discussion Paper 07-02

⁷⁶ MET. First National Communication to UNFCCC

exacerbate eutrophication, a process that lead to oxygen depletion in water and allows algae and other organisms in the water to thrive, and negatively affect water quality. It may lead to or exacerbate various forms of water pollution. Native fish species may be negatively affected by such temperature and environmental changes and lead to the extinction of individual species. Positive effects could be that more food for fish might be available; however no final and conclusive information on the expected impacts is available at this time. Overall it is believed that the seasonal floodplains (Oshanas) will continue but then dry out sooner due to increased evaporation rates.

Human health: Health is affected by climate change in various ways and indirectly affects agriculture and directly affects household incomes. Changes in rainfall will affect the presence and absence of vector- and water-borne pathogens. It can be expected that small changes in temperature and precipitation will boost the population of disease-carrying mosquitoes and result in increased malaria epidemics in the malaria prone areas such as the North Central Namibia. Floods in northern Namibia may exacerbate the outbreaks of cholera and bilharzia. Vector reproduction rates, parasite development cycles and bite frequencies are expected to increase with rising surface air and water temperatures. The HIV/AIDS epidemic, in combination with poverty and a reduced capacity of institutions to respond, has already reduced the resilience of rural households⁷⁷. Women, orphans and other vulnerable children, the chronically ill, and those infected with HIV/AIDS are more vulnerable to the impacts of climate change.

Energy and Infrastructure: Effects of climate change on energy and infrastructure affects smallholder farmers and vulnerable groups in various ways. During the severe floods of 2008 and 2009 in the North Central Namibia settlements situated close to the Oshanas were severely inundated, and many people experienced damage or loss of their homes, belongings and goods. Public services were interrupted for prolonged time periods (e.g. schools) and e.g. roads and storage facilities were damaged. In rural settlements floods cause sewerage systems to wash away and in urban areas pump stations are inundated, and flood water mixes with sewerage posing a serious health risk. Floods and storms often disrupt electricity supply and lightning strikes during storms cause failure of small transformers and destruction of wooden poles and schools and hospitals. Most households use wood for cooking and heating of water. Electrification of the rural areas is poor, and limited use of alternative sources such as gas of paraffin is made. Climate change will affect the distribution and availability of wood resources thus, leading to a scarcity of biomass energy for many households. Although the time horizon of a marked shift in vegetation types is long term, and local energy availability and use should be more advanced by the time such shifts are observed, it is an important policy impetus to plan for relevant development and adaptive measures already now.

Given the above vulnerabilities and impacts, a typology of the most affected groups is presented below – which gives an indication for the type of target in the project zones. This table is derived from the IPCC WGIIAR5 Africa report on crossing cutting approach for equity and social justice in adaptation and FAO country study on women agriculture and rural development⁷⁸.

⁷⁷Dirkx, E., Hage, C., Tadross, M., Bethune, S. and Curtis, B., (2008). *Climate change vulnerability and adaptation assessment*

⁷⁸FAO. National sectoral report for Namibia – women, agriculture and rural development

Female-headed households and other vulnerable groups

Households headed by women constitute a significant portion of the food insecure. Although comprehensive data is limited, regional figures and the national census suggest that 62 % of households are effectively female-headed. A number of factors contribute to the precarious situation of rural women in general, and female headed households in particular. For example, ongoing migration continues to affect the structure of households. In the North Central regions, migration has created many female headed households with a shortage of adult labour, often resulting in a decline in food productivity. Women must often make up the loss through additional work in the field, including intensive tasks such as tilling and clearing. With the increase of climate variability, another challenge that women is facing is the quality of land which is deteriorating, women lack fertiliser, implements and the technical know-how to boost the productive potential of their fields.



Image 1 and 2: Women in the rural northern Namibia and community members attending a meeting under at tree. Both images courtesy the Polytechnic of Namibia.

Drought is an ever present threat for communal farmers, whose harvests, in the absence of agricultural inputs, depend even more directly on good rainfall. In the non-crop producing regions, stock-farming households must contend with drought and poor grazing which directly reduce the availability of milk for home consumption. Wild fruits and vegetables, riverine fish, and small animals enhance food security during times of relatively good supply and provide an important buffer for poor households during times of food shortage. However, increasing deforestation and erosion, including along rivers, unsustainable harvesting, and increasing population pressure are shrinking the availability of these foods.

Table 3. Groups most vulnerable to climate change in the project zone

Typology	Poverty Levels And Causes	Coping Actions	Priority Needs / Responses
Women and women headed households	The majority of women in the rural north are very poor. Men and the youth migrate to cities and towns in search of jobs, thus women's household roles increase with risk of girls missing from school to assist. Women and girls are responsible for all aspects of household reproduction including fetching water and	Engage in a variety of income generating activities such as poultry rearing, producing and selling mahangu and maize products, braiding hair, selling wooden and	Access to and training in improved farming techniques, provision of agriculture inputs, land and market linkages to supplement family income.

