



## ZIMBABWE: COPING WITH DROUGHT AND CLIMATE CHANGE

### ZIMBABWE CASE STUDY

DECEMBER 2010

<b>Country</b>	Zimbabwe [ <a href="http://www.adaptationlearning.net/country-profiles/zw">http://www.adaptationlearning.net/country-profiles/zw</a> ]
<b>Region</b>	Eastern Africa
<b>Key Result Area</b>	<p>Agriculture/Food Security                      Disaster Risk Management                      Water Resources</p> <p><i>Keywords: Drought, Drought monitoring, Capacity Building, Livelihoods, Early Warning Systems (EWS), Drought Risk Management</i></p>
<b>UNDP Project ID</b>	3785
<b>Project Activity Dates</b>	<p>Start: October 2007                      End: December 2012</p>
<b>Key stakeholders</b>	Local Communities in the Chiredzi District and in particular the smallholder farmers within the Chiredzi District.

## **ABSTRACT**

Long known as the breadbasket of Africa, Zimbabwe has for the last 30 years experienced dramatic losses in agricultural production resulting in critical food and fuel shortages. Coupled with the economic and political constraints, drought and climate change are testing the limits of agricultural production in Zimbabwe. In rural Zimbabwe, and specifically in the pilot project area Chiredzi district, drought is becoming an increasingly common occurrence. With approximately 70% of Zimbabwe's population deriving their livelihoods from subsistence agriculture and other rural activities, the most noticeable effects of these droughts are the devastating impacts on household food security and the livelihoods of the poor. In response, and as part of a set of three other regional Coping with Drought and Climate Change (CwDCC) projects in Ethiopia, Kenya, and Mozambique, this project is supporting effective adaptation among subsistence farmers in six locations in Chiredze District.

## **BRIEF DESCRIPTION OF ISSUES**

### ***Background***

About 70% of Zimbabwe's population derives its livelihood from subsistence agriculture and other rural activities, but these livelihoods are threatened by climate change. The agriculture sector's reliance on seasonal, rain-fed cultivation makes the sector particularly vulnerable to climate variability and change. The country is prone to droughts, which have become more frequent over the last two decades with devastating impacts on food security, health, and environmental degradation. Diminishing water resources due to climate change is an additional stress on top of anthropogenic environmental destruction and mismanagement. Climate change is also expected to worsen the prevalence of malaria and increase the salinity of underground water supplies as recharge, which is already low, dwindles further.

Zimbabwe's Initial National Communication (INC) and records from the Meteorological Services show that drought and floods have become more frequent and severe, and the onset of the rains more periodic compared to the last 50 years. Past droughts have had devastating environmental and socio-economic impacts on the country, particularly in rural areas where livelihoods are natural resource dependent. Economic and health factors also impede the country's ability to adapt to more frequent droughts. Zimbabwe's economy has stagnated over the past 10 years largely as a result of recurrent droughts and skewed macro-economic fundamentals. The impacts of drought will be compounded by loss of productivity due to the HIV/AIDS pandemic. Economic and health factors also impede the country's ability to adapt to more frequent droughts. Zimbabwe's economy has stagnated over the past 10 years largely as a result of recurrent droughts and skewed macro-economic fundamentals. The impacts of drought will be compounded by loss of productivity due to the HIV/AIDS pandemic. The 2003 Human Development Report estimates that 25-30% of the 25-49 year old age group is infected with HIV.

