



Zambezi Valley Development Initiative

Turning challenges into opportunities



**ENDA Energy, Environment and Development Programme**

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## **Zambezi Valley Development Initiative (ZVDI)**

### **Climate vulnerability and adaptation in the Upper Zambezi Valley – ‘Lyambai Vulnerability and Adaptation’ (LYVA) project**

#### **Project Document**

##### *Context*

Lyambai is the local name for the Upper Zambezi river that, together with its tributaries, the Lungwe Bungu, Luena, Kabompo and Luanginga enters Zambia in the north west and empties into a vast floodplain known locally as Bulozhi extending approximately 200 km north to south and up to 40 km east to west. Most of the rainfall that supplies the annual inundation of Bulozhi from around January to April actually falls in the Angolan highland and on the Zambezi-Congo watershed area bordering the Democratic Republic of Congo (DRC), thus it is hard, without a regional early warning system for local people in the region of Bulozhi to predict the volume or velocity of water entering the plain.

The floodplain ecosystem, like all ecosystems, has physical and human inputs, interacting processes and outputs. These narrate the interaction of social and biophysical processes, working in tandem, to influence environmental change and render socio-ecological networks and balances vulnerable to breakdown or failure. Climate change and variability are fundamental mediators of environmental change impacting on ecosystems and their stability. However, climate impacts on pre-existent socio-economic, political and cultural (the largest heritage event in central southern Africa takes place here at the height of the flood) dynamics that, in turn, distort, or are distorted by the impacts of climate change. Meanwhile, the impacts of climate change are enacted in an arena of subjective human dynamics that impact materially on the production of environmental change and structural frameworks in which adaptive measures can be taken.

The geographical focus of the case study is four pilot action village clusters near the eastern margin of the floodplain in the Upper Zambezi Valley region of western Zambia.<sup>i</sup> The valley has experienced several phases of increasing climate variability in the last 100 years and intensifying human activity (the floodplain currently sustains a population of around 225,000 people with a further 200,000 or so scattered around its edges) that have impacted on the local hydrological system and the occurrence, variety and scale of flora and fauna upon which local people depend. This variability has also taken the form of climate extremes that

have resulted in serious damage to infrastructure and diminished productive activity in the form of agriculture fishing and livestock rearing.

Part of the logic for these climate extremes is that the region lies at the southern extremity of the migratory track of the Inter-Tropical Convergence Zone (ITCZ) and has already experienced some negative impacts of climate change or, more accurately, increasing climate variability in the form of increasing extreme weather events such as severe storms, higher annual floods, more years when the flood fails, higher temperatures and more severe winds.

Another part of the logic of high risk lies in the fact that virtually all socio-economic and cultural activity in the region is mediated by factors controlled by the climate. These include, cultivation, livestock rearing, fishing, reed products and other crafts, and reproduction of culture (for example, through the annual Kuomboka festival) most of which depend on the annual inundation of the Buluzi floodplain. Thus, social and environmental vulnerability in a region that is already classed as the poorest province in Zambia, is crosscut by high levels of sensitivity to change.

Finally, the River Zambezi flowing north to south through the region and cuts the floodplain in half, is vulnerable to reduced rainfall and higher temperatures not just in the floodplain and surrounding area but in the watershed regions of the Upper Zambezi, particularly in the central Angolan highlands. This climate dynamic is crosscut by increasing deforestation which is causing changes in run-off and groundflow regimes.

This project will be entitled the **Lyambai Vulnerability and Adaptation (LYVA)** project and will take place as part of the **Zambezi Valley Development Initiative (ZVDI)** sponsored by ENDA and other partners including the Stockholm Environment Institute (SEI-Oxford) and the United Nations Institute for Training and Research (UNITAR). A new website will also be launched (<http://www.zvdi.org>) which will link to the wikiAdapt climate adaptation platform ([http://www.seioxford.org/drupal/wiki\\_adapt/index.php?title=Main\\_Page](http://www.seioxford.org/drupal/wiki_adapt/index.php?title=Main_Page)) being developed by SEI (Oxford) and partners including ENDA, and to the C3D website (<http://www.c3d-unitar.org>). The project will focus initially on two interrelated themes. These are the identification and assessment of human (social) and ecological vulnerability impacted by increasing climate dynamics and the identification and planning of strategic action to adapt to the threats posed by this vulnerability. Three overriding priority issues in this work will be food security/self-sufficiency, energy scarcity/provision and sustainable development.

