

**AN ANALYSIS OF AGRICULTURAL DEVELOPMENT PROJECTS AS
A TOOL TO INCREASE COMMUNITY RESILIENCE: A CASE OF
MONZE DISTRICT IN ZAMBIA**

By

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Executive Summary

The aim of this study was to analyse why social vulnerability was on the increase in Monze District, Southern Province of Zambia despite the many agricultural development projects that were implemented. To understand this phenomenon, the study evaluated the design and implementation of current agricultural development projects in Monze District from two perspectives. The first perspective focused on the user and the second focused on the planners.

This evaluation was done to understand how these developmental projects were designed and implemented, and how the projects contributed to enhancing community resilience to reduce social vulnerability among people at risk in two sampled communities in Monze. The two communities had the same weighted magnitude of risk and social vulnerability but different number of agricultural development projects being implemented.

From a user perspective, one of the two communities assessed with less project interventions was treated as a control whilst the second with more project interventions was treated as the intervention study area. Thus, the study utilised a mixed design method to undertake field community resilience analysis. It further utilised the sample survey and focused group discussions.

The study randomly sampled 74 households to solicit views on their inherent community resilience and how they perceived it to have been increased by agricultural development projects. Views from the community members were collected and analysed using a modified sustainable livelihoods framework.

From a planner's perspective, the projects were analysed using content analysis and personal contacts with some planners, monitoring and evaluation officers including projects officers.

Results show three main outcomes. The first outcome is that Keemba Community with seven developmental projects out of twelve being implemented in Monze exhibited less resilience when analysed using the modified sustainable livelihoods model. Nalutanda with three developmental projects exhibited more resilience. The

third outcome was that the communities did not attribute their current resilience capacity levels to the effects of the current developmental projects except for hazard early warning awareness.

The study expectations were that Keemba should have had more resilience since it had more developmental projects being implemented. In this way the increased and enhanced resilience in Keemba would have been attributed to appropriateness, effectiveness, efficiency, relevancy and sustainability of the many agricultural developmental projects that were being implemented. Since the findings were contrary, the study concluded that the agricultural development projects being implemented were not effective at increasing community resilience in terms of their design, planning and implementation. As such, the projects did not contribute effectively to the reduction of social vulnerability and needed to be redesigned to mainstream disaster risk reduction. The study further discovered that poverty levels were still high in both communities studied despite the interventions. The high poverty levels contributed to the prevailing low resilience and thus to increased social vulnerability in Monze, as well.

Keywords: community resilience, non-emergency agricultural development projects, social vulnerability to food insecurity, disaster risk reduction, poverty alleviation, project planning and design, project implementation, monitoring and evaluation.

Dedication

To my lovely and supportive wife Mary Kalungwe-Banda, my daughter, Kasiwa Banda and Mr. Nuwa Senkebe-Serejogi my former boss at Lutheran World Federation, Meheba Refugee Camp, north-western Zambia.

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- Finally but not the least, my family is not forgotten in these acknowledgements. They made great sacrifices that made it possible for me to complete this study. Thank you all and God bless.

Declaration of originality

I, Bowen Banda, hereby present for consideration by the Disaster Management Training and Education Centre for Africa (DiMTEC), within the Department of Agricultural Economics, Faculty of Natural Sciences at the University of the Free State (UFS), my dissertation in partial fulfilment of the requirements for the degree of Master in Disaster Management.

I declare that this dissertation is the product of my own efforts. No other person has published a similar study from which I might have copied. No part of this work may be published without my consent as well as that of Disaster Management Training and Education Centre for Africa (DiMTEC).

The views, opinions and suggestions expressed in this study should be attributed to the author only.

Name and Surname: -----

Signature: -----

Approval Form

The undersigned certify that they have read and recommended to the University of The Free State for acceptance; a research entitled '*an analysis of agricultural development projects as a tool to increase community resilience: A case of Monze District in Zambia*', submitted by Bowen Banda in partial fulfilment of the requirements for the degree of Master in Disaster Management.

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Acronyms

ADP	Area Development Project
ADPC	Asian Disaster Preparedness Centre
ADSP-SC	Agricultural Development Support Programme -Small Holder Commercialisation
AusAID	Australian Aid
AU	African Union
CEO	Camp extension officer
CFU	Conservation Farming Unit
CAPES	Community Agro-meteorological Participatory Extension Services
CASIP	Conservation Agriculture Scaling up for Increased Productivity
CRSA	Climate Resilient Sustainable Agriculture
CVA	Capacity Vulnerability Analysis
DFID	Department of International Developmental
DiMTEC	Disaster Management Training and Education Centre for Africa
DMMU	Disaster Management and Mitigation Unit
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EDRP	Emergency Drought Recovery Project
EU	European Union
FEWSNet	Famine Early Warning Systems Network
FISP	Farmer Input Support Programme
FISRI	Farmer Input Support Response Initiative Project
HFA	Hyogo Framework of Action
FAO	Food and Agricultural Organisation
GEF	Global Environmental Fund
GAM	Global Acute Malnutrition
GART	Golden Valley Research Institute
GRZ	Government of the Republic of Zambia
IFAD	International Fund for Agricultural Development
IFRC	International Federation of the Red Cross and the Red Crescent
IRDP	Integrated Rural Developmental Project

MAL	Ministry of Agriculture and Livestock
MCDMCH	Ministry of Community Development , Mother and Child Health
NAP	National Agricultural Policy
NEPAD	New Partnership for African Development
PAM	Programme Against Malnutrition
PAR	Pressure and Release Model
TSP	Transformative Social Protection
SAO	Senior Agricultural Officer
SAPP	Small Agribusiness Promotion Programme
SLF	Sustainable Livelihoods Framework
SLIP	Small Livestock Investment Project
SNDP	Six National Developmental Plans
SRM	Social Risk Management
UNISDR	United Nations International Strategy for Disaster Risk
UNDP	United Nations Developmental Programme
USAID	United States Aid Agency for International Development
UNU-EHS	United Nations University - Institute for Environment and Human Security
WFP	World Food Programme
WVZ	World Vision Zambia
ZMD	Zambia Meteorological Department
ZVAC	Zambia Vulnerability Assessment Committee
ZRCS	Zambia Red Cross Society

CHAPTER 1

ORIENTATION OF THE STUDY

1.1 Introduction

Since the launch of the Hyogo framework of action (HFA) in 2005, there has been increased awareness at practitioner, government and non-governmental organisations (NGO) level for the need to mainstream disaster risk reduction in non-emergency developmental projects (UNISDR 2005:18). This increased awareness has been in view of using developmental projects to alleviate poverty and enhance community resilience. Ironically, disaster losses and social vulnerability have also been on the increase globally. Ideally, social vulnerability should have been decreasing with increased conceptual knowledge in disaster risk reduction (DRR). This increase in social vulnerability is a paradox that needs to be addressed by both practitioners and academicians.

This chapter outlines the background to the research problem for the study, the aim, objectives, research hypothesis, purpose, and study delimitations. The chapter also highlights the methodology used to undertake the study.

1.2 Increased social vulnerability to food insecurity in Zambia

According to the FAO, WFP and IFAD (2012:47), Zambia is one of the hot spots for chronic social vulnerability to food insecurity in Africa. Social vulnerability to food insecurity is analysed by the World Hunger Report using indicators such as malnutrition and access to food. Based on these indicators, the world hunger report concludes that social vulnerability in Zambia is still high due to high levels of malnutrition. Social vulnerability is incremental using the global acute malnutrition (GAM) indicator despite increases in maize production at household as well as the national level (ZVAC, 2008:30; Jayne, Mason, Burke, Shipekesa, Chaopoto & Kabaghe, 2011:36).

This vulnerability to food insecurity in Zambia is more pronounced in disaster prone rural parts of the country despite increased maize outputs. As an example, Zambia just recorded bumper harvests in maize production at all levels in the last two growing

seasons 2010/11 and 2011/12, but social vulnerability to food insecurity is still high at household and community level. Maize crop production in Zambia is considered an indicator of good economic performance for the rural communities in terms of food security and poverty alleviation. As such, it is well monitored and any indication that it is dwindling is a sign of hunger starting to manifest at community level.

High social vulnerability to food insecurity implies that community resilience among the poor and vulnerable rural communities, in disaster prone areas, is still low for them to overcome potential disaster impact. A localised example of increasing vulnerability in Zambia is found in Monze District, Southern Province of Zambia.

1.3 Description of study area

1.3.1 Location, spatial size and population

Monze District is located 180 km south of Lusaka the capital of Zambia on latitudes $16^{\circ} 16.493'$ south of the equator and longitude is $27^{\circ} 28.566'$ east of the Greenwich meridian. The size of the district is 6,687 square kilometres. Monze has a population of 195,921 of which 49% are male and 51% are female (GRZ 2010a:25).

1.3.2 Agro-ecological zones & farming systems

Monze falls in region II of the Zambian agro-ecological zones and receives an average annual rainfall of 801 mm. The rain season in Monze starts from around 13 November and ends around 24 March. The length of the growing season is 90-150 days. Major farming systems are that of livestock and maize crop (Kalinda, Tembo, Kuntashula, Langyintuo, Mwangi & La Rovere, 2010:4; Nanja, 2010:77-85).

1.3.3 Major hazards

The district experienced drought in 1992/93, 1995/96, 2003/04 (Nanja, 2010:77-85). Floods were experienced in the 2007/08 season (ZVAC, 2009:123). HIV prevalence is at 14%. Corridor livestock disease prevalence is also high (Haller, 2007:141). Corridor disease was first experienced in 1981-82. The second wave of the outbreak was in 1990 and 1997 (Kadohira & Samui 2001:73).

These four hazards of drought, floods, HIV/AIDS and livestock diseases have been cited as the major threats to livelihoods in Monze (Kalinda *et al*, 2010:27).

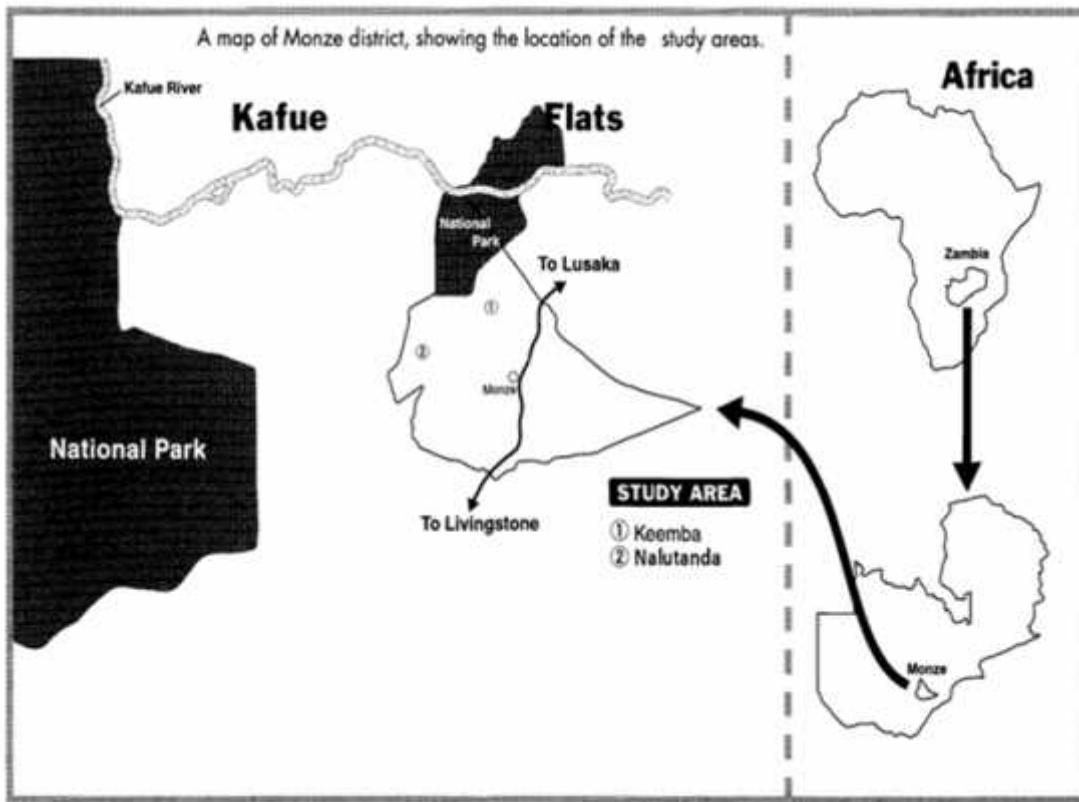


Figure 1.1: Map of Monze showing study area

(Source: Adapted from Kadohira & Samui 2001:70)

1.3.4 Economic activities

The major economic activity is rain-fed agriculture. Monze has 19,034 farmers of which 99% or 18,932 are small-scale. Major crops grown are maize and cotton. Cattle is the major livestock kept by the rural communities (GRZ, 2006a:4).

Monze District had 200,000 heads of cattle in 1978, 129,111 in 2008 & 144,320 in 2010 (Saha, 1994:20; GRZ, 2011a:1). The livestock numbers decreased from 1978 to 2008 due to negative impact of livestock diseases but are on the upward trend since 2008 (Kadohira & Samui 2001:73).

The importance of livestock in the Monze farming systems cannot be overemphasised. It has been an important source of livelihood for more than 100 years (Saha 1994:6; FAO 2005:18). Its support for enhanced community resilience is thus very important.

1.3.5 Traditional leadership

Six chiefs govern the area at sub district level. The chiefs are Monze, Ufwenuka, Choona, Mwanza, Choongo and Hamusonde. The chiefs have a say on how natural resources are allocated and thus have an important role to play in as far as community resilience is concerned. The chiefs representatives, the village heads, commonly referred to as village headmen sit on committees at village cluster level that co-ordinate developmental activities and disaster management. As such the chiefs through their village heads tend to have a lot of influence on these committees and can influence decision making that would also affect resilience enhancement (GRZ 2010b:94).

1.3.6 Social and cultural setting

The predominant tribe in the rural part of the district are the Tonga speaking people. *Tonga* means ‘Independent’ in Shona language. The ‘independence’ was implied because the Tonga lacked formal political leadership structures, as described by the Shonas in 1561 (Saha, 2004:11-12).

The Tonga speaking people live in homesteads commonly referred to as villages. They practice polygamous lifestyles and the extra wives provide the much-needed labour for farming activities.

Cattle ownership is a traditional form of wealth for the Tongas. Men’s prestige and respect is therefore, related to the number of cattle they own (GRZ, 2006a:4).

1.3.7 District agricultural management administration

Monze is sub-divided into five agricultural administrative blocks: (i) Monze south; (ii) State land; (iii) Monze central, (iv) Monze east and (v). Monze north. The agricultural blocks are further sub divided into agricultural camps that consist of many villages and other sub zones. There are thirty-four agricultural camps in total in Monze and these are used as study clusters in this discourse. Individual households are the other study units used in this discourse.

Agricultural Camp Extension Officers (CEO) that report to the sector head of extension and field services at district level, manage the agricultural camps. The head of extension services at district level reports to the District Agricultural Co-ordinator

(DACO). The DACO in turn oversees all activities in different departments within the Ministry of Agriculture and Livestock at district level.

1.3.8 District disaster management administration & DRR co-ordination

Disaster management and disaster risk reduction activities at district level are co-ordinated under the district disaster management committee (DDMC). The DDMC is a sub-committee of the District Development Co-ordinating Committee (DDCC). The District Commissioner chairs both the DDCC and the DDMC subcommittee. The District Commissioner is the representative of the central government at district level and is appointed directly by the Republican President. Whilst it is good that the District Commissioner chairs these committees, there is very little representation of the local community on these committees. As such, there is no guarantee that the interests of the locals at village level are taken care of when it comes to articulating DRR issues.

The district disaster management committee is further expected to organise satellite committees at village cluster level to help them co-ordinate disaster related activities at lower level (GRZ, 2010b:94.)

There are too many developmental and governance administrative units that overlap and contradict each other at sub district level in Zambia. These many units create operational challenges in developmental administration at grass root level (Chikulo, 2009:104). For example the political administrative system through the Local Councils use the constituencies, wards, branch and section administrative units at sub district level to manage developmental initiatives. The Ministry of Finance and National Planning through the Central Statistical Office utilises the census supervisory areas and the standard enumeration area for their survey management. The Ministry of Agriculture and Livestock extension department utilises the Agricultural Blocks and the Agricultural Camps at sub district level to deliver, manage and co-ordinate agricultural developmental services. The Ministry of Chiefs Affairs utilises chiefdoms and village heads for their service delivery co-ordination. All these administrative units do not share the same boundaries nor administrative structures hence the challenges of how to manage developmental administration.

1.4 Background to study problem in Monze

1.4.1 Current social vulnerability to food insecurity in Monze District

In February 2012, communities in the northern part of Monze District were reported to have experienced hunger due to own-grown food shortages. According to Chibulu (Zambian Post Newspaper, 5 March 2012) these food shortages came about due to partial crop failure caused by prolonged dry spells that affected the communities from December 2011 to February 2012. The hunger that was experienced was in part seasonal due to normal hunger periods that occur around this time of the year, but emerged just nine (9) months after the communities recorded '*bumper maize crop harvest in the past two growing season*'. This was ironic.

Early calls for emergency relief food provision by the people at risk in the northern parts of Monze clearly showed that these communities were still susceptible to disaster risk of hunger and had low disaster resilience capacity for them to have run out of food so soon. Ideally, a small magnitude of drought hazard or prolonged dry spell, should not translate into acute hunger among disaster resilient people that have sufficient reserves in cash and other forms of materials.

The hunger experienced in this part of Monze in 2012 was noticeable despite these communities having been supported extensively with many agricultural rural developmental projects in the last forty years or so. All these projects have been implemented by government, NGOs and other stakeholders to enhance crop and livestock production and reduce hunger.

1.4.2 Chronic social vulnerability to food insecurity in Monze District

Village-communities and individual households in Monze District are reported to have been very prosperous in farming and cattle rearing before the 1990s but that poverty and food insecurity started to increase from there onwards due to loss of livestock (Cliggett, 2000:126). This loss of livestock has been attributed to high prevalence of livestock diseases, drought and anarchy (Bond, Ndubani & Nyblade, 2000:13).