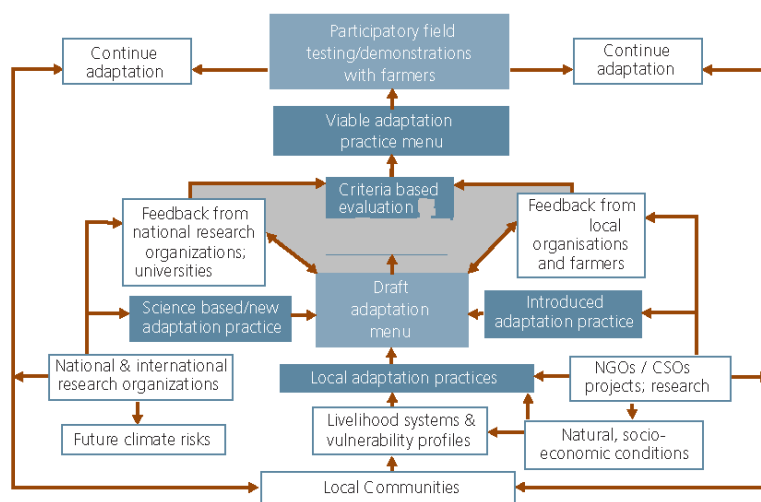
The IPCC Third Assessment Report and Zimbabwe's INC suggest that by 2050 temperatures and rainfall over the country will be 2 – 4°C higher and 10 – 20% less than the 1961-90 baseline respectively. Model simulations show annual rainfall declining by 5 – 20% of the 1961-90 average by 2080 in all the country's major river basins. Agriculture has been identified as the sector most vulnerable to these climatic changes. In many rural areas, such as the pilot site in the Chiredzi district of south-eastern Zimbabwe, residents are poor and dependent on agriculture for their livelihoods. In 1995, 46% of the District's rural population was classified as either poor or very poor and this figure rose to 60% in 2005. Rain-fed agriculture, livestock production, and remittances are the main sources of livelihood in the District. In 2005, 60% of rural households in 13 Wards in Chiredzi were food insecure and food security for many rural households in the District worsened during the period from 1980 to 2004. During the same period, the long term average rainfall in Chiredzi District declined by about 15% and eight serious droughts were observed.

## **BRIEF DESCRIPTION OF PROJECT**

### ***Solution: Adaptation Approach, Components and Description***

In response to the problems outlined above, the project, Coping with Drought and Climate Change in Zimbabwe, is working to enhance the capacity of agricultural and pastoral communities in Zimbabwe to adapt to climate variability and change. The primary project objective is to demonstrate and promote adoption of a range of gender-sensitive approaches for adaptation to climate change among rural communities currently engaged in agriculture in vulnerable areas of the Chiredzi.

In Chiredzi District, all rural farmers face the same set of management decisions on how to allocate limited resources among crop production, livestock production, and off-farm employment. The main barrier to overall productivity and adaptive capacity is how effectively farmers make use of limited amounts of water and climate information. Use of formal climate information for decision-making is virtually non-existent among smallholder farmers in the District because of a lack of access to information and spatial scale problems. The work to be carried out under this project falls into five project components which will be implemented in three phases. Phase 1 will be preparatory work (about 12-15 months), Phase 2 will be pilot demonstration projects, and Phase 3 will be monitoring and evaluation activities.



Framework for selection, evaluation and prioritization of adaptation practices (Adapted from: FAO, 2003)

The Coping with Drought and Climate Change project will work at two geographic scales. The first will be at Catchment Scale covering Runde and Save river basins, the main sources of water which supports Chiredzi livelihoods. Pilot demonstration projects will focus on a vulnerable rural community in Chiredzi district currently involved in rain-fed agriculture and another with irrigation. The household will be the social unit of focus. Focusing on households may provide a better insight into the kind of policies likely to enhance household ability to adapt to future climate change. All activities planned are at these levels with the possible exception of some activities related to capacity building and upscaling. The project is working to benefit approximately 600 households in Chiredzi District.

## Project Targets

RESULT	TARGET
<p><b>Objective</b></p> <p>To demonstrate and promote adoption of a range of gender segregated approaches for adaptation to climate change among rural communities currently engaged in agriculture in vulnerable areas of Chiredzi district as a national model.</p>	<p>By end of project, number of farmers growing a mix of more than four crops including (sorghum, pearl millet, open pollinated variety (opv) maize, groundnuts, cowpeas and cassava increase to at least 60%).</p> <p>By end of project number of farmers using infield rainwater harvesting increase to at least 10%.</p>
<p><b>Outcome 1</b></p> <p>National institutions have capacity to improve knowledge base to facilitate climate change adaptation</p>	<p>By end of project 100% awareness level is achieved among farmers in project area</p>