The initial focus for the work will be three village clusters in the centre of the Upper Zambezi Valley, specifically Lealui/Limulunga, Libonda and Sefula. These zones include wholly floodplain and floodplain margin/upland socio-ecological systems

### ***Proponents and partners***

ENDA will partner with and develop capacity in specific Zambian organisations and institutions (whom ENDA has worked with previously). These include the Government of the

Republic of Zambia (GRZ) through the Ministry of Tourism and Environment and the Western Province regional secretariat, the Barotse Royal Establishment (BRE) through HRH Litunga Imwiko II and Indunas directed to work on this project, and the Institute of Economic and Social Research (INESOR) of the University of Zambia (UNZA) and a local NGO based in Western Province, Zambia known as Barotseland.com.

ENDA's partners outside of Zambia for this project include United Nations Institute for Training and Research (UNITAR) and the Stockholm Environment Institute (SEI) (Oxford).

### *Project purpose*

1. To assess increasing climate related vulnerability and identify possible adaptation strategies in the Buluzi floodplain region of the Upper Zambezi Valley in Zambia with a focus on food and energy security in the context of self sufficiency and sustainable development.
2. To develop strategies and plans for the adaptation of existing practices and the creation of new livelihood choices and alternatives to both maintain and increase production while protecting the physical environment for future generations.
3. To help create positive conditions to counter the rising tide of out-migration among the most able of the population and a slow haemorrhaging of indigenous knowledge and skills.

### *Objectives*

1. To assess and map vulnerability according to information and data supplied primarily by local people and also from available scientific research bodies.
2. To assess existing and past indigenous knowledge systems and coping strategies that can relate to productive activity and disaster management in the contemporary era.
3. To increase the amount of knowledge available among local people, local decision makers and national policy-making bodies on the nature and extent of climate impacts, set in the context of other socio-economic and politico-cultural dynamics and to make this knowledge useful.
4. To support existing indigenous coping strategies with new technologies and/or methodologies to increase the choices available for livelihoods, addressing food and energy security in particular.
5. To develop systems by which successful work undertaken today can be reproduced in a flexible but sustainable manner in the future by local organisations and communities using methodologies that they themselves have been instrumental in developing i.e. create a real sense of local ownership.

## *Methodology*

A flexible Participative Action Research methodology is employed throughout this process utilising the functionality of social learning.

Awareness raising whilst gleaning indigenous knowledge on productive activities and local coping systems in the face of crisis.

Working to achieve a sense of community ownership through a participative 'people first' policy where engaging with and obtaining the experiential evidence of the vulnerable community becomes a first priority in the project process. From this stage, a communicative strategy and communicative vehicles are constructed on which to load climate science that is translated into locally understandable language and which directly addresses the concerns and exigencies expressed by the people.

## *Activities*

### Phase I

1. Produce a dedicated website that can be updated on a regular basis with project developments as they happen in 'real time'.
2. Conduct a pilot survey in three village clusters within a radius of 20 km. of the town of Mongu in the central floodplain area (Lealui/Limulunga, Libonda and Sefula) to assess how local people would respond to such a project, to determine the extent of local knowledge on climate and the way it is expressed and translated into everyday livelihood decisions. The survey also explores climate impacts to date as described by local people.
3. Conduct in-depth action research into indigenous productive methods with relation to cultivation, livestock, fishing and fish farming, and reed/craft activities focusing both on process and other salient issues such as cultural meanings and acceptability, trade and markets.
4. Initiate links and legitimate project and its proposed processes with Government via the Ministers of Environment and Tourism and Energy, Provincial Minister and Permanent Secretary of Western Province, regional resources specialists in Departments of Meteorology, Water, Livestock, Agriculture, Fisheries and Game; with traditional authority via the Barotse Royal Establishment, in particular HRH Litunga Imwiko II; with local religious leaders; and with members of the Zambian academic establishment in the relevant disciplines.
5. Hold a Local Decision Makers workshop in which we seek to obtain 'real life stories of climate, lives and livelihoods in the Bulozhi floodplain', to raise local awareness of regional climate dynamics and introduce concept of risk communication, to be held in

