



COUNTRY PILOT PARTNERSHIP: ADAPTING TO CLIMATE CHANGE THROUGH THE IMPROVEMENT OF TRADITIONAL CROPS AND LIVESTOCK FARMING IN NAMIBIA

NAMIBIA CASE STUDY

DECEMBER 2012

Country	Namibia [http://www.adaptationlearning.net/country-profiles/na]
Region	Southern Africa
Key Result Area	Agriculture/Food Security Natural Resource Management <i>Keywords: Drought, Capacity Building, Land Degradation, Early Warning Systems (EWS), Sustainable Land , Management, Soil Conservation, Soil Management</i>
UNDP Project ID	3598
Project Activity Dates	Start: October 2007 End: December 2011
Key stakeholders	The major stakeholders are the Ministry of Agriculture, Water and Forestry, Ministry of Environment and Tourism, Ministry of Fisheries and Marine Resources, as well as Regional Councillors Office. Primary beneficiaries are farmers in the pilot area (Omusati region), notably vulnerable communities.

ABSTRACT

Namibia is one of the most arid countries south of the Sahara, characterized by high climatic variability in the form of persistent droughts, unpredictable and variable rainfall patterns, variability in temperatures and scarcity of water. The Initial National Communication (2002) classified Namibia as highly vulnerable to the predicted effects of climate change. Expected climate change impacts will most significantly affect water availability and natural resource management. Water scarcity poses negative consequences for agriculture, power generation, infrastructure, tourism, and human health. Changing patterns and intensity of rainfall are likely to also increase the rate of soil erosion, affecting crop production and livestock. In response this project aims at enhancing the adaptive capacities of farmers, pastoralists and natural resource managers to climate change in agricultural and pastoral systems in north-central Namibia. As part of the Country Pilot Partnership for Integrated Sustainable Land Management (CPP), this project is piloting a host of interventions to address the underlying causes of land degradation in Namibia.

BRIEF DESCRIPTION OF ISSUES

Background

Approximately 70% of the Namibian population lives in rural areas, with 60% concentrated in the seven northern regions. Climatic variability is a common phenomenon in Namibia, exhibited by persistent droughts, and unpredictable and variable rainfall and temperatures. Degradation and desertification are increasingly a threat to agricultural productivity. The IPCC Third Assessment Report and other recent studies suggest that by 2050 temperatures and rainfall over southern Africa will be 2 – 4°C higher and 10 – 20% less than the 1961-90 baseline, respectively. Additionally, the rural economy is also held back by low demand for domestic products, high transport costs and competition with South African products.

Due to the effects of worsening climatic conditions on long-term agricultural productivity, the adaptive capacities of farmers, pastoralists, and natural resource managers need to be strengthened. Coping strategies for climate change need to be enhanced at the local, regional, and national levels. Addressing adaptation to climate change is a national priority in Namibia's Initial National Communication (INC) since a high proportion of Namibia's population is directly dependent on subsistence agriculture; fishery, tourism and agriculture form the basis of the country's economy. Unfortunately, land degradation – soil erosion, bush encroachment and deforestation - is becoming progressively worse in most parts of the country.

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Expected climate change impacts include declines in water availability and increasing temperatures due to higher evapotranspiration and changing rainfall patterns. This, in turn, will affect water resources within the Cuvelai-Etoshia Basin, forests, and other natural ecological systems as well as agriculture, power generation, infrastructure, tourism, and human health. This is likely to increase competition for water, which could lead to loss of natural vegetation. Changing patterns and intensity of rainfall are likely to increase the rate of soil erosion, affecting crop production and livestock.

An increased incidence and severity of extreme weather events, such as flooding, which will worsen soil erosion and destroy crops. Climate change will affect the agricultural yield directly through changes in temperature and precipitation, and indirectly through changes in soil quality, pests, and diseases. Flash floods are further predicted to impact overall sanitation and human health conditions.