Farrington & Saasa (2002:29) recognised Southern Province of Zambia to be particularly vulnerable to drought and called for investment into drought tolerant crop

interventions through direct investment and technical agricultural research. However, according to Guha-Sapir, Vos, Below & Ponserre (2012:18) drought is a normal and predictable phenomenon. Being slow onset in nature, drought should not be a real food insecurity problem in Zambia with proper planning and right investment in irrigation and agriculture.

Kajoba's additional views (2008:78 & 2009:8) are that land tenure, government ideology and agricultural policies have contributed to increasing poverty and social vulnerability in Zambia. He has argued that rural developmental projects such as agricultural development projects have contributed to increasing social vulnerability in Zambia at community level by creating and entrenching a culture of: (i) dependency on one cereal crop which is maize; and (ii) dependency on massive state intervention through provision of subsidies on fertilisers, transport, marketing and credit. In his views this dependency has become difficult to change hence contributing to increased social vulnerability to food insecurity. Kajoba (2008:80) has therefore called for empirical research to be done to find out whether farmers who have been affected by natural hazards are making long-term adaptations in order to reduce their social vulnerability and improve on their resilience of their food systems.

1.4.3 Current projects being implemented in Monze to alleviate poverty and food insecurity

Currently there are twelve public and donor funded agricultural development projects being implemented in Monze to attempt to alleviate poverty and improve food security. The projects are outlined in Table 1.1.

Table 1.1: Current agricultural development projects being implemented in Monze

Sn	Project Title	Duration of Implementation	Financier
1	Targeted Food Security Pack Project (FSP)	2000- ongoing	Central Government
2	Farmer Input Support Project (FISP)	2003- todate	Central Government
3	Agricultural Development Support Programme - Small Holder Commercialisation (ADSP-SC)	2006 – 2012	World Bank
4	Small Livestock Investment Project (SLIP)	2006 – 2013	IFAD US\$10 million project
5	Conservation Agriculture Scaling up for Increased Productivity and Production (CASPP)	2008 – 2012	FAO
6	Small Agribusiness Promotion Programme (SAPP)	2010 – 2016	IFAD, GRZ
7	Adapting to the Effects of Climate Variability and Change in Agro-ecological I & II	2012 – 2015	GEF, FAO, GRZ, UNDP, CFU, ZMD
8	Farmer Input Support Response Initiative Project (FISRI) to rising cost of agricultural commodities in Zambia	2009 – 2012	EU through FAO
9	Small Holder Dairy Farming Improvement Project (Monze Dairy Farmers Co-operative Organisation Project)	2000- ongoing	Member contribution, Revolving funds, GART, MAL, Land O' Lakes, Coop AFRICA, DFID
10	World Vision Zambia (WVZ): Chief Choongo Area Integrated Development Project	2007- 2022	WVZ Korea
11	Dunavant cotton	2001 - ongoing	Dunavant
12	Alliance Ginnery	2007- ongoing	Alliance

(Source: FAO Lusaka, Ministry of Agriculture & Livestock Monze & Lusaka)

Government departments, NGOs like WVZ and the private sector are implementing these projects. The projects' durations range from two to fifteen years.

1.5 Statement of the problem

Social vulnerability was still on the increase in Monze District despite the many agricultural interventions that had been implemented to help communities increase their agricultural outputs, alleviate poverty and food insecurity. Why was this social vulnerability still on the increase in Monze despite this kind of developmental support?

From literature, the perceived causes of increasing social vulnerability were two fold. One perspective was that of increasing social vulnerability due to natural hazards. The other perspective was that of increasing social vulnerability despite continued rural

developmental project support to reduce poverty, food insecurity and general disaster risk. According to UNDP (2004:9) disaster risk is as a result of failed development.

This study attempted to analyse one of the problem facet as to why social vulnerability was still on the increase despite increased agricultural rural developmental projects' support towards socially vulnerable people at risk of hunger.

1.6 Research objectives

The aim of the study was to investigate why there was still increased social vulnerability in Monze District despite the many agricultural development projects that had been implemented to alleviate poverty, increase food security and ultimately reduce social vulnerability.

1.6.1 Sub-objectives

The sub objectives for the study were:

- i. To analyse how agricultural development projects were designed and implemented to alleviate poverty and contribute towards enhanced community resilience for people at risk.
- ii. To investigate community participation during the design and implementation of agricultural development projects.
- iii. To establish which agricultural developmental were considered beneficial by the community to enhance community resilience.
- iv. To assess and analyse actual community resilience capacity of the people at risk.

1.6.2 Research questions

This study was guided by the following questions:

- i. How were the agricultural development projects designed, that were implemented in Monze?
- ii. Was there a link between designing and implementation of agricultural development projects with increased or reduced community resilience for people at risk?

- iii. Did planners undertake comprehensive disaster risk assessment at pre project design stage?
- iv. What was the role of the community in the designing and implementation of these agricultural development projects in Monze?
- v. How did the community perceive these projects towards enhanced community resilience?
- vi. How did the community define community resilience? Was it compatible with how the technocrats defined resilience?

1.7 Hypothesis

This study assumed that project contribution towards resilience building was low due to another assumption that these developmental projects were not well designed nor implemented, to increase community resilience and reducing poverty at the same time using the same project resources. A null hypothesis was that projects were well designed and implemented but the targeted beneficiaries did not adopt the technology given to address poverty subsequently community resilience (Maddock & Wilson 1994:10).

Low adoption of technology by the targeted community was however possible in agriculture owing to the nature of the targeted group. Farmers were diverse, conservative and risk averse in nature. As such, they made very cautious decisions regarding investment decision. Such decision making mechanisms could influence farmer adoption rate thus productivity and community resilience enhancement.

The second null hypothesis was that the farmers adopted the technology to help them increase their community resilience but abandoned that technology sooner when they did not obtain the benefits imagined due to delayed hazards impacts, lower yields, high production cost, and lower prices than expected in normal season (Maddock & Wilson 1994:10).

1.8 Justification of the study

Reviewed literature further indicated that there were no easy answers as to how social vulnerability could be reduced through external developmental projects and programmes. Manyena (2009:270) however suggested that practitioners could still

adapt non-emergency developmental projects to enhance resilience building. He suggested that such projects were to focus on creating more positive project outcomes to help communities recover and '*bounce forward*' or adapt to new realities after disaster. He argued that by creating capacity for communities to '*bounce back*' into original level of productivity before disaster, projects created the same conditions that created vulnerability in the first place. Thus his recommendation were to design and implement developmental projects whose outcomes were to make communities '*bounce forward*' from their original state of affairs after disaster impact. This project implementation approach called for proper designing of developmental projects to mainstream resilience building activities.

Benson & Twigg (2007:59) were also of the view that non-emergency developmental projects and programmes were to be adapted to enhance community resilience against disasters, in disaster prone areas. This call to use developmental projects was reinforced with the HFA's call '*to build safe and resilient communities*'. The HFA is the current global operational framework for disaster risk reduction. The HFA was agreed upon by governments in Kobe Japan in 2005 to guide the management of disaster risk reduction (DRR) interventions globally and at community level (UNISDR 2005).

In response to the HFA, a good number of applied research studies were commissioned globally by various stakeholders to try to adapt non-emergency programmes and projects to create disaster resilient communities (DFID). Apparently, researchers based in the global northern hemisphere were conducting most of these studies. Their studies were based on hazards mitigation using technological advancement given their countries advanced levels of economic development that were technologically dependant.

Hence calls by prevention consortium at global level, for adaptive and participatory action research to be done in the southern hemisphere as well, to address social vulnerability and not only hazards. The United Nations Development Programme (UNDP, 2004:95) also recommended additional research to be done to link disaster risk reduction to social economic development planning at localised level to complement their global disaster risk index research. Diriba (2007:12) recommended

factoring analysis of farming systems in which the particular community lived when undertaking research on the rate of disaster recovery.

All the practitioners cited above including the HFA and new Disaster Management Act number 13 of 2010 for Zambia point in part to the need to undertake further academic and applied research at local community level in the southern hemisphere. This will result in adaptation of developmental projects to mitigate future disaster risk of food insecurity in disaster prone rural parts of the developing countries. This is to be done among rural communities that are dependent on rain fed agriculture for survival hence the justification of this study academically.

1.9 Significance of the study

At conceptualisation stage, the researcher assumed that this study would contribute to the practice of DRR in two ways. Firstly, the study was envisaged to contribute to the body of knowledge to better understand how agricultural development projects were designed and implemented to enhance community resilience in Monze. Secondly, it was envisaged that the findings would be generalised to contribute towards national debate on how to use agricultural development projects to reduce disaster risk in Zambia. The envisaged study contributions were in line with Disaster Management Act number 13 of 2010 of the laws of Zambia and the African strategy for disaster risk reduction (GRZ, 2010b:82; UNISDR, 2004:11).

1.10 Research methods

Technically the study was a practical action research because the study objectives were more inclined to addressing a real problem, in the absence of a baseline (Leedy & Ormrod, 2005:108; Singh & Bajpai, 2010:161). The study was also an ex post facto or ongoing evaluation (Leedy & Ormrod, 2005:108, 135, 232).

This study used both qualitative and quantitative study design methods being an evaluative and practical action research. It also used these methods because all the four philosophical research backgrounds influenced it: post positivism; social constructivism; advocacy/participatory and; pragmatic (Creswell, 2009:6-10).

The study used content analysis approach to analyse the project design and monitoring documents. This was done to gain an understanding of how agricultural

development projects were designed and implemented by various organisations. The study also used sample survey method to collect data sets from the community to understand and analyse community perception towards agricultural development projects and community resilience enhancement. The study further used focused group discussions for key informants to validate the sample survey findings (Mahalaya, 2010:52).

1.10.1 Population and sample

A sample to represent the population in Monze was drawn from two agricultural camps. One camp had many developmental projects whilst the other had only a few projects. The camp with many projects was treated as an intervention whilst the other with fewer projects was treated as a control (Margoluis & Salafsky, 1998:117). Seventy-four households from these two camps were therefore selected using two-stage cluster random sampling method.

Sampling was therefore, done in two stages to select the agricultural camps and then the individual households.

1.10.2 Data collection tools

The study used three types of data collection tools: the semi structured questionnaires; checklist to guide group discussions and informal interactions; and formal written request to institutions to access projects documents that were being implemented in Monze. Unfortunately, no single organisation provided the researcher access to any project design or monitoring documents to review for the purposes of this study. This was despite the researcher providing formal introductory letters from the university and the Disaster Management and Mitigation Unit (DMMU).

The researcher did verbal follow-ups to inquire on how institutions designed and implemented projects but this strategy did not yield any favourable responses either. The researcher anticipated to receive this type of unfavourable response from the planners and projects implementers during data collection and hence contingency measures were put in place to complete the study based on views of project end users.

Semi-structured questionnaires were used to collect views of the end users regarding how they perceived project impact on their community resilience. In this way, the

study deduced the projects effectiveness and how they were designed and implemented.

Three research assistants were engaged. Of the three, one was engaged at district level to help the researcher: follow up with respective agencies to access project documents; and follow up with agricultural camp extension officers to provide feedback on prevailing hazards impacts and vulnerability in the district for cluster sampling purposes. The other two research assistants were engaged to collect data sets at household level. Prior to commencing field work, the researcher oriented all the three research assistants that were engaged, in the study objectives, data collection techniques including ethics and how to avoid bias. All the three spoke the local language and were able to translate structured question into Tonga for easy communication.

1.10.3 Data collection procedures

Data collection was done by first consulting with the district agricultural co-ordinator's office, field extension officers, the community agricultural developmental co-ordinating committees and with community village heads. This was done for the authorities to know what was happening in their communities and why the study was being conducted. The second stage involved actual administration of the data collection tools.

1.10.4 Data analysis and interpretation

Data sets were first entered in an electronic database created in access and then queries generated from there before being transferred into excel for presentation. The open-ended questions in the sample survey were coded and analysed using the same process. Data sets collected through the focused group discussions were analysed manually since the notes taken were not many.

1.11 Ethical considerations

The researcher explained to the participants why the study was being conducted for academic purposes. This was done before the researcher proceeded to solicit views from the participants on agricultural development projects implemented in their area and how these projects enhanced community resilience. Participants were also informed that this study was neither a baseline study for any new developmental

project. Community members were also made aware of their liberty not to answer any questions if they did not want to. No names of participants were to be revealed and none were revealed. Confidentiality for all the responses given by the participants was therefore maintained. Issues of respect, beneficence and justice were also upheld.

1.12 Delimitation

The study was not a social vulnerability or disaster needs assessment for emergency relief. Neither was it a baseline for any new developmental projects. It was an academic but applied community resilience study even though it used the sustainable livelihoods model that mainly focused on social vulnerability assessment.

It is therefore important to note that the study did not compare effectiveness of agricultural development projects with similar rural or urban social economic developmental projects because this was not the intention. Again, the study was not about evaluating agricultural development projects that were deliberately designed to enhance community resilience and poverty reduction. Rather the study evaluated the existing and current conventional, non-emergency agricultural development projects that were designed for poverty and food insecurity alleviation.

Conceptually, and within disaster management studies, the major focus of the study was the proactive disaster risk management practice before actual disaster outcome. On the overall, the context of this study was how to use non-emergency project interventions to alleviate poverty, food insecurity as well as reduce disaster risk at the same time, with the same project resources.

1.13 Outline of research dissertation

The study comprises six chapters. Each chapter is introduced thematically, discussed, and concluded based on the theme. Chapter two, three and four is the extended literature review which is split into three to be more organised. Chapter two is on the concept of resilience as it relates to sustainable development and disaster management. Chapter three is on theoretical basis of enhancing community resilience. Chapter four is on the role of agricultural development projects to enhance community resilience. Chapter five is on results, findings and discussions. Chapter six is the overall conclusion of the study and recommendations for future studies.

1.14 Conclusion

This chapter provided an overview of the research problem that was studied in Monze District of Zambia regarding increased social vulnerability. The chapter also provided an overview of the research methods that were used to address the study problem.

The next chapter explains the concept of community resilience in context of sustainable development and how community resilience can be enhanced using developmental interventions.

CHAPTER 2

UNDERSTANDING THE CONCEPT OF COMMUNITY RESILIENCE

2.1 Introduction

This chapter discusses the concept of community resilience as it applies to disaster risk and social vulnerability reduction in context of sustainable development. The chapter also discusses how community resilience can be enhanced, measured and assessed in non-emergency developmental projects. The chapter starts by discussing resilience and vulnerability in general before discussing community resilience. Community resilience has been defined from three major angles: generic resilience concept; indicators of a resilient community; and from the social vulnerability concept.

2.2 Resilience concept

Thywissen (2004:468-469), through her compilation of core terminology of disaster risk reduction suggests that some scholars, developmental as well as disaster management practitioners have used the term '*resilience*' loosely in its generic form to refer to '*community resilience*'. Whilst this may be correct to some extent depending on the context, the two terms of resilience and community resilience are not the same in disaster management. Resilience is a generic term used in many disciplines such as psychology, engineering, environmental, social sciences including disaster management to refer to different states of materials and conditions. On the other hand community resilience is a specific concept used in disaster management to refer to a process and outcome of a '*disaster resilient community*'

Resilience is a Latin word '*resilire*' that means "*to leap back*", or ability to "*resile from*" or "*spring back from*" a shock (Umetsu, Shinjo, Sakurai, Shimada & Yoshimura. n.d:8). In engineering and built environment, resilience has been debated in the quest to understand capability of the built and natural environment to return to their original stature before hazard impact. In this context, resilience is perceived to be some form of elastic or shock absorber that prevents systems from breaking down beyond repair.

In economics, the concept of resilience has been used to refer to recovery capacity of production and service delivery systems against external shocks (Naude, Santos-Paulino, McGillivray, 2012:51). In sustainable ecological systems (SES), resilience is often used to refer to ecological systems capacity or adaptive capacity (Folke, 2006:259).

Thematically resilience has four elements. These are social, physical, economic and environmental elements (Benson, Twigg and Rossetto, 2007:104). Resilience should therefore, be understood and analysed in the context of these elements or themes by developmental practitioners. As summarised by Davis, Haghebaert and Peppiatt (2004:19), an analysis of resilience in terms of these four themes shows that each theme corresponds to similar type of vulnerability as depicted in (Table 2.1).

By pairing each element of resilience with vulnerability in (Table 2.1) shows, that resilience is the other side of the corresponding elements of vulnerability. For example, social resilience can be described as the flip side of social vulnerability.

Table 2.1: Thematic elements of vulnerability versus elements of resilience

Thematic area	Element of Vulnerability (examples)	Element of Resilience (examples)
Social	<ul style="list-style-type: none"> ■ Occupation of unsafe areas ■ High-density occupation of sites and buildings ■ Lack of mobility ■ Low perceptions of risk ■ Vulnerable occupations ■ Vulnerable groups and individuals ■ Corruption ■ Lack of education ■ Poverty ■ Lack of vulnerability and capacity analysis ■ Poor management and leadership ■ Lack of disaster planning and preparedness 	<ul style="list-style-type: none"> ■ Social assets ■ Coping mechanisms ■ Adaptive strategies ■ Memory of past disasters ■ Good governance ■ Ethical standards ■ Local leadership ■ Local non-governmental organisations ■ Accountability ■ Well-developed disaster plans and preparedness
Physical	<ul style="list-style-type: none"> ■ Buildings at risk ■ Unsafe infrastructure ■ Unsafe critical facilities ■ Rapid urbanization 	<ul style="list-style-type: none"> ■ Physical assets ■ Resilient buildings and infrastructure that cope with and resist extreme hazard forces
Economic	<ul style="list-style-type: none"> ■ Mono-crop agriculture ■ Non-diversified economy ■ Subsistence economies ■ Indebtedness ■ Relief/welfare dependency 	<ul style="list-style-type: none"> ■ Economic assets ■ Secure livelihoods ■ Financial reserves ■ Diversified agriculture and economy
Environmental	<ul style="list-style-type: none"> ■ Deforestation ■ Pollution of ground, water and air 	<ul style="list-style-type: none"> ■ Natural environmental assets ■ Creation of natural barriers to

- | | |
|---|--|
| <ul style="list-style-type: none"> ■ Destruction of natural storm barriers (e.g. mangroves) ■ Global climate change | <ul style="list-style-type: none"> storm action (e.g. coral reefs) ■ Natural environmental recovery processes (e.g., forests recovering from fires) ■ Biodiversity ■ Responsible natural resource management |
|---|--|

(Source: Davis, Haghebaert and Peppiatt (2004:19)

2.3 Current debate on community resilience

According to UNISDR (2005) and the social labelling theory, practitioners and scholars have portrayed people at risk as being passive, and not having capacity to undertake any intentional action to minimise their own risk. This has been due to over emphasising on the analysis of vulnerability as way to understand causal effects of disaster risk in the last three decades. Yet all people have inherent capacity to respond to hazard impacts in their small way. Only that this capacity has been ignored during times of emergency response and less emphasised during analysis of disaster risk (Wisner, Gaillard & Kelman, 2012:4). The process of trying to have a fresh look at vulnerability has now lead scholars to consider a new concept called community resilience as a possible way to address social vulnerability and reduce disaster risk (UNISDR, 2005:7; Chen & Wang, 2010:1; Cutter, Burton & Emrich, 2010:1; Oliver-Smith, Cutter, Warner, Corendea & Yuzva, 2012:23). However community resilience has many elements in its definition and these are clarified in this paragraph up to paragraph 2.5.