Mongu, Western Province in late October/early November 2007 (see extended information in Appendix 1).

6. Produce a social and ecological vulnerability assessment from 1, 2 and 4 above and disseminate among all stakeholder groups. In this process the project will utilise the wikiAdapt platform being developed by SEI (Oxford) and partners including ENDA to refine and define (through a series of screening processes) vulnerability as well as adaptation potential in the case study areas.
7. Apply climate science to reflect evidence gathered in 1, 2, and 4 above and disseminate among all stakeholder groups.

## Phase II

8. Design possible adaptation strategies.
9. Hold local participatory workshops (village scale in the three village clusters) to discuss possible adaptation strategies and introduce climate adaptation screening methodologies; and to prioritise adaptation strategies.
10. Produce proposals for adaptation action based on feedback from Step 6 and 7 above.
11. Hold a policy-makers workshop for designated persons in the Ministries of Environment and Energy based on the findings and feedback of Steps 1 to 7 above.
12. Conduct ongoing evaluation (participated in throughout by all stakeholders using Participative Monitoring and Evaluation process) and reflective report on entire process on completion of Phase I and at end of project.
13. Further 'spin-off' activities projected for the period ensuing from completion of Stage 1 of the main project are:
14. Programme of workshops adapted for local schools and local centres of traditional authority– to be undertaken by local org.
15. Knowledge Exchange Workshops to be held in region of Niger River valley displaying similar socio-ecological conditions.

## *Projected outcomes*

1. Raised awareness among local communities and their leaders as well as policy/decision-makers in regional and national government on climate change and variability, and associated risks disseminated through Local Decision Makers Workshop, work with local media (radio and printed press).
2. Construction of a locally-based 'indigenous knowledge bank' containing data on local evidence of climate, coping strategies in response to climate, and indigenous

productive systems which developed in response largely to environmental conditions impacted by climate. This to be available at the five royal capitals of the Barotse Royal Establishment (Limulunga, Kaoma/Nalieli, Lukulu, Libonda, Nalolo/Muoyo, Mwandu as well as at District Administrators offices at Mongu, Kalabo, Senanga, Kaoma and Sesheke

3. Production of a range of adaptation strategies that take into account local adaptation capacity, aimed at enhancing current systems and introducing new technologies to supplement indigenous systems providing choices and alternatives to combat possible future negative climate impact scenarios in the sphere of food and energy security.
4. An assessment and map of vulnerability for the Buluzi floodplain according to information supplied by local people and from climate and other scientific data.
5. An interactive website that is updated as events occur throughout the project cycle and which is gradually taken over by the local organisation during the course of 2008 as capacity is built in terms of IT capabilities.
6. Academic paper to be submitted for peer review in an internationally recognised journal, reflecting on the issues and principles involved and project experience.
7. A fully functioning and self-supporting local organisation that will be capable of carrying on the project work beyond the lifecycle of the current project in different locations throughout the floodplain region.



Progress to date

17th July 2007

Completed – Steps 1 and 2 from Activity list above. In Step 4, a domain name has been bought (zvdi.com) on which the project website will be developed in the period June to October ahead of the Local Decision Makers Workshop at the end of October 2007. Step 3 is about to entrain at time of going to press on the basis of a Memorandum of Understanding between ENDA and BarotseLand.com.

17 November 2007

The community and Local Decision Makers Workshop went ahead as scheduled October 17-19 2007 in Mongu, western Zambia and a preliminary report is available.