BRIEF DESCRIPTION OF PROJECT

Solution: Adaptation Approach, Components and Description

In response to the natural resource management problems outlined above, the project, Adapting to Climate Change Through the Improvement of Traditional Crops and Livestock Farming, is working to develop and pilot a range of effective coping mechanisms for reducing the vulnerability of farmers and pastoralists to climate change and variability. The objectives are twofold: 1) To build and sustain capacity at systemic, institutional and individual level, and 2) To ensure that sustainable land management activities are coordinated, cost effective, innovative and appropriate – crossing sectors and integrating environmental, social and economic objectives. The project activities are focused on several drought-prone constituencies in the Omosati region within North-Central Namibia. The project beneficiaries are 500 farmers/households, out of a total population of 37,000 households in the Omosati Region.

Project Targets

RESULT	TARGET
<p>Objective</p> <p>To develop and pilot a range of coping mechanisms for reducing the vulnerability of farmers and pastoralists to climate change, including variability.</p>	<p>People exposed to coping mechanisms as follows:</p> <ul style="list-style-type: none"> Improved seeds – 2000 HHs (12000 people) Aquaculture – 100 fish farmers Livestock – 200 farmers Rainwater harvesting – 5000 people (includes learners, patients at clinics, HHs) Conservation agriculture – 100 plots (600 people) Drip irrigation – 3500 people exposed Buffalo grass – 20 farmers, 100 learners <p>Perceived success of project intervention in reducing vulnerability.</p>
<p>Outcome 1</p> <p>Climate change adaptation measures of rural communities in agricultural production piloted and tested.</p>	<p>Coping mechanisms upscaled in each constituency as follows:</p> <ul style="list-style-type: none"> Anamulenge – (5), Elim – (4), Etayi – (5), Ogongo – (4), Okahao – (5), Okalongo – (5), Onesi – (5), Oshikuku – (5), Otamanzi- (4), Outapi – (5), Ruacana – (5), Tsandi – (5) <p>300 farmers trained to adopt improved rangeland management practices.</p>
<p>Outcome 2</p> <p>Improved information flows on climate change including variability (such as drought) between providers and key users.</p>	<p>2 Agricultural Extension Officers (AEOs) and 20 Agricultural Extension Technicians (AETs) trained in upscaling coping mechanisms in each constituency.</p> <p>20% improvement in the uptake & utility of weather forecasts and related decision-making support tools.</p>
<p>Outcome 3</p> <p>Climate change issues integrated into planning processes.</p>	<p>12 Constituency & 1 Regional CCA strategies developed.</p>

LESSONS LEARNED

Results and Learning

According to a recently completed questionnaire from the Namibian project team, the project has achieved numerous intended results. Progress to date includes 112 households that have been provided with improved goat rams. These goat rams are better adapted to the climate, and have higher reproductive capacity. There is use of improved seeds and conservation tillage practices to achieve optimum yield, combined with manure and fertilizers. On the improved seeds and fertilizers under rain-fed agriculture,

interviews with the beneficiaries informed satisfactory yield production. There have been contributions to drip irrigation for production of vegetables such as onions, cabbage and tomatoes. Innovation is also demonstrated by the Ebandulo Project where fertilizer is being added to the pump drip irrigation system, making farming more efficient and productive.

Project results also include provision of plastic storage granaries for grains to replace traditional structures made of wood. Plastic granaries protect against the damage caused by pests, a particular problem with improved seed, and flood damage, as well as helping to combat deforestation by substituting demand for wood. Seven of these plastic granaries have been distributed to households and satisfaction has been expressed by beneficiaries in areas such as Elim. 80 domesticated guinea fowls were distributed to 20 households and six community groups, including HIV/AIDS support groups, as a way of diversifying livelihoods. 30 plastic water tanks installed at public places as well as at 40 households for the harvesting of rainwater, which can store enough water for 3 months for a household. Households have been co-financing the installation of the tanks by contributing to the purchasing of the gutters, taps and the concrete stand for the tank. Improved crop variety has been incorporated into the planting routine of the Farmers with Okashana no: 2, Marcia and Kangara seeds. These seeds are drought tolerant and are grown in conjunction of the traditional seeds to mitigate the risk of yield losses when floods occur.