Community resilience is a compound word derived from two terms: community and resilience. The term community refers to groups of people that are socially and geographically bound together. Such people live in the same vicinity and have common interests. These people also share common features (Hattingh, 2000:105). A disaster outcome is therefore said to manifest when such a group of people is affected by hazards and in turn fail to cope with it using their own resources and require external help to survive beyond its impact (Delica-Wilson & Gaillard, 2012:712). Hence the concern to study the community and disaster outcomes.

According to Wisner *et al* (2012:4) a further debate on the concept of community resilience among practitioners has evoked practitioner's perceptions of local dimensions of development and disaster risk reduction. The concept of community

resilience therefore reminds the practitioners that local people or ordinary people are capable of finding collective solutions to their own problems. It is therefore imperative for practitioners to recognise this capacity in any developmental interventions be it relief or non-emergency.

A further implication for debating the concept of community resilience has further led practitioners to recognise that increasing community participation in development and DRR would ultimately lead to people's empowerment (Delica-Wilson & Gaillard, 2012:713). One can therefore assume that local people should understand their own needs better and would be the first responders when hazards affect them, hence, further justification as to why practitioners should focus on the community as a unit for any DRR intervention.

Recognising that communities are the first responders has further lead to the development of another concept of community based disaster risk reduction (CBDRR). This concept emerged in the 1970s among developmental practitioners but was later popularised in Philippines in the 1980s through a national wide network of NGOs called Citizens Disaster Response Network (*ibid*). CBDRR relies on three crucial principles: people's participation and empowerment, development-oriented activities and a multi-stakeholder approach (*ibid*).

Both concepts of community resilience and community based disaster risk reduction are still new in disaster management but the practice of building resilient communities is old (Tobin 2005 as cited by Manyena 2009:142). This is evident from past disaster management and developmental literature were community resilience has been referred to as "*secure livelihoods*" by Blaikie, Cannon, Davis & Wisner (1994:9), "*sustainable livelihoods*" by Chambers & Conway (1992:7), as "*capacity*" by Anderson and Woodrow (1998:10), as inherent capacity by the Centre for Community Enterprise (2000:9); "*manageability or coping ability or strategies*" by Kiensi, Meshack, Uhinga, Mayunga, Mulenge, Kabali, Sigalla, & Bilia (2006:229) and "*community strength*" by Davis (2004:133).

2.3.1 Community resilience as a metaphor

Community resilience is also used as a metaphor in disaster risk management to refer to communities that are perceived to be resilient. In this way community resilience is

both a process and an outcome. However, in reality, no particular community is hundred percent resilient against disaster risk (Norris, Stevens, Pfefferbaum, Wyche & Pfefferbaum, 2008:127; Benson, Twigg & Rossetto, 2007:4).

Even communities that are perceived to be resilient to disaster risk tend to have some elements of resilience capacity that is not fully developed. These communities also have members that are still susceptible to various forms of insecurity including food and hunger in the case of people in rural parts of developing countries, just as an example. The degree of resilience among these same people in perceived resilient communities also differs from one person to another depending on level of capital, education, savings, risk awareness, risk perception, reaction time, social networks, power influence and accessibility to external resources (Hilhost & Bankoff, 2004:1; Siembieda, 2010:180).

Ultimately and in this discourse community resilience is defined as resilient communities that have inherent capacity to anticipate, prepare, respond, recover and bounce forward from disaster outcome when hazard affects their livelihoods just like in resilient households (Birkmann 2006:468). These resilient communities should also have good preparedness and response plans (Poland, 2010:194). Further more, these resilient communities should also have leaders that take deliberate action to enhance the personal and collective capacity of their members and local institutions to respond to and influence the course of social and economic change (Centre for Community Enterprise, 2000:9). All this inherent capacity further involves indigenous and other acquired knowledge on early warning indicators to predict potential impending hazard.

The capacity to respond is in the form of coping ability and is very much dependent on how the community is able to interpret the early warning indicators and their level of preparedness. This capacity should however also be coupled with community assets such as cereal banks, road network and access to developed markets. These assets can be categorised further as being in form of: human capital, natural capital, physical capital, financial capital and social capital (Sanderson, 2012:708). Sanderson (2009:57) has included political capital to these five assets to address issues of governance. Political capital is therefore crucial for day-to-day survival as well as

recovery and is dependent on how it is managed by people at risk (Sanderson 2012:708).

2.3.2 Social vulnerability and community resilience capacity

Social vulnerability which is the flip side of social resilience or community resilience capacity is defined as '*lack of human capacity to anticipate, cope with, resist and recover from impact of natural hazard*' (Blaikie, Cannon, Davis & Wisner, 1994:9; Wisner *et al*, 2004:11; Adger, 2000:348; Naude, Santos-Paulimo & McGillivray, 2012:48; Wisner *et al* 2012:29).

Social vulnerability lacks a common definition as well and the term is used differently by different scholars (Birkmann, 2006:13). According to Cannon, Twigg & Rowell (2003:5) social vulnerability is also linked to the level of wellbeing of individuals, communities and society. It includes aspects related to levels of literacy and education, the existence of peace and security, access to basic human rights, systems of good governance, social equity, positive traditional values, customs, ideological beliefs and overall collective organizational systems. An understanding of community resilience from this angle clearly shows that community resilience is more encompassing as well, just like social vulnerability even though social vulnerability is the negative side of community resilience.

2.3.3 Community resilience as more than coping capacity

Some scholars such as Buckle (1998) have referred to community resilience as human capacity to cope and recover from disaster outcomes. This capacity is in the form of social, physical, economic, physiological, political and natural. However, Manyena (2006:438) has argued that community resilience is more than coping capacity. He argues that community resilience should be seen as the '*shield*', '*shock absorber*', or *buffer* that moderates the outcome of disaster, to ensure benign or small-scale negative consequences. His view is that community resilience should also be perceived as a process that modifies human survival behaviour thus adaptation or adaptive capacity. In this context, community resilience is perceived as long-term social, economic, political and environmental systems that sustain human life beyond impact of hazard. Based on this argument, Manyena (2009:261) introduces a concept

of '*bouncing forward*'. He uses this concept of bouncing forward to explain how community resilience should be more than coping capacity.

Twigg (2007:6) has a similar view to Manyena's. He also argues that community resilience is different from coping capacity. Twigg's (2007) view is that community resilience encompasses more than coping capacity behaviour, or strategies, or measures for risk reduction and management that are normally understood as '*capacities*'. Despite his argument to the contrary, Twigg (2007) recognises that it is difficult to differentiate between the concepts of capacity, coping capacity and community resilience in an applied practical sense. He thus concludes that the three concepts of capacity, coping capacity and community resilience are the same in every-day language and practical use. They are used as such in this study.

2.3.4 Disaster risk, outcome and community resilience

In the past, disaster risk and disaster outcomes commonly referred to as '*disasters*' or '*natural disasters*' were understood to be natural acts of God (Mileti, 1999: 211). With time, scholars have come to understand that disaster risk and disaster outcomes are not just hazards or acts of God (van Ginkel, 2005:6). Disasters occur when hazards affect the vulnerable elements of human security which are physical, economical, social and political (Wisner *et al*, 2004:50).

Disaster outcomes are now known to affect people differently due to people's varying degrees of social vulnerability, risk governance capacity knowhow and access to resources. Those with more access to resources, political influence, living in less environmentally hazardous places and more organised suffer less from the same consequences of hazards. To the contrary, those with less resources and access to productive resources, compounded with inadequate access to political influence or political power and living in more environmentally, degraded areas are more vulnerable to hazard impacts. As such, disasters have come to be well understood to be impacts of hazards on vulnerable elements of people's welfare (Wisner *et al*, 2004:50).

On the other hand, disaster risks are potential disaster outcomes (UNISDR 2009:09). Disaster risks (R) can be expressed mathematically as a function of hazard (H) and vulnerability (V), as $R = H \times V$ (Davis, 2004:131). However, this was also the earlier

conceptual understanding of disaster manifestation as being a mere interaction of hazard with vulnerability. There is further understanding now that disaster risk is not just mere interaction of hazard with vulnerability but is influenced by community resilience capacity (CR) as well, since community resilience is the flip side of social vulnerability. Thus disaster risk is further understood to be = $H \times V/CR$.

With this realisation, it implies that communities that have high community resilience will inversely tend to have low vulnerability and vice versa. Logically this argument suggests that efforts aimed at increasing resilience will result into efforts to reduce vulnerability on a more practical side. Disaster risk and outcomes are therefore linked to high vulnerability and low community resilience through a causal-effect relationship.

Jordaan (2006) and Wisner, Gaillard & Kelman (2012:24) have argued further that disaster risks and outcomes are further influenced by external management capacity (M) of the community to manage hazards. This external hazard management capacity in form of external support is usually derived from the government or other institutions that help communities mitigate hazards. This support can be technological advancement, policy instruments and other forms of governmental interventions.

Combining all these factors, disaster risk is now clearly understood as a function of hazard, social vulnerability, community resilience and hazard community managerial capabilities. Thus mathematically this relationship can ultimately be represented as $R = (V/C) \times (H/M)$. Wisner (2012:24) presents this relationship as being $R = H \times [(V/C) - M]$.

What is important in all these relationships between hazards, social vulnerability, community resilience and external capacity to manage hazards and ultimately disaster risk is the recognition that, disaster risk can be influenced by varying degrees of community resilience holding other factors constant.

Conceptually, understanding these linkages helps practitioners appreciate that, when community resilience is increased, social vulnerability is likely to be reduced. Therefore, to reduce social vulnerability one has to increase community resilience capacity and not the other way round. Increasing community resilience is a practical

way of reducing social vulnerability. Non-emergency developmental interventions being implemented in a given area targeting people at risk should therefore focus on activities that will enhance community capacity to anticipate, prepare and recover well before the hazard affects vulnerable communities.

The idea behind this pre-disaster risk management is to build on inherent community capacity to minimise potential hazard impact on people's vulnerable livelihoods. As such, interventions should also address livelihoods.

2.3.5 Community resilience in disaster management continuum

The disaster management continuum involves two major phases: the pre-disaster risk reduction or disaster risk management phase; and the post disaster or actual response phase.

The pre-disaster risk reduction phase, further involves three major activities: prevention; mitigation and preparedness stages. The South African Department of Provincial and Local Government (2008:95) refer to these three activities as '*disaster risk reduction measures*'. In their view, these measures are the most crucial activities to be undertaken to manage risk or to enhance community resilience.

The post disaster phase, also involves three major activities: the response or relief stage; recovery; and rehabilitation stages. Community resilience building is more inclined to the pre-disaster risk reduction phase of prevention, mitigation and preparedness. However, since community resilience is about building or enhancing community capacity to anticipate, prepare and manage risk before and after, it therefore means that community resilience as a process, is also involved in response, recovery and rehabilitation phases of the disaster management continuum. Thus, community resilience is part of the proactive, holistic approach to managing disaster risk and disaster outcomes. This is important for practitioners to note and is a reminder that resilience is not just an outcome but also a process of achieving disaster resilient communities.

2.3.6 Community resilience as more than food security

Food insecurity is related to community resilience through the social vulnerability concept and coping capacity. Andrews & Flores (2009:192) refer to social

vulnerability that cause food insecurity disaster outcome, *as the full range of factors that place people at risk of becoming food insecure, including those factors that affect their ability to cope*. Coping mechanisms are explicitly recognised as ‘resilience’ in describing the relationship between coping mechanisms and food security in this context by Naude, Santos-Paulino & McGillivray (2009:2). Resilience as used in this context by Naude *et al* (2009:2) is not the same as community resilience used in this study. Resilience in Naude’s context is a sub set of the community resilience used in this study. Naude’s implication is that practitioners have to enhance coping capacity or ‘resilience’ to address food insecurity, but this discourse has already shown that coping capacity is not the same as community resilience even though in practice these terms are used interchangeably. As such a mere enhancement of coping capacity does not translate into enhancing community resilience. It is just part of the process.

Based on the argument in this discourse and adopted from Twigg (2007:6), food security can be viewed as a subset of community resilience. Thus enhancing food security is part of enhancing community resilience. As a subset, practitioners have to address food insecurity first to enhance community resilience and not the other way. Food security is therefore considered to be different from community resilience in this discourse because the two are not the same, technically.

2.3.7 Community resilience as more than poverty alleviation

Poverty is now recognised as more than a lack of income or consumption; it includes deprivation in health, education, security, empowerment and a lack of dignity (FAO, 2012:82). The poor often lack access, or are excluded from income generating opportunities, such as gainful employment and productive resources, including land, forests, the seas, water, seeds, technology and credit, while poor governance often entrenches poverty.

Poverty is recognised to be a major contributing and predisposing factor to social vulnerability and thus to disaster risk (Lewis, 1999:24). Thus poor people are unable to afford DRR measures due to their poverty levels (Wisner *et al*, 2012:174).

Being an inverse of social vulnerability, community resilience can be considered to be affected directly by the high levels of poverty. Developmental practitioners should therefore address poverty in areas where poverty and social vulnerability are high in

order to enhance community resilience (Cannon *et al*, 2003: 4; Naude, Santos-Paulino and McGillivray, 2012:1).

2.3.8 Community resilience in urban and rural areas

Principles for increasing community resilience in urban and rural areas in both developing and developed countries are similar. What is different are the specific interventions that are employed. In urban settings, communities tend to depend quite heavily on cash income for their sustenance and as such, employment opportunities play a very important role in their livelihoods, enhancing community resilience and reducing social vulnerability (Sanderson, 2009:17). In rural areas, agricultural production plays a very crucial role in sustaining livelihoods. The reason for analysing agricultural rural development projects in this study is the rural based nature of the problem being studied.

2.4 Achieving community resilience through sustainable development & livelihoods - access to resources

According to Wilson (2012:1218), DRR is slowly becoming a '*buzz*' word in the disaster, environmental and developmental studies and might replace sustainable developmental concept when the DRR concept is fully linked to environmental and ecological resilience. DRR is however a new concept as well just like community resilience.

In broad terms, disaster risk reduction (DRR) refers to *the practice of reducing disaster risks: through systematic efforts to analyse and manage the causal factors of disasters; including reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment and improved preparedness for adverse events* (UNISDR 2009:11).

Twigg (2007:6) simply refers to *DRR as being the broad development and application of policies, strategies and practices to minimise vulnerabilities and disaster risks throughout society*. In both definitions of DRR by UNISDR (2009:11) and Twigg (2007:6), the focus is on pro-activeness, and the need for practitioners and communities to undertake developmental interventions that will deliberately build on inherent community resilience capacity for people living in disaster prone areas. This

capacity should be for communities to anticipate risk and manage disaster risk in a timely manner with minimum external support.

In line with the definition of community resilience used in this discourse, achieving enhanced levels of community resilience using developmental interventions is dependent on the following seven pre-conditions:

- i. Peoples access to resources (Jabeen, Johnson & Allen 2010: 415-31). Developmental projects should address discrimination in marginalised people's access to accessing resources. Peacock & Prater (2012:692) have further argued that the problem is not just lack of access to assets and resources but they are deliberately excluded through political, cultural and other structures and it is these that should be addressed by developmental interventions to enhance community resilience.
- ii. Past exposure to the hazards were they stay thus physical exposure (Mishra & Suar, 2007: 143-159).
- iii. Community preparedness capacity (Cutter, Barnes, Berry, Burton, Evans & Tate 2008:598-606).
- iv. How the community is integrated socially (Kadushin, 2004:75-90).
- v. Stable and productive livelihood systems that is a vital precondition for DRR (Wisner *et al*, 2012:597; Sanderson, 2012:697).
- vi. Social protection measures that move beyond traditional approaches of addressing poverty risk to social protection measures that address disaster risk as well. These measures should be designed in such a way that they recognise the difference between poverty and vulnerability. Peacock & Prater (2012:692) has suggested incorporating two recent movements in social protection. These are what are referred to as Social Risk Management (SRM) and Transformative Social Protection (TSP) frameworks (Peacock & Prater, 2012:692).

The SRM framework for enhancing social protection proposes the use of non-formal, market based strategies to complement public sector, social protection strategies for addressing risk reduction and mitigation and then addressing the post-disaster events thus addressing the bouncing forward concept. Non-

formal interventions strategies are proposed to increase the voice of the poor and the vulnerable through the development of standards and entitlements that directly address human rights.

Transformative measures address more directly structural features associated with marginalisation and include promoting of minority rights, collective worker actions, anti-discriminating campaigns and various social funds to promote change (Peacock & Prater, 2012:693).

- vii. Projects that recognise and enhance participatory governance (Peacock & Prater, 2012: 693).

2.5 Enhancing community resilience through developmental projects' intervention

According to UNISDR (2005:1), enhancing community resilience can be done by deliberately mainstreaming DRR activities in social economic developmental projects. This process further involves taking proactive measures to ensure that DRR activities are assessed, analysed and incorporated in developmental projects' plans alongside other developmental needs.