<p><b>Outcome 2</b></p> <p><b>Livelihood strategies and resilience of vulnerable farmers/pastoralists in the selected pilot sites improved and sustained to cope with drought</b></p>	<p>Number of households using adapted crop and livestock management practices increase to 20% by end of project. NB: 20% of 1600 farmers</p>
<p><b>Outcome 3</b></p> <p><b>Use of climate early warning systems by vulnerable communities in pilot sites increase and drought preparedness improved.</b></p>	<p>By end of project number of farmers using climatic information increase to 60%. (This is percentage of the 1600 farmers in pilot sites)</p>
<p><b>Outcome 4</b></p> <p><b>Farmers/pastoralists outside the pilot site replicate successful approaches to cope with drought.</b></p>	<p>By the end of the project lessons from project sites will have been documented and disseminated widely.</p>

## LESSONS LEARNED

### *Results and Learning*

#### **Key lessons learned:**

**1. Develop institutional capacities and policy frameworks at national and local levels:** Development of institutional capacities and policy frameworks at national and local levels is necessary. Effective local and national government leadership and institutional and legal framework are needed to coordinate and guide adaptation. Observations from Chiredzi district show a lack of capacity and leadership in local government around climate change adaptation. As a result, stakeholders have high expectations on the project to address some of the skills, knowledge, awareness, coordination and general capacity gaps to sustainably address climate challenges in the country. Strong local institutions are a critical success factor for adaptation. Environmental change is dynamic, so new challenges will always be emerging. These challenges require well-resourced institutions. For example, the presence of Chiredzi Research Station is quite strategic in the development of new technologies relevant to the biophysical conditions of the district and beyond. But the institution needs resources and human capacity to carry out this role.

**2. Use bottom-up and participatory processes in project design:** Bottom-up project design and participatory processes are crucial for strong ownership and adaptation responses acceptable to the local and cultural context. Stakeholder participation in climate risk analysis and identification of response strategies was critical. Stakeholders generated a shared understanding of the climate risk context of project area. It also enhanced ownership of the solutions and acceptance of the project. The process involved using problem tree analysis to help communities identify why they were vulnerable to drought. The exercise was revealing and useful in guiding the selection of adaptation measures for the project areas. It was also possible at this stage to identify those solutions that are culturally not acceptable. The community participatory climate risk analysis made it possible to generate more information on the temporal and spatial dynamics of drought and its impacts in the project area than could be obtained from modelling per se.

**3. Identify adaptation responses on the basis of assessments/analysis and evidence:** Identification of adaptation response on basis of assessments/analysis and evidence is good practice. The adaptation response strategy was identified through a process of climate risk assessment. The climate risk and vulnerability assessments revealed the hazard profile, dominant livelihood strategies, dominant land use options and the sensitivity of the livelihood systems to past and future climate change scenarios. Drought was ranked as the most important hazard and, crop failure, livestock deaths and loss of income were identified as the most important drought related risks in the project area. Future climate change scenarios for the project area showed rising temperatures and possible modification of the rainfall pattern, but not necessarily drier conditions. Downscaled climate change scenarios for the project area suggested that climate change could also bring some opportunities (heavy rainfall events) that need to be captured by project beneficiaries.

**4. Learn from past interventions:** Building on past interventions, the project has resisted the temptation to re-invent the wheel, and has sought to improve or resuscitate interventions that were known to work in the area such as Campfire. Additionally, crop trials have focused on extending the work of Chiredzi Research Station, SEDAP, the Challenge Programme and NGOs working in the area. Another illustration of lessons learned from past interventions being taken on board, is in eliminating irrigation development due to cost and technical feasibility considerations for the target area. Once the climate risks were understood, a decision was made that rain-fed crop and livestock production as a climate resilient technique would be more socially acceptable, cost-effective and technically feasible. As

a result, and instead of investing in irrigation, water and soil conservation techniques are being piloted.