Lessons learned

1. A major barrier to scaling up the good practice from the project is access to less expensive money and market access, as follows:

- i. The Commercial Boer goat ram was a very successful intervention by the project and it is recommended that the activities be scaled up for the benefit of vulnerable smallholder farmers in Omusati region through the MAWF existing schemes. **A financing scheme should be devised for more vulnerable farmers that are unable to afford upfront cost in purchasing the ram.**
- ii. **The study established that little has been done to develop sales and marketing channels for the various guinea fowl products and most CCA beneficiaries sold their eggs only to individual farmers or on informal markets.** The sale of guinea fowl for meat and for breeding was not greatly explored, and there exists great potential to expand both of these activities.
- iii. The drip irrigation system proved suitable in Omusati region and in the long term, water is also more readily available from Etaka Canal and Olushandja Dam and relatively fertile soil. However, the start-up costs estimated at USD 11,000 for 1 – 2 hectare would be prohibitive for many smallholder farmers. **Reform of existing financing scheme and identification of viable financing models would be required to accommodate emerging small holders' farmers in the region.**
- iv. **To reinforce the initiative of plastic granaries in the region and beyond, it is recommended that a subsidization mechanism (soft loan) should be introduced through the MAWF so that farmers can purchase the granaries on credit or at reduced rates, particularly for farmers operating in the vulnerable "Efundja" flood zone.** It is anticipated that the scheme would reduce the financial barriers to the supply and purchase of plastic granaries including reduction (first cost reduction) of the price and ready availability of finance. In the circumstances, the scheme would reinforce trade, economy of scale and create a new trade dynamic in domestic economy.

2. Climate variability will be as much a feature of climate change as a trend towards drier conditions. Communities need to be prepared for climate variability, be it droughts or floods. Communities need to be ready to respond *flexibly*, and on the basis of good weather forecast information. An adaptation strategy that is good for droughts is not likely to be good for floods. Future efforts will need to look at how farmer-level adaptation strategies can be adjusted to prevent losses associated with floods as well as droughts, aided by weather forecast information.

3. For future programmatic intervention, 5 year projects would be more effective in terms of allowing sufficient time to measure results.

Mainstreaming Components

The project contributed learning to the formation of the Namibia Policy on Climate Change, which was approved by Cabinet in May 2011. Discussion with the Director of DEES at the MAWF shows that the CCA project will continue to be fully integrated into the ministry's agricultural budget. The DEES annual budget for fiscal year 2011/2012 for the 13 regions of Namibia was about USD

2, 9 Million which translate into USD 223,077 for the Omusati Region. The DEES budget for fiscal year 2012/2013 is USD 3, 8 Million of which USD 292,307 would be allocated to Omusati Region to carry out CCA activities as integrated into the MAWF.

Sustainability

The project has built adaptive capacity and trained staff from supporting institutions and 200 farmers (with the intention that they can then train others), some adaptive activities can be incorporated within the Ministry of Agriculture Water and Forestry activities and ensure financial support to community after end of project. At least 2 local personnel are being trained on the project activities.

Replicability

Commercial Boer goat rams and plastic granaries piloted in Omusati Region were replicated in Ohangwena Region in the constituencies of Okongo, Epembe, Endola and Ondobe. Goat ram revolving system worked well in terms of replicating project success among households at little or no cost. The reproductive rate allows for a speedy increase in flock size. 50 offspring can be produced over 18 months.

The project information toolkit on climate change adaptation that was developed with farmers in the Omusati Region has been scaled up to other regions with five toolkits for the whole of Namibia.

The capacity building and training component saw 75 AETs in the North Central Regions (NCRs) trained on climate change adaptation measures, seasonal rainfall outlook and community toolkit. Out of the 75 technicians trained, 25 are based in the project Omusati Region, the project pilot area. Again, the trained technicians have since been engaged rolling out the coping mechanisms to farmers at constituency level to ensure that key resource users (farmers) make informed decisions when farming in varying climate.

Funding

GEF (SPA): US\$960,000

Total GEF Grant: \$1,000,000

Co-financing: US\$5,795,806.00

TOTAL: US\$6,795,806.00

ALM Project Profile / Case Study

Profile Updated: December 2010 and December 2012

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