2.6 Other concepts used in this study

2.6.1 Disaster mitigation

This concept refers to the lessening or limitation of the adverse impacts of hazards and related disasters. The adverse impacts of hazards cannot be prevented fully, but their scale or severity can be substantially lessened by various strategies and actions. Mitigation measures encompass engineering techniques and hazard-resistant construction as well as improved environmental policies and public awareness. It should be noted that in climate change policy, "*mitigation*" is defined differently by environmental management practitioners, being the term used for the reduction of greenhouse gas emissions that are the source of climate change (UNISDR, 2009:8).

2.6.2 Disaster risk reduction strategies

These are deliberate activities designed to build peoples physical, economic, social, environmental, political and psychological capacity & preparedness to manage these pre-disastrous events and actual disastrous events using their own resources.

2.6.3 Disaster risk management

Disaster risk management (DRM) is an extension of the more general term “*risk management*” to address the specific issue of disaster risks. Disaster risk management as a concept aims to avoid, lessen or transfer the adverse effects of hazards through activities and measures for prevention, mitigation and preparedness (UNISDR, 2009: 4).

Abarquez & Murshed (2003:29) have properly contextualised DRM as a concept focusing on reducing threats and potential losses and not on managing disasters and their consequences. According to them DRM contributes to UNISDR’s aim of developing a “*culture of safety*” and creating “*disaster resilient communities*”. Thus, DRM is a systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.

2.6.4 Disaster preparedness planning

Disaster preparedness refers to measures taken to prepare for and reduce the effects of disasters, prior to and during their occurrence. That is, to predict and—where possible—prevent them, mitigate their impact on vulnerable populations, and respond to and effectively cope with their consequences. Disaster preparedness is best viewed from a broad perspective and is more appropriately conceived of as a goal, rather than as a specialised programme or stage that immediately precedes disaster response (IFRC, 2000:6).

2.6.5 Non-emergency agricultural development projects

In this study, agricultural development projects are social economic plans and activities designed and implemented by practitioners to improve livelihoods, nutrition, income and food security of the communities using agricultural related activities such as crop farming, livestock rearing and aquaculture activities. It should be noted that the emphasis in the definition is not on improving agricultural activities but rather livelihoods through agricultural activities. Agricultural development projects being discussed in this study are more of public social safety nets projects that focus on improving welfare of the vulnerable communities and not single big agricultural

investments projects such as coffee plantations that focus on growing coffee for profit for a few individuals who own initial financial assets invested in such projects. Whilst such big investment projects provide employment to many people in form of labourers, these projects can easily take care of their employees if these employees are accommodated on the farm during times of adversity.

2.6.6 Project design or formulation

Project design refers to the whole process of identifying social economic problems and actual identification of sustainable activities to be financed and implemented internally or externally to address these identified social economic problems in the community over specific period. Project design process can be participatory in nature or can be done exclusively by a team of experts without involving community. However, projects in disaster prone areas should involve the community at designing and implementation level and should be participatory in nature (Twigg, 2007:61).

2.6.7 Project implementation

Project implementation is the operational string of the activities identified for implementation to address social economic problems to achieve the agreed outcomes.

2.6.8 Project impact

Project impacts are both the short and long-term changes brought about by the implementation of the project activities over a specified period using specific resources.

2.6.9 Disaster prone area

These are geographically bound physical areas that are exposed and prone to tangible hazards that have potential to cause serious harm to the inhabitants of that community.

2.6.10 Village

Village is interchangeably referred to as a community. However, a village is a rural based homestead that comprises one or more households of usually the same relationship, kin or extended family or clan.

2.6.11 Vulnerability to food insecurity

Is both potential and actual conditions of chronic and acute hunger situations prevailing at community level due to reduced long-term coping capacity and reduced

community resilience capacity to manage negative future impacts of hazard, in case these hazards occur.

2.7 Conclusion

This chapter has explained the disaster risk management concepts used in this study and how they are interconnected with community resilience, sustainable development and sustainable livelihoods. It is clear from the discussion in the chapter that community resilience as a concept is interlinked with almost all the other concepts in disaster management and sustainable development. Community resilience is also an important concept for developmental and disaster management practitioners to focus on to proactively mitigate disaster risk using non-emergency developmental interventions.

CHAPTER 3

THEORETICAL BASIS FOR ENHANCING COMMUNITY RESILIENCE USING DEVELOPMENTAL PROJECTS

3.1 Introduction

The previous chapter included a discussion of the concept of community resilience in context of DRR and sustainable development. This chapter focuses on the theoretical basis of how community resilience activities are analysed, planned and mainstreamed in rural based community developmental projects.

As already alluded to in chapter two, community resilience can be enhanced directly by enhancing sustainable livelihoods assets and community risk governance capacity. Enhancing these capacities can be done by developmental projects that focus exclusively on DRR or through projects that focus on poverty and food insecurity alleviation but mainstream DRR.

Enhancing community resilience using non-emergency projects is tricky because it involves planning two themes. The first theme is planning of conventional social economic developmental project activities. The second is planning DRR activities that should be mainstreamed in the non-emergency project activities. Since the orientation of this study is on how to use normal rural developmental projects to enhance community resilience, implies that developmental practitioners should plan non-emergency developmental projects in a conventional way and then incorporate DRR in them. This process involves mainstreaming DRR in conventionally designed social economic developmental projects. Mainstreaming concept is fully discussed in paragraph 3.3.

3.2 Framework for planning conventional developmental projects

According to Benson *et al* (2007:58), the project planning and management cycle is the most popular framework used by practitioners to plan non-emergency developmental projects. Practitioners therefore use this same management framework to incorporate activities to enhance community resilience, into non-emergency projects.

The project planning and management framework has five to nine generic stages. They are summed up into seven stages for the purpose of this discourse. Thus: (i) the pre-design stage; (ii) desk analysis of risk; (iii) pre-design field assessment of both risk and other parameters; (iv) actual project design; (v) project appraisal; (vi) implementation; (vii) monitoring and evaluation (adapted from Baum & Tolbert 1985; NEMA, 2008:159; ADPC, 2010:168; Benson *et al* 2007:58).

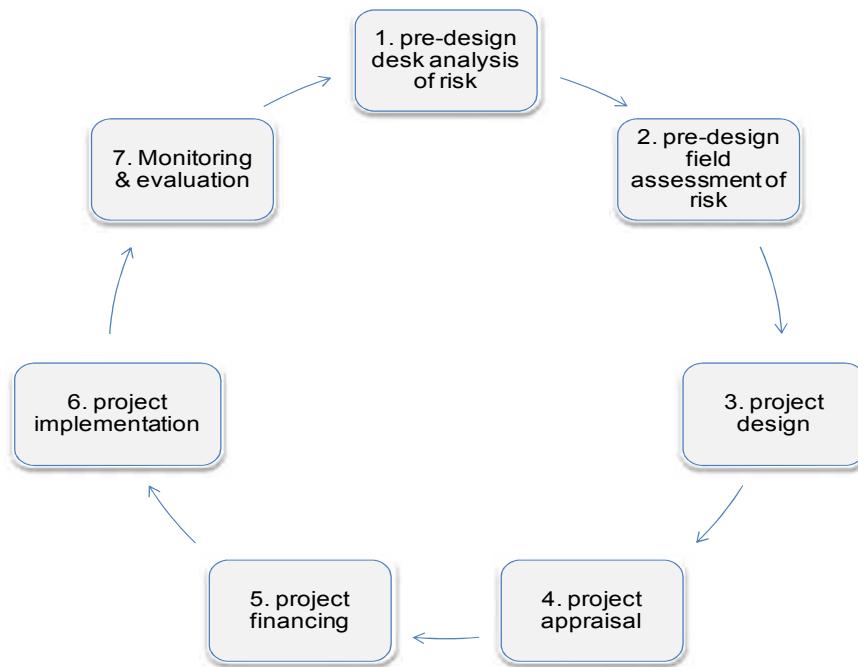


Figure 3.1: Project planning and management cycle for mainstreaming DRR

(Source: Adapted from Baum & Tolbert 1985; NEMA, 2008:159; ADPC, 2010:168; Benson *et al* 2007:58).

3.2.1 Strength of the project planning and management cycle

It is a flexible model and can be adapted for many planning and management scenarios. However, it is not a panacea to good project planning (Hoare 1988:3).

3.2.2 Weakness for the project planning cycle & way forward

Hoare (1988:3) considers the traditional project planning and management cycle to be a top-down approach. He further considers the cycle to be used to plan projects based on planner's assumptions and not actual field data nor views of the people affected. Implicitly he suggests that the project management cycle in its traditional form should be adapted to incorporate views of the targeted population.

According to Abarquez & Murshed (2004:12) top-down planning approaches fail to address specific local needs of vulnerable communities, ignore the potential of local resources and capacities, and may in some cases even increase peoples' vulnerability. Hence, broad consensus reached by disaster management practitioners is for adopting of participatory planning approaches to plan developmental projects to enhance community resilience. Participatory planning should therefore be used in developmental projects being implemented in Monze for these projects to be considered well planned.

3.3 Mainstreaming disaster risk reduction in the project management cycle

On the other hand, mainstreaming DRR in non-emergency projects is considered the most common strategy for enhancing community resilience using developmental projects (Twigg, 2004:26 UNISDR 2005:12; Benson *et al*, 2007:5)

Mainstreaming is a process to fully incorporate disaster risk reduction (DRR) into relief, development policy and practice (LaTrobe & Davis, 2004:16). As such mainstreaming should be done at all stages of developmental planning and implementation thus throughout the project planning and management cycle (Benson *et al*, 2007:11). Mainstreaming DRR should also lead to the adoption of measures required to reduce vulnerability, treating risk as an integral part of the developmental process rather than an end in itself (Benson, 2012:664).

Mainstreaming DRR activities in developmental projects therefore involve both analysis of how potential hazard-events can affect performance of policies, programmes and projects on one hand. Mainstreaming further involves analysis of the impact of those policies, programmes and projects on community resilience to a given hazard (Benson 2012:664).

Benson (2012:664) however, cautions that mainstreaming DRR in developmental projects should be properly done to avoid worsening social vulnerability. Practitioners should therefore ensure that they develop a balanced solution to achieve both enhanced community resilience and other developmental goals when they mainstream community resilience activities into conventional developmental projects. Thus, practitioners should also ensure they address the underlying root causes of the

problems to build resilience through DRR mainstreaming. In short, they should not ignore to address the root causes that might seem not to be directly related to the disaster risk.

With increased conceptual knowledge in DRR there should be no reason why a win-win solution should not be found seven years after the HFA enactment in 2005. As a strategy to reduce disaster risk and losses, the HFA formalised the need for practitioners, governments, NGOs, and other stakeholders to mainstream DRR into ongoing emergency and non-emergency developmental projects (UNISDR, 2005:10).

3.3.1 Analysis of risk as part of the mainstreaming process

Disaster risk assessment is the first step undertaken by practitioners prior to designing non-emergency projects. It is also considered the first step in planning an effective disaster risk reduction programme (Republic of South Africa, Department of Provincial and Local Government, 2008:53; Twigg, 2004:25; Ramamasy & Baas, 2007:26). It involves analysis of hazards and vulnerabilities. Analysis of risk is done in two phases: desk analysis; and actual field analysis (Ramamasy & Baas, 2007:26).

3.3.1.1 Desk analysis of risk

Practitioners to acquaint themselves with the area they intend to operate do a desk analysis of risk (Abarquez & Murshed, 2004:54).

There are many sources of information for desk study. These sources include but not limited to national and district level disaster risk and preparedness plans, consolidated district developmental plans, situational analysis reports compiled by local authorities, specific community developmental plans compiled by civil society groups (CSW). Where risk is not documented, the problem could be due to lack of capacity at local government level to appreciate the need for incorporating such type of information in their situational or developmental plans, and as an enabler such capacity should be built. The same developmental practitioners / specialist in a given organisation attempting to intervene in a given area might not necessarily do this (*Ibid*).

At this stage, the capacity vulnerability analysis (CVA) model can be used to organise secondary data into useable format to understand vulnerabilities and capacities. NGOs

and other stakeholders to plan and evaluate developmental projects also use the CVA model (Twigg 2004:34). The CVA is a practical and diagnostic tool of vulnerability and capacity but does not show how these capacities are impacted upon by hazards to translate into disaster risk (Twigg, 2001:2).

Table 3.1: Summary of indicators for desk analysis of risk using the CVA framework

Component of resilience	CVA Themes	Elements to assess & analyse	Existing inherent capacity	How capacity can be used during times of adversity	Why capacity was not used during last hazard impact	Possible intervention
Capacity to anticipate risk	social / organization al	Knowledge levels of hazards Early warning systems in place				
Preparedness assets	Physical / Material Economic / Financial Environmental / Natural	Community cohesion Existence of preparedness action plan Human assets Natural assets Physical assets Financial assets Social assets Political Assets				
Response capacity	social / organisation al	Volunteerism Access to markets Access to information Knowledge of coping mechanisms Social networks Social safety nets Use of reserves Sale of assets Existence of search and rescue team Existence of a response coordinating committee				
Recovery capacity & capacity to bounce forward	All CVA Themes	Reserves in kind or cash Insurance in kind Access to external assistance Access to micro financing Access to markets to sale liquidate other assets				

(Source: Author; Anderson & Woodrow 1998:12)

3.3.1.2 Field assessment of risk

Field assessment of risk is similar to desk analysis but involves a combination of both. The assessment of risk at this stage is based on community perception and actual data sets collected from people at risk. According to Benson & Twigg (2007:131) disaster risk assessment must lead to a corresponding risk management strategy in the project plan.

3.3.2 Frameworks used for detailed analysis of risk at pre-project design stage

Many models exist that can be used to assess and analyse disaster risk before or during the project design process. Some of the most prominent models used are Pressure and Release (PAR) model and its accompanied Access model, the DFID Sustainable Livelihoods model (SL), Bogardi / Birkmann & Cardona (BBC) conceptual framework and Turner's vulnerability framework (Birkmann, 2006: 20-35). However, all of these frameworks are designed to measure and analyse vulnerability and not resilience directly. Being an inverse of social vulnerability, community resilience can also be analysed by these same models even though there is need to modify or adapt the models to analyse community resilience.

For instance, the SL model is reported to have been modified and adapted about fifteen times (Hussen, 2002:13). Sanderson (2009:47-52) for example has blended three similar models of sustainable livelihoods by CARE, Oxfam GB and UNDP to come up with what he refers to as *a 'reconceptualised livelihood approach for assessing resilience in urban areas'*. As already indicated, livelihood assets have been recognised to be crucial in enhancing community resilience for both urban and rural based communities (Sanderson, 2009:55; Sanderson, 2012:697).

For rural based communities, that are dependent on agriculture for their livelihoods, these assets are the basis for own food production and other income generation for day-to-day survival, response, recovery as well as bouncing forward during times of adversity (Ramamasy & Baas, 2007:35). Therefore, enhanced access to these livelihood assets is very critical for these people to survive in normal and hazard prone growing seasons.

Given this background, the sustainable livelihoods (SL) model provides a good framework for undertaking comprehensive disaster risk assessment.

3.3.3 Sustainable livelihoods model

SL model derives its name from the definition used by Chambers & Conway (1992:7) to describe livelihoods that were considered sustainable. To them livelihoods were considered sustainable when they could cope with, recover from stresses and shocks. They further described livelihoods *as comprising the capabilities, assets including both material and social resources and activities required for a means of living*. Key elements of this framework are livelihoods assets already described in section 2.3.1. These are: (i) human, (ii) natural (iii) physical, (iv) financial, as well as (v) social assets, and now (vi) political assets (Sanderson, 2012:708).

The SL model was developed to widen practitioners' analytical perspective from food security to livelihoods. This was in view to the existing food surpluses at national level that did not translate into food security at household level like the current case of Monze (FAO, n.d. 151).

The original SL model as developed by DFID in 1999 is depicted below.

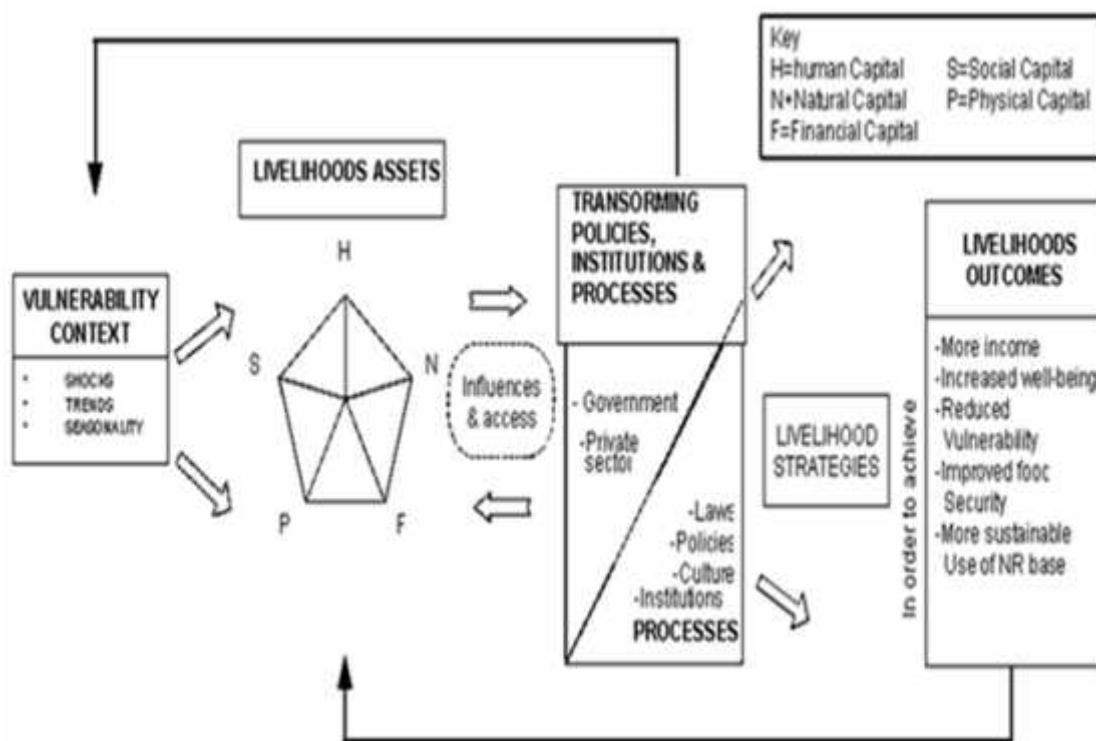


Figure 3.2: DFID Sustainable livelihoods model

(Source: DFID, 1999:1)

The SL provides an improved understanding of how poor people at risk access productive resources, and how they utilise them to enhance their survival capacities during normal seasons and in times of adversity. The model analyses how all livelihood process are affected by hazards and how these assets act as buffer systems against risk. In this way, scholars have suggested that livelihoods assets have two roles: to assist household produce wealth for day to day survival and; also provide a safety net for the household during times of adversity (FAO, n.d. 151).