**5. Farmer-managed demonstrations are an effective way of trying adaptation measures:** There is merit in exposing farmers to as many options as possible. In the project, farmers have been exposed to a range of strategies within the crop sector, and also some outside crops. Farmer managed demonstrations are the best way to do this, since it will make it possible to answer important evaluation questions, on: what works, why and under what circumstances. Such information will be policy relevant for upscaling promising adaptation strategies. The crops pilot demonstration projects clearly showed the importance of farmer managed trials, since it was possible to screen technologies that will not be easily adopted by farmers because of the constraining farmers' circumstances. The project exposed farmers to many adaptation options to choose from. Some interventions such as "basins" for infield rainwater harvesting were jettisoned by the farmers themselves because they are labour intensive and not appropriate for households where labour is a constraint and draught power was available.

**6. Make monitoring and evaluation a priority:** Monitoring and evaluation is crucial but challenging. Evaluating project impact on protecting/improving livelihoods against the effect of drought requires taking the (dynamic) climate baseline into account. This can be done via monitoring of conditions in a control group. For example, the 2009 monitoring report showed that in 2008/2009, yields of 0.56-1 t/ha for maize and 1-2 t/ha for sorghum were reached.



## Mainstreaming Components

It is envisaged that this project will contribute to Zimbabwe's efforts to attain the UN Millennium Development Goals, particularly the goals on eradication of extreme poverty and hunger. It is also consistent with national priorities identified under the Zimbabwe United Nations Development Assistance Framework (ZUNDAF) 2007-2011 which are: improving productivity of agriculture sector, improving food and nutrition security at household and national levels, improvement of rural livelihoods, increased environmental awareness and management and sustainable use and management of natural resources.

## Sustainability

This project has established implementation partnerships with government departments. Sustainability of the project, and the buy in and acceptability of the project outcomes has been evidenced by their incorporation in other programmes/projects. Outcomes on improving livelihoods are largely taken up by a number of NGOs. Climate risk management is being embraced by government and NGOs. Of those NGOs that have embraced climate risk management, the focus has been on livelihoods diversification, small scale irrigation development and conservation agriculture.

## Replicability

The optimized crop pilots through this initiative have the potential to benefit about 6,600 households in Chiredzi district, and many thousands more households at the national level. Replication of livestock interventions has potential to benefit more than 60% of the 12,400 households in Chiredzi District whose vulnerability to drought and climate change is exacerbated by their current lack of access to animal drawn draught power. Indirect benefits through improvement in wildlife management have the potential to benefit an additional 1000 households in the Chiredzi district. The project is encouraging replication of optimized crop production through Farmer Field schools (FFS). FFS is a group-based learning process that has been used by a number of governments, NGOs and international agencies to promote Integrated Pest Management. FFS are being used in the project as a learning platform for farmers to increase learning and improve production strategies on the ground. Exchange visits for neighboring farmers, public awareness campaigns and tours by policy makers are some of the tools planned to encourage replication of best practices.

## Funding

GEF (SCCF): US\$983,000

Government of Zimbabwe: US\$680,000

NGOs: US\$175,000

UNDP: US\$75,000

Others: US\$25,000

TOTAL: US\$1,938,000

*Profile Updated: December 2010*

*Previously Created: September 2008*

**Acknowledgements:** This case study is produced by the Adaptation Learning Mechanism (ALM). The ALM team would like to gratefully acknowledge the participation and support from the Regional Technical Advisor, Jessica Troni. References used: Project Implementation Review(3785) 2009; CwDCC, Regional Component Design and Endorsement Workshop & Kenya Host Site Visits – Field Trip Report, May 2009; GEF Project Documents; Special Climate Change Fund Work Program, Review of MSP and FSP, SCCF/LDCF-Council Meeting, December 2006; Mission Report, Zimbabwe Pilot Site Regional Visit, October 2010, Environmental Management Agency, Harare.

### Contact Information:

UNDP Regional Technical Advisor: Jessica Troni

E-mail: [Jessica.troni@undp.org](mailto:Jessica.troni@undp.org)

Project Coordinator: Dr. Leonard Unganai

Email: [cwd@ecoweb.co.zw](mailto:cwd@ecoweb.co.zw)

GEF Database –Zimbabwe: <http://gefonline.org/projectDetailsSQL.cfm?projID=3156>

ALM Project Website: <http://www.adaptationlearning.net/projects/zimbabwe-coping-drought-and-climate-change>