Typology	Poverty Levels And Causes	Coping Actions	Priority Needs / Responses
	collecting firewood ⁷⁹ . They have limited access to new technology, improved inputs, farm tools, credit and markets .The lack of access that women have to productive inputs and the absence of male labour places an additional burden on the time and health of women and children ⁸⁰ .Women headed household possess smaller land holdings than male headed households, thus limiting their production capabilities and reducing their food security even more.	woven crafts and baskets.	
Orphans and other vulnerable children	18.3% of children are in severe poverty, while 34% fall below the lower poverty line in orphan household where one or both parents have died. Many orphan children live with elderly relatives that are unable to physically help with farm labour, thus the responsibility fall on children of these households, inadvertently reducing education level ⁸¹ .	10.5% or 77475 ⁸² poor children depend on child maintenance and foster care grants, subsistence farming	Increase income of household with orphans through improved grant systems, improved agricultural practices that will allow production above subsistence and access to markets. Introduction of climate smart agriculture that is less labour intensive, which will allow children to attend school.
Smallholder farmers	The majority have no additional income and are thus very poor. They lack access and knowledge of inputs and support services. They have limited profitable investment opportunities; They lack funds and knowledge to diversify production and to increase soil fertility for sustainable higher yield level. Education levels are very low.	They work with traditional farming practices such as disc furrowing. Majority are engaged in subsistence farming and lack the knowledge or means to produce above subsistence.	Improved seed& provide access to fertilizers and other farm inputs; smallholder specific loan schemes for annual farming and product packaging in order to improve product quality, thus accessing markets. Improved farm management. Diversify livelihoods away from traditional crop farming to include horticulture and other farming practices.

Enhancing the livelihoods of smallholder farmers through climate smart agriculture

In the North Central Namibia, the lack of savings and more formal insurance schemes that would protect rural households from livelihood threatening impacts of climate related risks render such people extremely vulnerable. Household food security derived from two sources: the production and food stores of the household from agriculture and food gathering; and the ability of households to purchase or acquire food, either from cash income, food transfers or bartering. Hence, losing a season's harvest, a home or any belonging can have detrimental effects on people already living on the margins. The health and well-being of the majority of children in Namibia is integrally tied to women's roles as farmers and food producers. In Namibia, the decline in crop production and food availability, together with a reduction in cash income, are further entrenching many households in poverty. As a result of these conditions, few households, whether male or female-headed, produce enough food to be self-sufficient.

⁷⁹LeBeau D, et el. Gender Disaggregated Work in Rural Northern Namibia. Available : <http://developmentafrica.com/gender.html>

⁸⁰Namibia: Poverty Alleviation with Sustainable Growth. Available : <http://go.worldbank.org/O9O6A8ISS0>

⁸¹NSA child poverty in Namibia report 2011

⁸²NSA child poverty in Namibia report 2011



Image 3 and 4: Farming plots of smallholder farmers in the Northern region of Namibia

Even in the best of years, agricultural production is inadequate to meet basic food needs. To meet basic food needs, households therefore augment production from subsistence agriculture with cash or in-kind income from other sources. In addition to purchasing food, cash is also needed to pay for school fees and uniforms, medical bills, clothing and special events. Needs for cash can be severe, and households are occasionally forced to sell food stores or important assets to meet expenses. Since women are the majority of farmers, they are most likely to bear the risk and uncertainty of agriculture. This project will contribute to the up liftmen of food security through agricultural production in the project zone through the adoption of climate smart agricultural methods as described below.

Text box 3: Conservation agriculture successful stories in Northern Namibia

In Namibia, conservation agriculture that combines zero or low tillage and permanent soil cover are promising adaption options. The following are some of the measures employed:

- In NCR, dry planting (minimum tillage) is practiced by some farmers as a crop management strategy, most of it is done with the hand hoe. However, the size of the land dry-planted by each household depends on the labour available for land preparation and for the subsequent weeding. Conservation tillage practices on trial and used in the NCR provide for better mahangu and cowpea yields, a lower workload, and improved soil structure over time.
- The baseline for the current yield of Namibia’s staple food - pearl millet, cultivated by approximately 150,000 subsistence farmers, is an average of 300 kg per hectare, one of the lowest in the world. The Namibia-specific method has proven over more than six years that yields can easily increases to 1,670 kg per hectare, (and in certain circumstances up to 3000kg per hectare), which equals production capacity of 250,500 – 501,000 metric tonnes per annum based on subsistence farmers cultivating pearl millet on 1 to 2 hectares each. The Namibian specific method has proven to increase yield tremendously.

Furthermore, conservation agriculture (CA) proves to be an effective method in meeting future food demands and contributing to sustainable agriculture and rural development⁸³. Its aim is to achieve sustainable and profitable agriculture and improved livelihoods of farmers through the application of the three CA principles: (1) minimal soil disturbance, (2) permanent soil cover and (3) crop rotations.

CA has a twofold advantage in that it provides knowledge and tools to enable farmers to achieve profits from high and sustained crop productions and protecting the environment⁸⁴. It also addresses several issues of development and falls in the scope of achieving at least three millennium development goals(MDG) ; MDG-1 To reduce hunger and poverty-CA supports this through improved food security and livelihoods, MDG-3 To support gender equity and women's empowerment-CA enhances the quality of life for women and MDG-7 To increase environmental protection-CA supports sustainable resource management and environmental services.

⁸³ FAO, 2003. Climate Smart Agriculture source book

⁸⁴ FAO, 2003. Climate Smart Agriculture source book