The SL model is therefore handy when undertaking risk assessment when vulnerability is influenced by poverty (Sanderson 2012:697). It is also a model that seeks to combine disaster and developmental assessment methodologies in one, to understand livelihoods, their impact upon mitigation and their susceptibility against hazard impact (Sanderson 2009:19). It is a model that developmental practitioners have also used to plan new development activities (Haidar, 2009:5).

Analysis of resilience in the SL model starts with the analysis of people and their risk regarding access to assets. It further describes how access is influenced with external factors to result into desirable outcomes. Twigg (2001:9) has however cautioned not to down play the importance of natural hazard analysis by concentrating on the analysis of assets that are people centred.

3.3.3.1 Human assets

Human assets are crucial for resilience enhancement. They also influence how other assets are built. Human assets are skills, technical and interpersonal, knowledge and ability, employability and earning power, good health and leadership (DFID, 1999: 9).

3.3.3.2 Natural assets

Natural assets have wide variations and include tangible natural assets that are used directly for production such as trees, communal grazing lands, wetlands, arable land for cultivation, and habitation. Natural assets also include natural water bodies such as rivers for human and livestock survival. Intangible goods are the atmosphere and biodiversity. Natural assets provide the natural basis for production. Their unsustainable use results in degraded environment that has a further direct link to creating conditions of vulnerability. These assets should therefore be assessed at pre-

design stage to be nurtured during project implementation. Livelihoods are derived from this natural resource (DFID, 1999:11).

3.3.3.3 Physical assets

Physical assets are similar to natural assets. They include basic communal infrastructure like Dip tanks in the case of Monze District, storage sheds, roads, community schools, bridges, communal boreholes, communal wells, public communication infrastructure (DFID, 1999:13). These assets have been recognised in the model as being crucial to enhance productivity that is further crucial to enhance community resilience.

3.3.3.4 Financial assets

Financial assets refer to the availability of cash or its equivalent that enables people to adopt different livelihoods strategies (DFID, 1999:15). The two major sources of financial assets are available stock and regular inflows of money in form of income through sales of seasonal crop produce, livestock off takes, remittances. This is equally an important asset because it can easily be converted into other forms of assets. Financial assets help the community to meet other cash obligations and can be a good source of reserves for bouncing forward, given its liquid nature.

3.3.3.5 Social assets

Social assets are social resources upon which people draw in pursuit of their livelihood objectives (DFID, 1999:9). These resources include developed social networks, and connectedness, access to wider institutions, community membership in more formalised social groups, which often entails adherence to mutually agreed or commonly accepted rules, norms, and sanctions, and relationships of trust, reciprocity and exchange. Social assets further include social support networks such as family support, community cohesion, mobilisation, political participation (Wisner *et al*, 2004:117). Social assets are therefore crucial at enhancing community resilience.

Social assets in form of social networks further help harness and galvanise the community to anticipate, prepare, respond and recover from hazard impacts. Social assets can be enhanced in many ways including cattle ownership in Monze for example (Kalinda *et al*, 2010:20). They can also be enhanced through community meetings, traditional ceremonies that bring people together, church gatherings and

formation of social clubs, remittances from migrated relatives, to name but a few examples (Cliggett, 2000:126).

Social assets can also be enhanced through social safety nets and social protection project activities that include social risk management activities (SRM), and transformative social protection activities (TSP) (Peacock & Prater, 2012: 691). When planning agricultural development projects, developmental practitioners should identify limitations of social assets in terms of provision of voluntary labour, beliefs, taboo, perceptions, traditions, norms identified so that these can be addressed in good time at start of implementation.

3.3.3.6 Political assets

Political assets are part of the social assets in the original DFID Sustainable Livelihoods model. Implicitly, UNDP (2004:21) suggests analysing political assets as separate form of capital due to their importance. Political assets are political representation, of organised groups for change such as area developmental committees in case of Zambia. Political assets are important because they help the community to fight discrimination based on gender and caste. This asset also helps the community to lobby government for support during times of need.

3.3.3.7 Challenges of using the sustainable livelihoods model

Sanderson (2009:64) reports that some practitioners have found it difficult to use the SL model because it is too holistic in nature, when organisations that should implement the activities are sectoral based and not integrated. Additional research findings are that the SL model has also not been used much in the disaster management professional field because of its weakness of being unable to link hazard impacts on livelihoods (Wamsler, 2006:155). The SL framework has further not been used widely by the mainstream developmental practitioners due to their lack of orientation in disaster risk management theory.

3.3.3.8 Blending analysis of livelihood assets with risk governance assessment

In view of the weakness highlighted above for the SL model, the six livelihood assets are strengthened with '*additional assets of community resilience*' for this study. These are in form of *community social risk governance capacity already discussed in chapter two*. These '*additional assets of community resilience*' are: (i) disaster risk

awareness capacity, (ii) community disaster prepared planning capacity, (iii) recovery capacity to bounce forward assessment, and (iv) community cohesion capacity as depicted in (Figure 3.3).

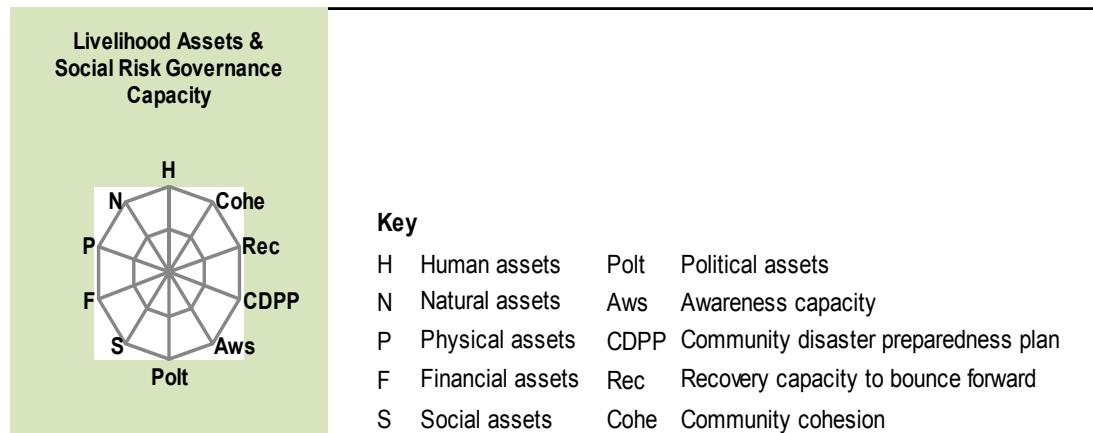


Figure 3.3: Expanded livelihood assets to measure enhanced resilience

Furthermore, the SL model is strengthened with in-depth hazards and vulnerability analyses, to link the six livelihoods assets and the incorporated risk governance capacity assets to disaster risk manifestation.

3.3.3.9 Community risk awareness capacity in the sustainable livelihood model

Disaster risk awareness, preparedness, response and capacity to bounce forward are part of community resilience concept. As such, they should be assessed as well, before project designing. Assessing risk awareness helps planners understand the knowledge levels of the community and how the community perceives risk. Community perception influences the importance placed by the community to plan, prepare and implement specific risks reduction activities (IFRC, 2000: 122; Buckle, 2012:493). Specifically community perception of risk further influences how evacuation routes and procedures for rapid or slow onset disaster are outlined. In this way, risk awareness plays an important part in response planning, evacuation and recovery (Buckle, 2012:501). Furthermore, assessment of community risk awareness affords planners an opportunity to learn more about prevailing community early warning systems and how these are communicated. Lack of awareness in turn affects community psychological preparedness capacity (de Leon, 2012:484).

Early warning systems are important in timely response planning and hazard impact minimisation. *Early warning systems constitute a process whereby information*

concerning a potential disaster is provided to people at risk and to institutions so that tasks may be executed prior to its manifestation to minimise its detrimental impacts, such as fatalities, injuries, damage and interruptions of normal activities (de Leon 2012:481).

3.3.3.10 Community based disaster preparedness planning & plans

The community disaster preparedness and response action plan commonly referred to as community based disaster preparedness plan (CDPP) is the product of the community participatory planning process (IFRC, 2000:10; Buckle 2012:500). This process results in a plan that is locally owned for preparedness and risk reduction. It is not the plan on paper that is very crucial in resilience building but ownership of the plan (IFRC, 2000:15). The participatory planning process enhances this local ownership of the plan.

The planning process is initiated by the community themselves or agency. However based on local experience, it is quite rare that the community will organise themselves proactively to develop and prepare a plan to manage disaster risk that is not eminent. Either the local chief or other members of the community that are very enlightened can only undertake such pro-active planning under very special arrangements.

Figure 3.4 summaries what the community disaster preparedness plan should contain.



Figure 3.4: Community disaster preparedness plan outline

(Source: Adapted from IFRC, 2000:21)

3.3.3.11 Hazard analysis in the sustainable livelihood model

Hazards are dangerous phenomenon, substance, human activity, or condition that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage (UNISDR 2009:17).

Hazard analysis therefore helps the practitioners to know how to categorise hazards and understand what hazards are and how they affect the community. Participatory hazard analysis further helps the planner to know community's limitation to understand the hazards that affect them and how they plan for their reduction. The preliminary hazard analysis should be done at desk study level and then at field assessment level before actual project design (ADPC, 2004).

At analysis, hazards should be categorised into one of the six major categories: hydro-meteorological / climatologically hazards; biological / ecological hazard; geological /

geophysical hazard; natural hazard; socio-natural hazard and; technological hazard (UNISDR, 2009:18).

According to Reeds (1997:10), hazards should further be analysed in terms of causal phenomena, general characteristics of hazard type, predictability of the hazard, factors contributing to vulnerability, typical effects, possible risk reduction measures, specific preparedness measures for particular hazards, typical post-disaster needs and past hazard impacts. This should be done in order to have a full scientific understanding of their impacts on livelihoods and how the mitigation can be planned for.

Table 3.2: Hazards classification and description

Hazard classification	Detailed hazard description
Hydro-meteorological / climatologically hazards	These include tropical cyclones also known as typhoons and hurricanes, thunderstorms, hailstorms, tornados, blizzards, heavy snowfall, avalanches, coastal storm surges, floods including flash floods, drought, heat waves and cold spells. Hydro-meteorological conditions can also be a factor in other hazards such as landslides, wild land fires, locust plagues, epidemics, and in the transport and dispersal of toxic substances and volcanic eruption material (UNISDR, 2009:18; Wisner <i>et al</i> , 2012: 205-295). These hazards have to affect vulnerable people and their livelihoods to translate into disaster outcomes. This applies to all other hazards.
Biological / ecological hazards	These are process or phenomenon of organic origin or conveyed by biological vectors, including exposure to pathogenic micro-organisms, toxins and bioactive substances that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. Examples of biological / ecological hazards include human epidemics, livestock epidemics, plant diseases, pests and erosion of bio-diversity (UNISDR 2009:1; Wisner <i>et al</i> , 2012: 359-384). Some of the biological / ecological hazards are now being referred to as socio-natural hazards (UNISDR, 2009:27). Other refer to them as environmental hazards (Reeds, 1997:107)
Geological or geophysical hazards	These are geological process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. These hazards include landslide and other mass movements, earth quakes, tsunamis, volcanic eruption, social erosion and contamination (UNISDR, 2009:16; Wisner <i>et al</i> , 2012: 295-347).
Technological or industrial hazards	These are conditions originating from accidents, dangerous procedures, infrastructure failures or specific human activities, that may cause loss of life, injury, illness or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. Examples of technological hazards include industrial pollution, nuclear radiation, toxic wastes, dam failures, transport accidents, factory explosions, fires and chemical spills. Technological hazards also may arise directly as a result of the impacts of a natural hazard event (UNISDR, 2009:29)
Astronomical Hazards	According to McGuire (2012:399) astronomical hazards are associated with periodic collisions with asteroids and comets, powerful magnetic storms triggered by solar turbulence and exceptional bursts of high energy cosmic rays arising from exploding stars in the neighbourhood of our solar system. While having the potential to disrupt global energy and global communication systems or obliterate a city these associated day to day risk sourced beyond the atmosphere is small compared to terrestrial hazards such as earth quakes, floods and windstorm.
Potential Conflict & War	Conflict is a social vice that has potential to worsen relationships and access to resources resulting into serious disruption of livelihoods (Lewis, 1999:39)

(Main source: UNISDR 2009)

3.3.3.12 Vulnerability assessments in the sustainable livelihood model

Vulnerabilities are analysed in context of SL assets. Actual vulnerability assessment is done using participatory rural appraisal techniques during field assessment (Abarquez & Murshed, 2004:37).

3.3.3.13 The modified sustainable livelihoods model used in this study

Based on additional assets added to the original SL model, the model used in the analysis of resilience in this discourse is depicted in (Figure 3.5).

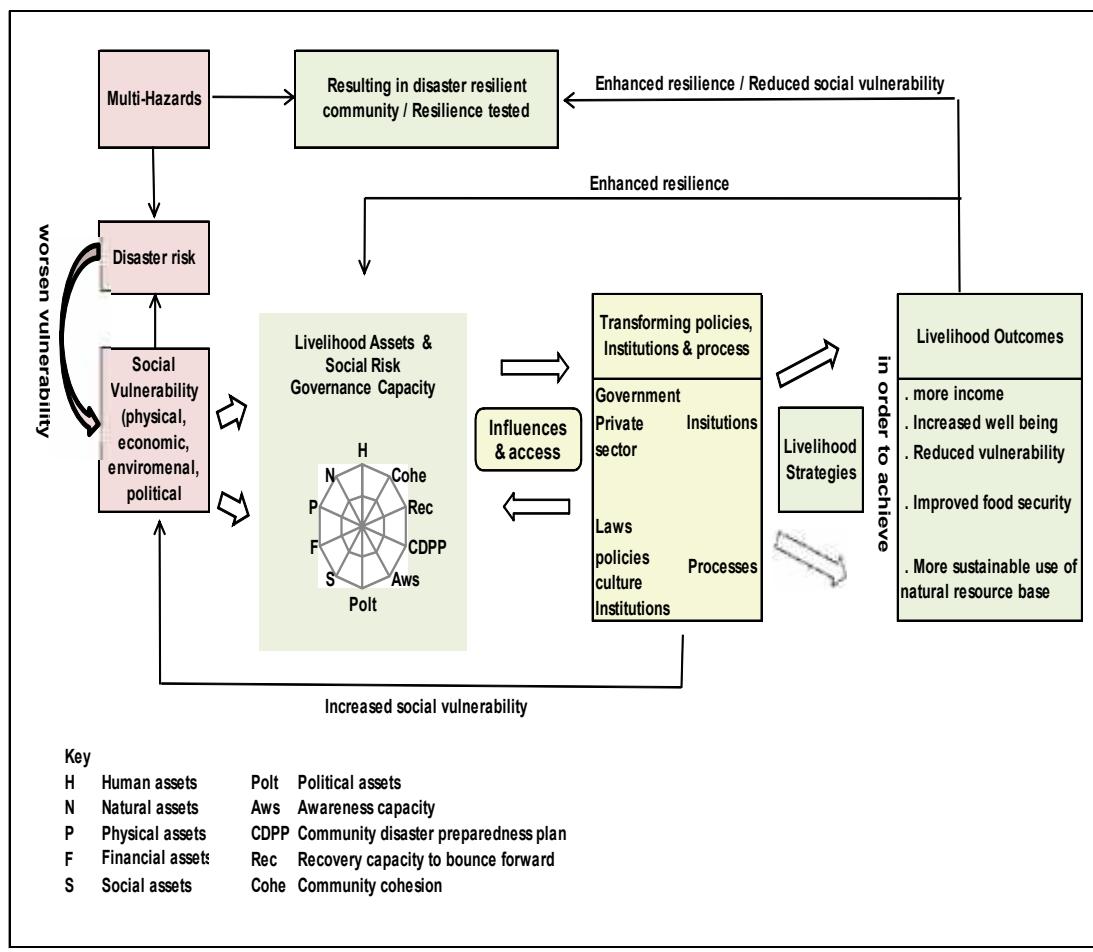


Figure 3.5: Modified SL model used in this study

3.3.4 Mainstreaming DRR at project design stage

This stage involves further analysis of the data collected during field assessment to undertake cost benefit analysis (Benson *et al*, 2007:91). This is in addition to formulating strategies to alleviate either poverty or food insecurity through non-emergency activities. At this stage, it is also assumed that practitioners will implement activities that will enhance community resilience in addition to poverty and food insecurity alleviation (Twigg, 2004: 55).

3.3.5 Mainstreaming DRR at project appraisal stage

Benson *et al* (2007:58) refers to this stage as the project preparation, which is similar to the project design stage. This stage involves going back to the community to

discuss proposed interventions for possible adoption. This process is very important in community resilience to adapt project interventions and for the community to buy into the activities, process and the project.

3.3.6 Mainstreaming DRR at project implementation stage

This stage involves scheduling of tasks and executing the planned activities to alleviate poverty, food insecurity as well as activities to enhance community resilience (Abarquez & Murshed, 2004:73).

3.3.7 Mainstreaming DRR in monitoring and evaluating process

Mainstreaming DRR activities at this stage is important to ensure that appropriate indicators are indentified and planned for, to evaluate impact of the project at enhancing community resilience (IFRC, 2002:16). The projects are evaluated for their relevancy, effectiveness, efficiency, impacts and sustainability.

Since the developmental projects being monitored and evaluated have dual goals: to alleviate poverty and; to increase community resilience, this implies that monitoring and evaluation for such a projects should be two fold within the overall context of the project management cycle. The first fold should be monitoring and evaluation of poverty alleviation activities against the planned and baseline. The second fold would be to monitor DRR activities against planned and baseline as well. The reason for separating these two strategies is that poverty alleviation or other activities to do with poverty alleviating are not exactly the same as those meant to enhance community resilience even though the two concepts are similar as already alluded to in chapter two.