*Background notes on ENDA and local organisation - BarotseLand.com*

ENDA is a fundamentally African organisation, being one of the only truly international African NGOs in existence, set up in 1973 and headquartered in Dakar, Sénégal. Its sole interest is improving the lot of African peoples while maintaining the security of environments, both human and physical, in which they cohabit. ENDA is comprised of several components across the disciplines and development sectors working in synergy in Africa and elsewhere in the world

BarotseLand.com was started in 2003 to represent the interests of local people in Western Zambia on themes affecting the well-being and development of the people and their environment. It is registered in Zambia and has ten committee members and three directors. The organisation has an office in the region's only town of any size and the regional capital, Mongu. The work that the organisation has been undertaking have stretched across three main axes: environment, HIV-AIDS and heritage

*Relevant strengths of ENDA:*

Experience of the African condition – ENDA has, since its inception in 1973, accumulated over 30 years of hands-on experience of development/underdevelopment in Africa. Here we refer to human and environmental dynamics which have interacted over time to produce the current 'condition' comprised of a set of human and biophysical characteristics and vulnerabilities. Climate dynamics have increased and intensified in their impacts on the African 'condition' and the way that people and their environments develop coping and management strategies to subsist and advance

Resources in the form of:

skilled and locally aware experts, trained in environmental processes and dynamics in Africa and particularly the West African sub-continent.

Information and knowledge on climate dynamics and their impacts over time, assessed vulnerability and potential for adaptation

Research, particularly action research skills and access to local civil society/communities, their leaders, local organisations/NGOs, and policy and decision-makers in governments across Africa

Compatibility with ENDA's of work/research interests and themes with those of other organisations. ENDA's themes surround about improving the human condition in a sustainable way that protects the physical and human environment for future generations.

This includes building the capacity of African policy and decision-makers, local leaders in civil society, researchers and practitioners in African organisations and NGOs and members of the Africa academic community.

*Relevant strengths of Barotseland.com:*

Intimate knowledge of lives, livelihoods and locality in western and southern Zambia. Ideally based in the centre of the Buluzi floodplain region, with a network of local contacts across the disciplines throughout Zambia, northeastern Namibia, and northern Botswana.

Affiliated to local traditional authority, a highly respected and visible form of governance in the region. Good relationships with regional government and with a network of local NGOs.

Disciplinary expertise in meteorology, environmental change, social history, heritage and culture.

## Appendix 1

### *Local Decision Makers Workshop – proposed attendees*

- Representatives of main livelihood groups together with national resource partners
  - Fishing, cultivating, livestock, artisanal/crafts
- National research bodies and students
- Local and national meteorologists Zambia Meteorological Department
- Traditional authority – Barotse Royal Establishment (BRE)
- Village elders
- Religious leaders
- Expert on local culture
- Political and economic historians
- Local org - Lyambai Vulnerability and Adaptation Initiative (LYVA)/Barotseland.com
- ENDA – Energy, Environment and Development Programme
- Local media – Radio Lyambai, The Post of Zambia

Expected total attendance – approx 40

Languages to be employed – English, Silozi

Expected duration – Two/three days

### **Logic of workshop methodology**

1. Investigating and prioritising indigenous knowledge networks – action research
  - Listening to real life stories of existence, livelihoods, weather, climate and environmental change in local language
2. Believing and valuing local knowledge and experiential evidence and responding to it
3. Raising awareness of climate change and variability and associated risks and impacts
4. Integrating evidence from 1 and 2 into adaptation strategies incl. screening tool that add to what was already there and do not replace it

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<sup>i</sup> The region considered in this case study is part of the old Lozi kingdom of Barotseland that now lies split across the postcolonial republics of Angola, Zambia, Namibia and Botswana. After Zambian independence in 1965, the name for the main portion of the old Lozi Empire, which lies in modern-day Zambia became Barotse Province. Today, the region is Western Province. Some of these terms may appear interchangeably but they refer to the same region. Lozi is the name given to the peoples of this region and their language.