Using the SL model as the framework for assessing community resilience at pre and design stage implies that the same elements assessed for resilience at the start of implementation should also be evaluated after project implementation. It should be noted however, that this evaluation would be done either with a disaster or without disaster impact depending on whether disaster outcome was experienced during the course of the actual implementation. Real community resilience enhancement is tested properly when actual disaster manifest.

Evaluating the developmental project intervention to enhance community resilience in overall project management cycle entails evaluating the pre-planning process way through the designing of monitoring and evaluation indicators themselves.

3.3.8 Mainstreamed DRR in the overall project planning and management cycle

The whole process of mainstreaming DRR at planning stage to the monitoring and evaluation stage is graphically presented in (Figure 3.6).

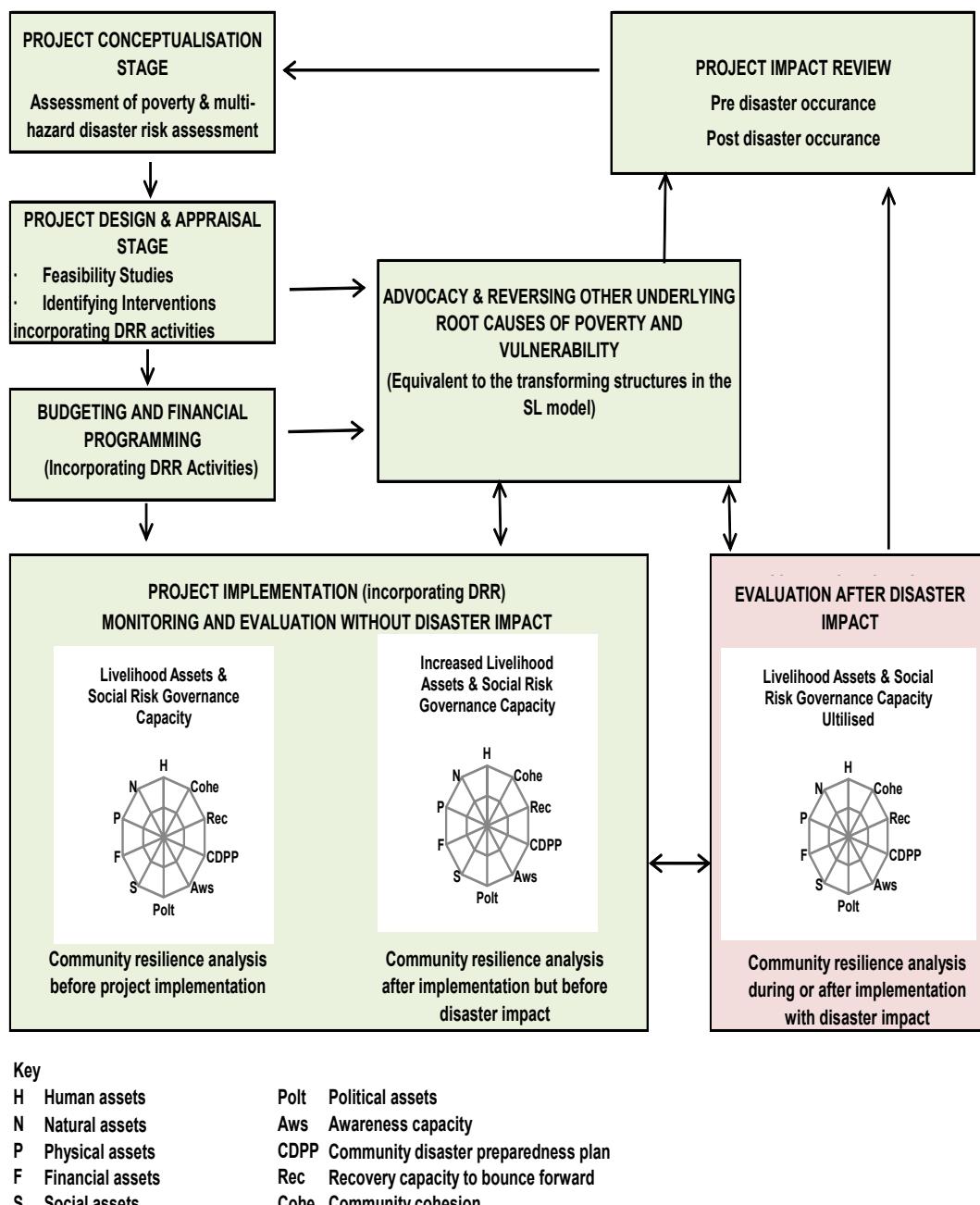


Figure 3.6: Adapted project management framework incorporating modified SL model

3.4 Evaluating project impact for enhanced community resilience

All social economic developmental projects, be it agricultural or otherwise are evaluated based on their planned objectives (UNDP, 2009:8). This implies that, a project should not be expected to enhance community resilience systematically at the end of implementation if it was not designed for such. However, such a project might still enhance community resilience unwittingly as observed by Manyena (2009:142). Given the increased conceptual and academic knowledge regarding DRR, any evaluators of developmental projects would still expect to find DRR mainstreamed in these projects in one way or the other especially in disaster prone areas.

Impact evaluations for non-emergency projects towards designed goals are done in two major ways. That is comparing the group of beneficiaries to itself over time or comparing a group affected by the project to a group not affected by the project over time (Margoluis & Salafsky 1998:115).

3.4.1 Theory of comparing group of beneficiaries to itself over time

When comparing the group of beneficiaries to itself over time, evaluators can assess the impact of the project to a pre-established yardstick, baseline or time series data sets. Undertaking impact assessment using time series data collection is an expensive undertaking because it involves collecting data sets multiple times before and after project interventions (Margoluis & Salafsky 1998:116). This strategy is however, practiced by institutions with a fully paid monitoring and evaluation officer.

3.4.2 Theory of comparing a group affected by the project to a group not affected by the project over time

Evaluating project impact by comparing a group affected by the project to a group not affected by the project over time is relatively cheaper compared to the other method of time series impact assessment. Comparing a group affected by the project to a group not affected by the project over time also affords an opportunity to establish cause and effect according to (Margoluis & Salafsky 1998:117). Cause and effect refers to the extent to which one factor influences another. These groups are compared based on one that is influenced by the project and another not affected by the project. Based on this influence, the evaluator would then determine extent of project impact on an affected group or not.

This method further involves two other methods: Strict control evaluation design model, which is also referred to as experimental design and; the comparison-group monitoring design.

3.4.2.1 Strict control evaluation design method

The strict control evaluation design involves splitting a population into a control and treatment group, which is quite difficult to do with people at community level that, are very mobile socially. These people could also be multiple beneficiaries of many developmental projects in one given area. Separating the control from treatment is also difficult unless one also has a very comprehensive list of beneficiaries from an intervening developmental project that is different from another (Ibid).

3.4.2.2 Comparison-group monitoring

Comparison-group monitoring design involves selecting a group of people that is matched to another in a different area that could not have benefited from a particular project. This sub-method of comparing groups to a similar one in another area minimises what is referred to as cohort contamination. This method is also effective at coming up with a proper picture of project impact on one group compared to another but with similar characteristics (Ibid).

3.5 Applying the project impact assessment theory

Using the evaluation theory and processes just described above, Thomas (2004:159) has compared impact of three rural, integrated developmental projects in India. He has compared the impact of these projects on the welfare of the rural poor and the vulnerable population groups in Wayanad District, Kerala State. His assessment focused on comparing impact of developmental activities in two out of three developmental blocks that cover the whole district. One of the two blocks selected is what he refers to as '*high performing*' block whilst the other is '*low performing*'.

A further two villages from each of these two developmental blocks were selected. Fifty beneficiaries were randomly selected from each of the four villages sampled. Thus, 200 people that benefitted from the three projects were sampled randomly to canvass. Another 25 non-beneficiaries were purposely selected from each of the four villages thus 100 non-beneficiaries were selected. Opinion leaders sampled were 50 and developmental functionaries or other stakeholders were 60. In summary the study

participants sampled were n=200 beneficiaries, n=100 non-beneficiaries, n=50 opinions leaders, and n=60 other developmental functionaries.

Information collected from the beneficiaries and other stakeholders included beneficiary perception of the programmes' impact. Sixty-eight questions in the schedule were asked to illicit information on the impact of the programmes. Questions were presented in the local language. Data collection instruments included interview schedules and observation sheets. Data collection methods further included sample survey, secondary data collection using content analysis and through observation whilst attending community based developmental meetings.

Using this methodology Thomas (2004) has been able to collect all the necessary data to analyse to answer his research questions. This analogue just shows how possible it is to use the project impact evaluation methods described above to evaluate a rural based integrated social economic developmental project like the ones being implemented in Monze.

Joerin, Shaw, Takeuchi, & Krishnamurthy (2012:44-54) have also used the comparison assessment methodology to evaluate the impact of hazards on community resilience in Chennai in India. They have followed similar procedure as described in Thomas (2004) to analyse the impact of coastal storms and river floods on the welfare of ethnic grouping in this district. The selected two wards 79 and 131 out of 200 wards in the whole district and sampled 8.4 and 8.7% of the populations in the 2 respective localities. They further used t-test statistical analytical methods to analyse their datasets to compare the results from the two communities.

Using this method, Joerin *et al* (2012:53) have been able to make conclusions as regards which communities are more resilient to disaster risk and why they are more resilient. Through this method, these researchers have also identify the specific demographic population that is more affected by hazards and how these people manage these impacts based on their resilience. This study in Chennai was done in a poor urban setting that is prone to hazards impact.

Considering that India is also a developing country, these two examples highlighted can also be applied to Zambia and localised to Monze in a disaster prone area characterised by high incidents of poverty as well as social vulnerability.

3.6 Conclusion

This chapter demonstrated how social economic developmental projects should be designed and implemented to increase community resilience whilst attempting to alleviate poverty and alleviate food insecurity at the same time. Institutions intending to operate in a given area should incorporate risk reduction activities at agency level and then incorporate DRR activities at every stage of the traditional project management cycle, to enhance community resilience.

This chapter has also demonstrated the need not to create parallel structures at institutional up to community level to plan and implement social economic developmental activities that should increase community resilience whilst projects attempt to alleviate poverty as well. Instead practitioners should identify already existing models that would help them assess resilience capacity of the community at pre-design stage way through, to ex post evaluation stage.

The chapter has also demonstrated that undertaking comprehensive community disaster risk assessment before project design stage is critical in properly designed non-emergency, social economic, developmental projects that aim at increasing community resilience whilst attempting to alleviate poverty as well.

The chapter has further demonstrated how developmental projects meant to enhance community resilience in addition to poverty and food insecurity alleviation can be evaluated using the comparison group evaluation theory in the absence of a baseline.

CHAPTER 4

AGRICULTURAL DEVELOPMENT PROJECTS AS A TOOL TO INCREASE COMMUNITY RESILIENCE

4.1 Introduction

This chapter is a review of literature on how agricultural development projects are designed and implemented to enhance community resilience and alleviate poverty at the same time. As a way of consolidating the review, consideration is also focused on some good projects that have been implemented globally and in Zambia to reduce poverty and enhance community resilience at the same time.

4.2 Global importance of agriculture in poverty alleviation and resilience building

FAO (2012:5) estimates that forty-two percent of the world's total population, that is 3.1 billion people live in rural areas in developing countries as illustrated in (Table 4.1). Of these, eighty-two percent that is 2.5 billion derive their livelihoods from agriculture. These statistics suggest that agriculture is the largest social-economic sector that supports livelihoods in the rural areas in developing countries. Agriculture further accounts for 50-90% of the income generated by these people in rural areas (Action Aid, 2012:16). Unfortunately, most of these people that are dependant on agriculture are also poor and live on less than US\$2-a-day (IFAD, n.d:1)

Table 4.1: Continental population dependant on agriculture for survival in 2012

Continent	Total Population in Millions	Agricultural Population	Agric population as % of regional total	Agric population as % of global total
Global population	6894.8	2619.1	-	38.0
Developing Region	5651.5	2565.8	45.4	37.2
Asia	4029.2	1953.1	48.5	28.3
Africa	1022.2	513.4	50.2	7.4
Latin America	590.1	93.2	15.8	1.4
Oceania	10.0	6.1	61.0	0.1
Developed Region	1243.3	53.3	4.3	0.8
North America	344.5	5.8	1.7	0.1
Europe	738.2	43.5	5.9	0.6
Asia & Ocean Asia	160.6	4	2.5	0.1

Source: FAO (2012:36-37)

Asia and sub-Saharan Africa contributes 35.7% of the global total population that are dependent on agriculture for survival. Apparently, most of these people are

subsistence farmers and further depend on rain-fed agriculture to support their production patterns. Thus rain-fed agriculture accounts for 60% of the production base in these developing countries (FAO, 2003:18). Unfortunately, rain-fed agriculture is very susceptible to hydro-meteorological hazards such as drought, floods and pre-disposes millions of people to social vulnerability (Action Aid, 2012:15).

Despite its many challenges, there is broad consensus among practitioners to recognise the potential of rain-fed agriculture as a means to feed the many people in the world that go hungry, especially in the developing countries (Twomlow, Mugabe, Mwale, Delve, Nanja, Carberry & Howden, 2008:781). This recognition has come after a decade of international neglect of the agricultural sector. The rekindled global debate on how to use agriculture to alleviate poverty is now focused on how to strengthen small-scale rain-fed agriculture systems as a means to increase food security and community resilience. There is therefore a lot of good will at global level by respective governments and stakeholders to continue using agriculture as means to enhance community resilience.

4.3 Strategic use of agricultural development projects

Globally, governments and practitioners in developing countries are still using agricultural development projects as social economic tools to alleviate poverty and improve food security for the rural poor masses (Dethier & Effenberger, 2012:175). In this way governments use agricultural development projects as social safety nets, social protection, antipoverty as well as drivers for economic growth at household, community and national level (Jayne *et al* 2011:1; FAO, WFP & IFAD, 2012:5).

It is important to note that governments use agricultural development projects as a rural developmental strategy (*ibid*). In this way, governments and practitioners are using agriculture as a vehicle through which they redistribute income from the central government to the rural masses. This is done through agricultural input and production subsidies (Harvey 2004:266). Agricultural development projects are used in this way despite having been considered to have failed considerably, during their implementation due poor designing process in the 1970s (Hulme, 1995:211).

4.4 Challenges for using agricultural development projects to enhance community resilience globally

When analysed closely, the challenges to use agricultural development projects to enhance community resilience can be categorised into three major themes: conceptual, strategic and operational. Some of the problems articulated by scholars are implied.

4.4.1 Operational Challenges

4.4.1.1 Poor project planning

Poor project planning and project design at sectoral level has been cited as one of the major challenges for agricultural development projects to achieve sustainable livelihoods especially in sub Saharan Africa since 1945 (d Silva & Bysouth, 1992:37; Kakonge, 1995:275).

Wiggins (1994:9) has however argued that what has been perceived to be poor project planning and implementation has been due to three major reasons: (i) biasness of the evaluators; (ii) the lack of recognition of successful projects that have been transformed into programmes; (iii) and project failure due to factors beyond the project management team. Wiggins (*ibid*) has further argued that projects that fail due to external factors include: projects that fail early during main implementation; and those that survive implementation but whose activities and benefits are not sustained over time and latter collapse as well.

Nonetheless, despite Wiggins (1994:9) counter arguments on poor project planning, much of the literature available depicts the agricultural development projects not to have performed very well especially in sub-Saharan Africa. Hence the constant debate on how to improve the projects, from the abandoned integrated rural developmental project (IRDP) planning and implementation approach to the adoption of the sector investment developmental project planning and implementation approach (Eicher & Baker, 1982:61).

4.4.2 Conceptual Challenges

4.4.2.1 Overemphasis on technological advancement

According to Low (1994:39) over emphasis of technological innovation as a means to improve productivity has been another challenge associated with failure by agricultural development projects to enhance community resilience.

Whilst small-scale farmers are severely constrained by the non-availability of appropriate technology, agricultural technological advancement is still regarded not to be the panacea to community resilience enhancement (D'silva & Bysouth, 1992:16; Wisner *et al*, 2004:24). Technological advancement projects need to be blended with social aspects of resilience building or social vulnerability reduction. By over emphasising the use of technological advancement in general, agricultural development projects tend to be inclined to promoting more of hazard mitigation strategies as opposed to enhancing community resilience. This practice has also led to the inclination of agricultural technological research to climate-change and hazard mitigation. Thus, resulting in so many publications on this subject as opposed to agricultural social vulnerability research (Lobell, Burke, Tebaldi, Mastrandrea, Falcon & Naylor, 2008:607; Fischer, 2011: 95).

Agricultural innovations are mainly generated through technical research initiatives such as plant and animal breeding programmes (Low 1994:41). However, even this appropriately generated scientific knowledge in one area can still overshadow community indigenous knowledge on survival mechanism when introduced in another area (Mercer 2012:105).

Since the typical nature of advancing technology cannot be changed in agricultural developmental programming, practitioners can still use technology to advance community resilience. This practice is already partially done unwittingly by addressing poverty and food insecurity but should go a step further to incorporate community risk governance capacity to enhance community resilience as shown in (Figure 4.1).

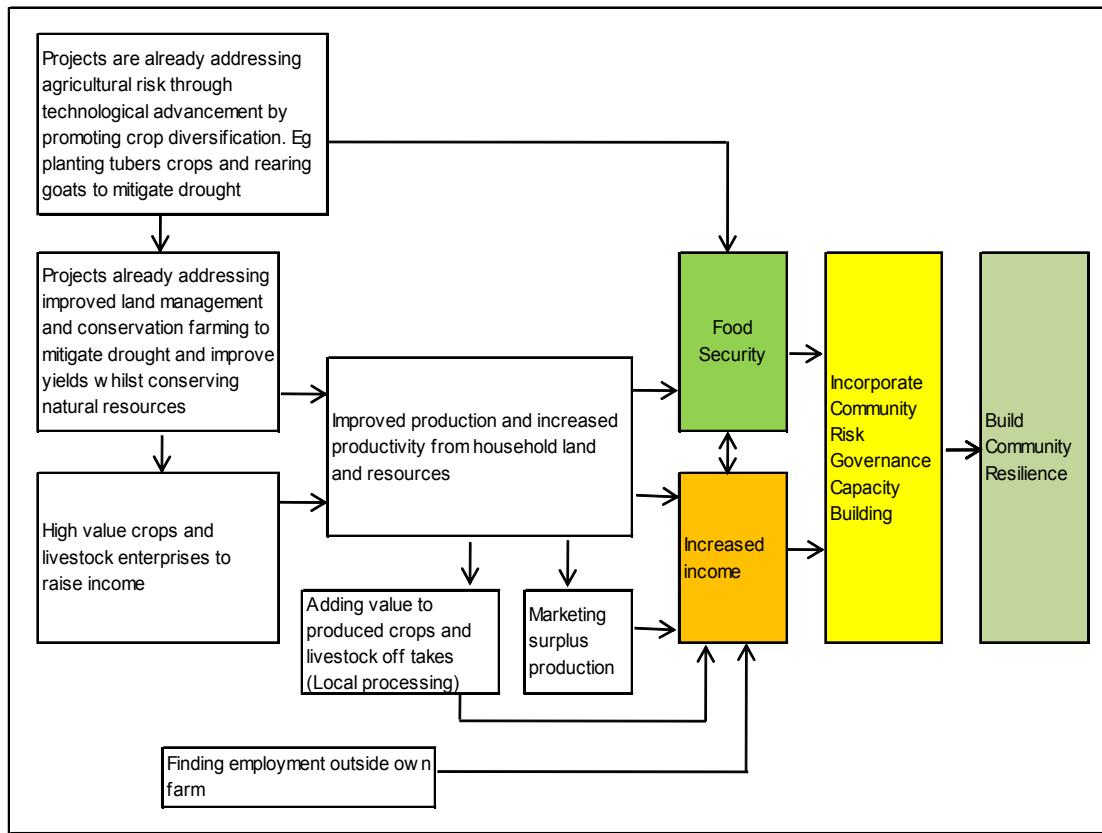


Figure 4.1: Blend of agriculture technology with risk governance capacity to enhance community resilience

Source: Adapted from Agricultural Support Programme Hand Book for Facilitators (2003:5)

4.4.3 Strategic Challenges

4.4.3.1 False solutions to reduce disaster risk

Action Aid (2012:9-11) have argued that major institutions are using wrong agricultural developmental strategic project activities to address climate variability. Examples of such projects are promotion of biofuel, social carbon markets and promotion of climate smart agriculture.

Instead, Action Aid (2012:14-17) is advocating promotion of what they are referring to as '*climate resilient sustainable agriculture*' (CRSA). This recommendation includes seven specific activities to enhance agronomic as well as community resilience. These are: (i) gender equity and women's rights, (ii) appropriate social conservation techniques, (iii) sustainable water management techniques, (iv) agro biodiversity preservation, (v) livelihoods diversification, (vi) improved processing and

marketing, and (vii) improved support towards farmer organisations and collective action. The CRSA concept is more inclined to disaster risk reduction concept when analysed closely. Properly designed agricultural development projects should therefore mainstream CRSA to enhance community resilience.

4.5 Global examples of successfully designed and implemented agricultural development projects to enhance community resilience

There are many examples that can be cited globally to have achieved dual objectives: to alleviate poverty; and enhance community resilience at the same time (World Bank & UNISDR, 2007: 84-94). Apparently, most of these examples are not exclusively agricultural. The projects are integrated and lean towards being DRR exclusively or climate change adaptation. These examples are highlighted however, because they are rural based and incorporate activities that relate to agricultural development. Specific examples are cited from Asia, South America, Europe and then Africa.

4.5.1 Asia

4.5.1.1 Bangladesh

Practical Action NGO in Bangladesh attempted to enhance community resilience by addressing people's social and physical vulnerability due to flood hazards between 2004 and 2011. Flood hazards in Bangladeshi resulted into riverbank erosion, destroying crops and livelihoods assets. This project focused on building community capacity to strengthening livelihoods and increasing preparedness capacity. It attempted to build community capacity on how to identify hazard impacts; and how communities could initiate solutions on their own to address these hazard impacts and underlying root causes of vulnerability (Practical Action, 2011). In this way, the project attempted to enhance community resilience using the participatory and livelihoods intervention approach as recommended by the Hyogo framework of action (HFA).

According to Practical Action (2011), their Bangladesh project was successful at building resilience because it was holistic and participatory in nature. The detailed reasons attributed to this perceived success of this project were:

- i. That the project had built community capacity to collaborate to anticipate flood occurrence. Through this facilitation, the community improved on their own early warning communication system.
- ii. The project helped facilitate and enhanced community mobilisation ability. Using this knowledge the community was able to plan and built its own communal infrastructure such as the raised walking paths to avoid highly flooding waters.
- iii. The project improved capacity for community to improve their own cohesion and ability to improve their own team-working spirit whenever a flood hazard affected their community. This capacity enhanced rescue operations and saved the community as well as individual household assets. Through this capacity, the community was able to build flood resilient houses that they now owned legally. Previously the community never owned these houses legally. The project facilitated the community with legal aid support to obtain legal documents to own the houses they just built.

The process of facilitating the community to obtain legal documents was a developmental strategy as well as means for the project to help the community address underlying root causes of social vulnerability. Lack of access to legal ownership of assets in the first place worsened vulnerability.
- iv. The project was able to build community capacity to enhance alternative income generating strategies such as needlework and sheep rearing. In this way, the project helped the community with skills to raise income and build assets to help them during and after hazard impact. This is an example of financial assets that can be built using the sustainable livelihoods approach that can be replicated in Monze.
- v. The projects further promoted flood resilient cropping patterns using improved rice seed that performed well under heavy flooding. This strategy was an example of technical cropping adaptation. The strategy helped the community to take advantage of the floods and enhance their resilience by building physical assets that they later used to respond and recover from the future hazards.

- vi. The project improved technical capacity on how to construct water points and latrines above the flood level line. This was an example of retrofitting and an example of building physical assets from sustainable livelihood model approach.
- vii. The project also improved human capacity and professional skills for people at risk in masonry, cardboard packaging material making; micro enterprise banking facilitation through improved grain and cereal banking activities.
- viii. The project also improved on managing income sustaining activities through sheep rearing for men and duck rearing for women, floating gardening and overall community participation in solution identification for vulnerability reduction. This was an example of the projects being gender sensitive and deliberately involving women in project activities.
- ix. The project further promoted agricultural production to be done throughout the year. This was important to overcome seasonality of agricultural production.

Even though Practical Action is not explicit in its documentation on how these projects were designed and implemented, step by step, it is clear from the narrative that the projects were participatory in nature. It is also clear that the projects attempted to build on inherent community capacity through capacity building facilitation and not direct handouts.

The documentation, however, does not quantify how much outputs were generated and this is the challenge of measuring resilience (Birkmann, 2006:10).

4.5.1.2 Philippines

The successful examples that have been implemented to enhance resilience are documented by IFAD in the Philippines. Philippines is also a serious flood hazard prone area due to the typhoons just like Bangladeshi (IFAD, 2009:2).

IFAD (2009:2) reviewed performance of its two agricultural development projects in Philippines to understand how these projects enhanced sustainability. The projects were the Northern Mindanao Community Initiative and Resources Management Project (NMCIREMP), and the Cordillera Highland Agricultural Resource

Management Project (CHARM). These projects were supported by IFAD after inception of Hyogo frame work of action of 2005. Both developmental projects did not mainstream DRR. According to IFAD, the NMCIREMP was successful at incorporating sustainability issues due to four factors:

- i. It addressed the expressed needs of the community,
- ii. It targeted and worked very closely with the community leadership and general community to plan interventions, thus participatory in real sense.
- iii. It facilitated joint project activity reviews, and,
- iv. Recruited locals to implement it (IFAD, 2009:24).

The second IFAD facilitated project, CHARM was not sustainable because it was overspread geographically and thus had low impact. This project is also reported not to have been successful because it did not incorporate indigenous knowledge during its design and implementation stages. Implying that it was not participatory.

The second reason for the perceived failure for CHARM was that IFADs' implementing partner NGOs had no strong leadership to spearhead sustainability of the project activities. The role of NGOs in agricultural developmental work is however important due to their flexible working culture which is less bureaucratic (Low, 1994:52). Project planners in government and the UN systems should therefore be mindful of this strength with NGOs and endeavour to involve them in developmental service delivery.

4.5.2 South America

4.5.2.1 Honduras

'Reducing Risk by Acting Together' is an example of a well designed and implemented developmental project to have built community resilience that can be cited in Honduras, South America (Cordaid, 2001:01). The project is reported to have been successful because it was well designed and implemented.

The project was designed to address causes of poverty and build community resilience after the HFA of 2005. The project was implemented in Cementera community in Honduras west. Honduras is a multi hazard prone area as well and its communities are

highly vulnerable to these hazards due to environmental degradation, rapid population growth and high income disparities (Telford, Arnold, Harth & ASONOG, 2004:8 & 34). Carter, Little, Mogues & Negatu (2007: 836) allude the causes of social vulnerability in Honduras to what they term as '*poverty trap*'. Specific reasons for its perceived success are that:

- i. The project increased capacity of the community in legal awareness of the environment the community is leaved in. Through this achievement, it can be deduced that the project implementers undertook participatory community risk analysis to identify risk before indentifying solutions.
- ii. The implementing agency also built capacities of the community in risk awareness by facilitating risk awareness workshops.
- iii. They also facilitated actual building of tangible community assets to mitigate disaster such as construction of a small bridge across the river for safe passage, rehabilitation of water distribution tank to provide good quality water before and during times of adversity.
- iv. The project further helped to formulate a contingency plan which is similar to preparedness plan.
- v. The project facilitated and built confidence in community leadership to lobby local authorities to address problems that really affected the community and advocate DRR inclined developmental interventions.

At the end of the day, the project can be said to have increased community resilience through increased awareness, women participation, general community participation, community organisation, facilitation to build community assets such as a bridge, improved community cohesion and voluntarism to help the most needy during times of adversity. All these are signs of a resilient community.

Even though qualitative and not agricultural, nor exclusively for poverty alleviation but DRR, the success of the design and implementation of this project which was holistic in nature was attributed to the good planning approach adopted by the implementing agency, Santa Rosa de Copán, the Cordaid implementing partner. Nonetheless, the available literature did not document the step-by-step process of how this project was designed apart from discussing the final evaluation results. Neither

does the literature explain the methodology used to arrive at the conclusion that the project was properly designed. The literature just summarises the achievements. It can be deduced from this summary however, that the implementing agency: (i) involved the community at all stages of project designing and implementation and; (ii) was very focused on capacity building for the community in many areas of DRR, for the community to initiate and continue managing sustainable activities on their own.

In conclusion community resilience in Cementera can be said to have been increased the project because the project focused on building community assets and an enabling environment for the community to thrive as opposed to the project building assets for each household directly. Only a well-designed developmental project can achieve such objectives.

4.5.3 Europe

Being highly industrialised and urbanised, Europe has less people in the rural areas that depend on agricultural for their livelihoods, let alone those that are dependant on rain-fed agriculture compared to Africa. As such Europe's rural developmental strategy is different from the one implemented in rural Africa. However, in their policy research findings, (Schottern, vander-Heide, Heijman & Opdam, 2012) have indicated that rural developmental projects are also used in Europe to contribute towards enhanced community resilience. European governments have realised that support to enhance community resilience in rural towns leads to sustainable and viable rural areas. This is done through heavy investment in business continuity disaster recovery management programmes.

The rural developmental projects in Europe are not agricultural nor necessarily to alleviate poverty. The projects focus on a business policy framework to improve trade, service delivery including insurance and improve infrastructure. According to Schottern *et al* (2012), and Mason (2006:8), building community resilience in Europe also helps communities or localised business enterprises to continue thriving even after negative hazard impacts on infrastructure.

4.5.4 Sub Saharan Africa

4.5.4.1 Malawi and Namibia

Specific examples in Africa of projects that are exclusively DRR are the small, medium-scale initiatives to control river flow in Malawi in Southern Africa (UNISDR 2007:36); the Support to Local Decision Making with Inter-community Platform and Local Level Monitoring in Namibia.

4.5.4.2 Ethiopia

Other specific examples of agricultural development projects designed to alleviate poverty and build DRR in Africa are the African Community Resilience Project in Ethiopia East Africa 2007-2010 (UNISDR, 2007).

4.5.4.3 Kenya

The Drought Cycle Management (DCM) and Community Managed Disaster Risk in Kenya in East Africa (UNISDR & UNDP, 2007:29) is another example of exclusive DRR designed projects. The DCM has other subprojects namely Community Organisation for Developmental Support (CODES), The Pastoralist Integrated Support Programme (PISP) and the Community Initiative Facilitation and Assistance (PISP).

4.5.4.4 Zimbabwe

The Local Knowledge and Community Based DRR project in Chivi District, southern Zimbabwe is one good example of an exclusive agricultural developmental project that has mainstreamed DRR (Wisner *et al*, 2012:106). This project is implemented in a rural area that is prone to drought. It targets food insecure households. Practical Action NGO implements this project in Chivi.

This project was initially designed for food security and poverty alleviation in 1990 and is still ongoing (Masendeke, 2002:1; Wisner *et al*, 2012:106). The project emphasises on activities to build local indigenous knowledge for resilience building. It is a participatory, bottom-up approached developmental project.

Even though the literature reviewed does not show how the project was designed step by step, it can be deduced from its documented achievements that the project has been a success at reversing causes of poverty when poverty is defined from food insecurity

point of view. The challenge of the project is sustainability beyond external project support thus threatening continued sustenance of resilience from sustainable livelihoods point of view. Thus, it can be deduced further that the project has not done enough to institutionalise capacity on how to sustain livelihoods assets' building beyond external project support. This element should be seen to be addressed by projects in Monze in view of increased conceptual knowledge on DRR.

4.6 Examples of successful developmental projects implemented in Zambia to enhance community resilience

There is scanty literature on successfully designed and implemented agricultural development projects in Zambia that have deliberately mainstreamed DRR to enhance community resilience. Projects that have been close to achieving this have been the post-emergency recovery projects like the 2003-2006 world bank supported Emergency Drought Recovery Project (EDRP) (World Bank 2004:7). This recovery project was designed to scale up of the current Targeted Food Security Pack Project (FSP) that was implemented by the Programme Against Malnutrition (PAM) by then (FASAZ, 2003:vi).

The Food Security Pack is now implemented by the Ministry of Community Development, Mother and Child Health (MCDMCH). This project was originally designed to reduce poverty of the vulnerable through improved household food security and has continued with this theme (FASAZ, 2003:2). Specific activities under this project were to achieve two goals: reduced poverty and vulnerability through increased household food security and; improve coping ability against risk by increasing economic resilience. The project did not include all the elements of community resilience building as defined in this discourse. The project only promoted the element of recovery capacity by promoting the cereal banking concept and real crop diversification, through distribution of diverse agricultural production packs that were agro ecologically zone specific.

WVZ Choongo ADP in Monze is another localised example that can be cited to have attempted to incorporate DRR in their programming. The project only facilitates the formulation of the community disaster preparedness plan as the major DRR activity (WVZ, 2012).

4.7 Policy guidelines for designing and implementing agricultural development projects in Zambia

Researchers can view respective websites for government line ministries, international aid agencies such as DFID and multilateral organisations such as FAO and IFAD and international NGOs such as ActionAid to review agricultural developmental projects being implemented in Zambia. These websites however do not publish how each of their developmental projects are planned apart from policy pronouncement of how each agency or organisation implements their developmental projects in the country. Researchers have to obtain details of how each project is designed from the respective organisations or agencies. The latter is part of the objectives of this study. The twelve agricultural development projects being implemented in Monze by respective agencies are outlined in Table one in the first chapter of this document.

Pertaining to disaster risk reduction, the current Zambian National Agricultural Policy (NAP) infers that it will reduce this by assuring food security through: (i) improved productivity, crop and income diversification, (ii) strengthen the emergency preparedness framework through early warning improvements, timely and efficient crop forecasting; (iii) and maintenance of strategic food reserves (GRZ, 2004:1).

At institutional level the policy assures that it will improve knowledge transfer to farmers through participatory extension methodologies and harnessing external linkages for the farmers to achieve maximum benefits from agriculture. The policy also assures to promote irrigation in view of the abundance natural water resources in Zambia (GRZ, 2004:1).

In livestock sub sector the policy aims to facilitate: (i) sustainable community participation in disease and vector control programmes; (ii) enhance the participation of the private sector in the provision of livestock services such as the Monze small holder dairy project; (iii) promoting the use of plant and herb based veterinary medicine. (iii) The policy also aims at promoting the production of small livestock such as chickens, sheep, goats, and pigs (GRZ, 2004:29).

In addition to the NAP, planners in Zambia are expected to be guided by the Six National Developmental Plan (SNDP). The SNDP is the medium term strategic planning framework for 2011-2015 used by government to plan developmental

activities (GRZb 2011:1). The long-term national developmental planning framework in Zambia is the Vision 2030 (GRZ 2006b:1).

According to Mr. Mulemwa, the Principal Economics, Trade & Entrepreneurship Officer, the Ministry of Agriculture and Livestock (MAL) is currently formulating guidelines on how stakeholders will operationalise the National Agricultural Policy (NAP) of 2004 to 2015 (Personal Interview, 4th October, 2012). Notwithstanding, Wiggins (1994:15) has stated that agricultural development projects cannot be blue printed, and no project design document can be produced to ensure that projects do not fail. According to him, there are too many factors that planners need to consider to ensure that the projects do not fail. To the contrary this is the reason why guidelines should be produced on how to mainstream DRR in non-emergency developmental projects in view of the many concepts that are being developed in DRR, climate change and poverty alleviation.

4.8 Specific challenges of using agricultural development projects in Zambia

4.8.1 Very high poverty levels and government overemphasis on maize production

According to Mason *et al* (2011:2) and Jayne *et al* (2011:1) the Zambian government spends 2% of the national GDP and about 90% of poverty reduction programmes' budget on subsidizing maize production and marketing at expense of other crops and other agricultural sub-sectors. Despite this kind of support, poverty levels among small-scale farmers are still very high. Government and other stakeholders need to promote crop diversification to enhance community disaster resilience. With high poverty levels, agricultural development projects have to address poverty first and food insecurity before they can enhance community resilience from an economic perspective.

4.8.2 Low crop and livestock outputs

Crop and livestock outputs for small-scale farmers in Zambia, Monze District inclusive, are still very low compared to global averages (Mason, Burke, Shipekesa & Jayne, 2011:2; Kutuya, 2012:7). For example, the current average yields for maize per hectare are 2.125 metric tonnes in Zambia compared to 4.47 metric tonnes per hectare

globally. Average yields for groundnuts are 0.7 metric tonnes per hectare compared to 1.35 metric tonnes per ha globally. Such low yields imply that agricultural development projects being implemented in Zambia and Monze District in particular have to focus on increasing crop productivity before they can enhance resilience.

The current national farmer input support project (FISP) only provides support to farmers to grow less than one hectare of Maize, thus technically supporting low productivity at household level in real sense. Against this practice, the Zambia Indaba Agricultural Policy Research Institute (IAPRI) has recommended to government to instead support a minimum of one hectare of Maize crop for both food and cash to alleviate poverty and help enhance community disaster resilience among small-scale farmers. From the IAPRI recommended outputs, a family is thus able to meet its minimum food needs of about 20 x 50 kg bags of maize per annum and meet other social obligations through sales of the extra 22 x 50 kg bags that would have been produced from a hectare. The family can then raise about K1,430,000 non-rebased Zambian kwacha or US\$286 from sale of the surplus grain produced in that particular year. This would be the income raised in the whole year from sale of surplus maize grain produced. This income is however still below the minimum of US\$2 per day World Bank poverty threshold.

4.8.3 Low irrigation utilisation

Zambian irrigation potential is conservatively estimated at 423,000 hectares. Only 12% of this potential at 50,000 hectares is utilised (GRZ, 2004:1). Agricultural projects should practically address this issue to enhance community resilience. The NAP attempts to double this utilisation to 90,000 by 2015, but there is little evidence on the ground that government is anywhere near this target (Bonaglia, 2008:16).

4.8.4 Agricultural credit

Up until 1997, government through the three major institutions provided agricultural financing to small-scale farmers. These were the: (i) Zambia Cooperative Federation Finance Services, (ii) Lima Bank and the (iii) Credit and Savings Union of Zambia. This credit was highly subsidised and small scale farmers were not required to provide any collateral to obtain it. As such, the small-scale farmers considered this credit as grants and lead to low rates of repayments, recovery and the collapse of the

lending regime. Currently there are no major institutions that are proving credit to small-scale farmers in Zambia, Monze inclusive apart from those proving small grants (Wichern, Hausner & Chiwele, 1999:9).

4.8.5 Conservation agriculture adoption against real diversification promotion

There is evidence of better crop yields that could lead to better outputs and economic resilience in Zambia among small-scale farmers that implement a wide range of conservation farming techniques. However, the adoption rate for this technology is not widespread (Haggblade & Plerhopes, 2010:29). Equally, crop diversification is still low in Monze despite many conservation and crop diversification projects (Bonaglia, 2008:14). Hence the need for practitioners to promote real crop diversification than interventions that promise to deliver so much and yet delivers so little.

4.9 Summary of research gaps

Based on literature reviewed there are very few exclusive agricultural rural or urban based poverty alleviation projects globally or locally in Zambia that have deliberately attempted to mainstream DRR. This is with respect to the inception of the Hyogo framework of action of 2005. The bulk of agricultural development projects are still traditional agricultural sector improvement and social safety nets that do not mainstream DRR deliberately in their design and implementation process or at any stage of the project planning and management cycle.

The few documented projects that are agricultural in nature and perceived to be successful at building community resilience have either built resilience accidentally. There is also no documentation available on how these perceived successful developmental projects that focused at alleviating poverty were designed and implemented step by step with respect to either use of the modified project planning cycle or the CBDRR planning framework. As such, documentation available does not conclusively indicate the design and implementing models used by planners for these projects. It can be assumed that planners either use the modified project planning cycle or CBDRR to mainstream DRR. There is need therefore to have many case studies of poverty alleviation projects that have attempted to mainstream DRR deliberately and how they have fared at building community resilience. This study

attempts to contribute to the analysis and documentation of case studies to link designing and implementation of poverty alleviation projects with increased community's resilience. This is to further help stakeholders to replicate successfully designed and implemented projects in terms of DRR mainstreaming and to avoid shortcomings that lead projects to fail to enhance community resilience.

4.10 Conclusion

This chapter has outlined the importance of agricultural development projects to alleviate rural poverty in general and how these projects are designed, implemented, monitored and evaluated based on their planned objectives. The chapter has also demonstrated that properly designed and implemented agricultural development projects to alleviate poverty and enhance community resilience at the same time are those that mainstream DRR. Mainstreaming is done using the modified project planning cycle or the community based disaster risk reduction planning and implementation tool.

CHAPTER 5

PRESENTATION OF FINDINGS, ANALYSIS AND DISCUSSION

5.1 Introduction

The three previous chapters were on literature review on the concept of community resilience. They also included theoretical models used to explain the process of building community resilience and literature focusing on agricultural development projects designed for poverty alleviation.

This chapter presents findings of the study on how agricultural development projects are designed and implemented at community level in Monze. The findings are also on how these projects have enhanced community resilience as viewed by the community, planners and other stakeholders. The results presented are based on data collected using questionnaires', focussed group discussions, preliminary interviews with some project planners, monitoring and evaluation officers.

Access to project documents from all the twelve implementing agencies was difficult. Custodians of these documents were not willing to share them for undisclosed reasons. Apart from WVZ Choongo Area developmental project and the Monze smallholder dairy farming improvement project, all other project documents were kept in Lusaka at respective head offices for the projects' implementing organisations. This development implied that all the other ten developmental projects implemented in Monze were centrally designed and co-ordinated from Lusaka.

Given this background, the results being presented in this chapter are mostly based on end user perspective and little is from the planning and implementing agencies. The little that is presented from the agencies is based on preliminary interviews made by the researcher with district based NGO and ministry of agricultural staff and the personnel from the private, cotton producing and promotion companies. All these district based officers referred any further inquiries to their head officers in Lusaka for any detailed discussions on projects' they implemented in Monze.

Findings from the user perspective are presented in the context of the livelihoods assets and community risk governance capacity that guided data collection. The

findings from the user perspective further compares enhanced resilience levels in Keemba and Nalutanda communities. Keemba had seven developmental projects compared to Nalutanda that had three.

5.2 Sampling results

Since the study was carried out at district level sampling was done in two stages to select the agricultural camps and then the individual households.

5.2.1 First stage cluster sampling

Two theoretical frameworks guided the first stage sampling process. The statistical theoretical framework and; the definition for disaster risk. The first stage sampling was further guided by the number of projects that were implemented in a given agricultural camp within Monze. Hence the most disaster prone camps with high risk of multi hazards' impacts coupled with high vulnerability were sampled. These camps were further sampled based on the number of agricultural development projects that various stakeholders supported and implemented in these camps.

Multi hazard disaster risk was weighted based on actual hazards experienced in the last ten years coupled with current vulnerability of the respective two communities as depicted in (Table 5.1). Camps of similar disaster risk magnitude were therefore selected to avoid differences in risk magnitude from influencing the outcome of the study. Information to enable this sampling at cluster level was provided by both field and district based agricultural staff in Monze. This source of information was used in the absence of detailed, past incident reports, on the occurrence and impact of the hazards at any level of administration in Monze.

Two camps were therefore sampled out of thirty-four in the district. The two were Keemba and Nalutanda.

Table 5.1: Weighted hazards and vulnerability status for Keemba and Nalutanda camps in 2012

Sn	Hazards and Vulnerability Analysis of Camps in Monze based on agricultural field officers experience and expert knowledge	Agric Camps and respective weighted scores	
		Keemba	Nalutanda
1	Worst affected camp by dry spells in 2011/12 growing season (Ranking values were: 3 = worst affected; 2 = moderately affected; 1 = lowly affected; 0 = not affected)	2	2
2	Worst affected areas by last floods hazards experienced (Ranking values were: 3 = worst affected; 2 = moderately affected; 1= lowly affected; 0 = not affected) (last flood season was in 2007/08 growing season)	0	1
3	Most bovine disease affected camp (Ranking values: 3= worst affected; 2 = moderately affected; 1 = lowly affected; 0 = not affected) (Current)	2	1
4	Camp with Highest HIV/AIDS prevalence cases (Ranking values were: 3 = worst affected; 2 = moderately affected; 1 = lowly affected; 0 = not affected) (Current 2012 prevalent rates)	2	2
5	Agricultural camp with most poor households hh (Ranking values were: 3 with most poor hh; 2 with moderate levels of poverty for most hh in the camp; 1 was for low numbers of poor households in the camp)	2	2
6	Most Food insecure area this agricultural marketing season 2012/13 by (Ranking values: 3 = worst food insecure ; 2 = moderately food insecure ; 1 = less food insecure)	2	2
Disaster risk potential based on weighted scores		10	10

(Source: Agricultural Camp Officers, Ministry of Agriculture & Livestock, Monze)

Coupled to the same weighted magnitude of risk, Keemba was sampled on the basis of having the highest number of agricultural development projects that were implemented in the area. Nalutanda was selected based on having less projects that were implemented as shown in (Table 5.2).

Table 5.2: Camp sampling based on number of agricultural projects being implemented

		Agricultural camps and agricultural development projects being implemented	
		Keemba	Nalutanda
Camp Demographics		Number of Villages in 2010	23
		Actual Number of HH in 2010	1,161
		Actual Population in 2010	8,126
		Average hh size	7
Current agricultural development projects operating in the two selected camps		FISP	1
		FISRI	1
		SLIP	1
		Monze small holder dairy farming improvement project	1
		WVZ Choongo ADP	1
		Dunavant cotton	1
		Alliance ginnery	1
		Total projects	7
			3

The outcome of the sampled camps and based on the criteria described above is presented in (Table 5.3).

Table 5.3: Summary of agricultural camps sampled for the study

Name of Agricultural Camp	Number of Villages 2010	2010 Actual Number of HH	2010 Actual Population	Total Number of Projects	Weight of all hazards that impacted the camps in last 10 years (2002-12)
Keemba	23	1,161	8,126	7	10
Nalutanda	12	723	4,438	3	10

(Source: Agricultural Camp Officers, Ministry of Agriculture & Livestock, Monze)

5.2.2 Second stage stratified sampling

Second stage sampling involved random sampling of households from stratified population within the camp. The households were grouped into three stratum: wealthy, poor and leaders. Then these three strata were further categorised into five sub-strata: wealthy adults; wealth youths; poor adults; poor youths and then leaders. Thereafter each sub strata was again sub-categorised by gender to come up with ten sub-strata. Finally, four households were then systematically and randomly selected from each of the ten sub-strata per camp. Thus a sample of forty households were planned and selected from each camp as depicted in the (Table 5.4).

Table 5.4: Second stage sampling plan

Strata	Keemba		Nalutanda		Totals	
	Gender sub strata		Gender sub strata			
	Sub Strata	Male	Female	Male	Female	
Affluent Members of community that had lived in the area for at least 10 years	Adults	4	4	4	4	16
	Youth	4	4	4	4	16
Poor headed households that had lived in the area for at least 10 years	Adults	4	4	4	4	16
	youth	4	4	4	4	16
Village headmen	Adults	4	4	4	4	16
	Totals	20	20	20	20	80

Actual sampling was done by first listing all the names of the households considered wealthy, then those that were considered poor. There after these lists of names of the wealthy and the poor were sub categorised by adults and youths and then by gender. Names of heads of the villages were also listed separately and were not part of the other categories of the wealthy, the poor, adults or the youth. Thereafter, a systematic random sample was taken from these sub-strata or list of names but ensuring that people coming from the same village and youth coming from the wealthy or poor parents already picked were not sampled to avoid bias (Muyunga, Jayne & Burke, 2011:2). The village heads verified the status of each household that was sampled during actual data collection. Any youths confirmed to have come from a wealthy or poor parent that were already sampled in the study, were replaced with the next one on the list of names already prepared.

The wealthy adults were first sampled and then poor adults before selecting the youth and the leaders. The whole process of sampling clusters and households took about six months to complete from March to August 2012. Forty households in each camp were therefore sampled and canvassed but only data sets from 38 households from Keemba and 36 households from Nalutanda were analysed and included in this study. The other 2 from Keemba and the 4 households from Nalutanda were outliers and excluded from the analysis of this study.

5.3 Results of how projects are designed: planner's perspective

As already mentioned, apart from WVZ and the Monze small dairy farmers co-operative, the head offices based in Lusaka planned all the other ten developmental

projects that were implemented in Monze. Implementation co-ordination was also done from their head offices. Mr. Paul Nyambe, the Senior Agricultural Officer & Dr. Phanuel Nyimba, District Veterinary Officer could not commit themselves to explain how these projects were planned, by who and the models used. They however knew about the technical aspects of the projects that were implemented in Monze based on orientation meetings that they had attended and based on their day-to-day facilitation of implementation processes (Personal Interviews, 7th November 2012).

Ms. Elina Kaonga Mubanga, the Monitoring and Evaluation Officer for the World Vision Zambia Choongo Area Development Project (Choongo ADP) stated that Choongo ADP was planned and designed by the local staff based in Monze with technical assistance from their head office in Lusaka (Personal Interview, 6th November 2012).

Choongo ADP commenced as an emergency drought rehabilitation project in 2003. The rehabilitation project was later transformed into a fully fledged non-emergency developmental project in 2007 after undertaking a series of preliminary assessments. The current ADP project is therefore running for fifteen years but is reviewed every five years to re chart the way forward. Choongo ADP focuses on five components: (i) agricultural development, food security, marketing and community based disaster preparedness planning facilitation, (ii) HIV//AIDS and Health, (iii) child sponsorship, (iv) water and sanitation, and (v) educational support in general. The Choongo ADP is thus holistic, integrated but not exclusively agricultural. However, DRR is treated as a cross cutting issue but co-ordinated under the agricultural and food security project component. Implying further that the focus of DRR is more associated with agro-meteorological hazards of drought and floods that affect agricultural production.

Choongo ADP staff consulted and involved the targeted community members and other district stakeholders when designing, implementing and monitoring their developmental project. Choongo ADP staff also facilitated the formulation of the community disaster preparedness plan in Keemba Agricultural Camp. Funding for the overall Choongo ADP project was sourced from the World Vision Korea through the WVZ national office. Annually Choongo ADP contributed one percent of its administrative budget towards the WVZ National Emergency Relief Fund (NERF).

This fund was later used to support category one emergency response at community level where ever WVZ operated in the whole country. Choongo ADP had good initiatives to mainstream DRR to build resilience but the impact of these initiatives is discussed from user perspective in (section 5.5.9.3).

5.4 Co-ordination of DRR activities at district level

Mr. Ngosa, the District Agricultural Co-ordinator (DACO) for Monze indicated that the members of the District Disaster Management Committee (DDMC) were not sure about whether all the existing public agricultural development projects in Monze had mainstreamed DRR to enhance community resilience (Personal Interview, 10 September 2012). This was due to lack of access to respective project documents to refer to. The committee did not have the authority to summon or compel any implementing agency to mainstream DRR in their developmental projects.

Based on the finding in this study, it appeared to be very difficult for the DDMC to supervise DRR activities without national policy guidelines on how to mainstream DRR in developmental projects. The role of the local authority is very critical in supervising DRR thus enhancing community resilience at a local municipality level (Obrien, Bhatt, Saunders, Gaillard & Wisner, 2012:62).

5.5 Impact of project design and implementation on enhanced community resilience: end user perspective

5.5.1 Enhanced human assets

The demographic characteristics for the sampled population are presented under human assets of the sustainable livelihood model. The figures discussed are based on (Table 5.5).

Table 5.5: Results on human assets

Variable	Keemba	Nalutanda	Average for the two communities
Female-headed HH (%)	37	31	34
Male-Headed HH (%)	63	69	66
Education level of HH head (%)			
No formal education	13	0	7
Primary education	63	50	57
Secondary	24	50	36
Marital Status of HH head (%)			
Single	13	0	7
Married	53	72	62
Divorced	8	8	8
Separated	0	0	0
Widowed	26	17	22

5.5.1.1 Demographic distribution by gender

The households interviewed comprised more male-headed households at 66% compared to the female-headed households at 34%. This was not by design but due to non-availability of female heads of villages found during actual data collection against the original design to have equal representation by gender. The distribution by gender in one community to the other was however close at 63% in Keemba and 69% in Nalutanda respectively for male headed households. Female headed households were 37% in Keemba and 31% Nalutanda. As such the two data sets were still comparable for the purpose of assessing impact of projects on community resilience.

FAO (2005:18) and ZVAC (2002:14-23) has shown that women headed households in Zambia only attain two-thirds of male headed household production levels due to lack of means to hire labour during critical times of weeding making them more vulnerable. Female-headed households also have on average half the size of stock for animals, eat less nutritious food and tend to have more orphans to take care of.

Hence, projects should ensure they balance the targeting of interventions to include more women than male-headed households to enhance community resilience.

5.5.1.2 Demographic distribution by marriage

There were more married households interviewed in Nalutanda compared to Keemba at 74% to 53% as can be seen in (Table 5.5). Keemba had 21 percentage points more

widows compared to Nalutanda among those interviewed. This finding may suggest that there were many divorcees in Keemba, thus an indicator of social instability of the community. Alternatively, this figure could also suggest many deaths of spouses or even migration of the male folk to go and work in the sugar plantations in the neighbouring Mazabuka district. Detailed reasons for the many widows in Keemba were not established since this was not the scope for the study.

5.5.1.3 Education

All the households interviewed in Nalutanda had a minimum of primary education. Thirteen percent of all the households' interviewed in Keemba had no formal education. Thus, this could have affected the quality of responses given in the two camps but care was taken to simplify the questions as much as possible in the local language.

5.5.1.4 Household family size

Household size of the respondents was parametrically distributed in both camps as shown in (Figure 5.1). Both distribution patterns were also positively skewed and thus compared very well (Leedy & Ormrod, 2005:256). Average household size was 8 members in Keemba and 10 members in Nalutanda.

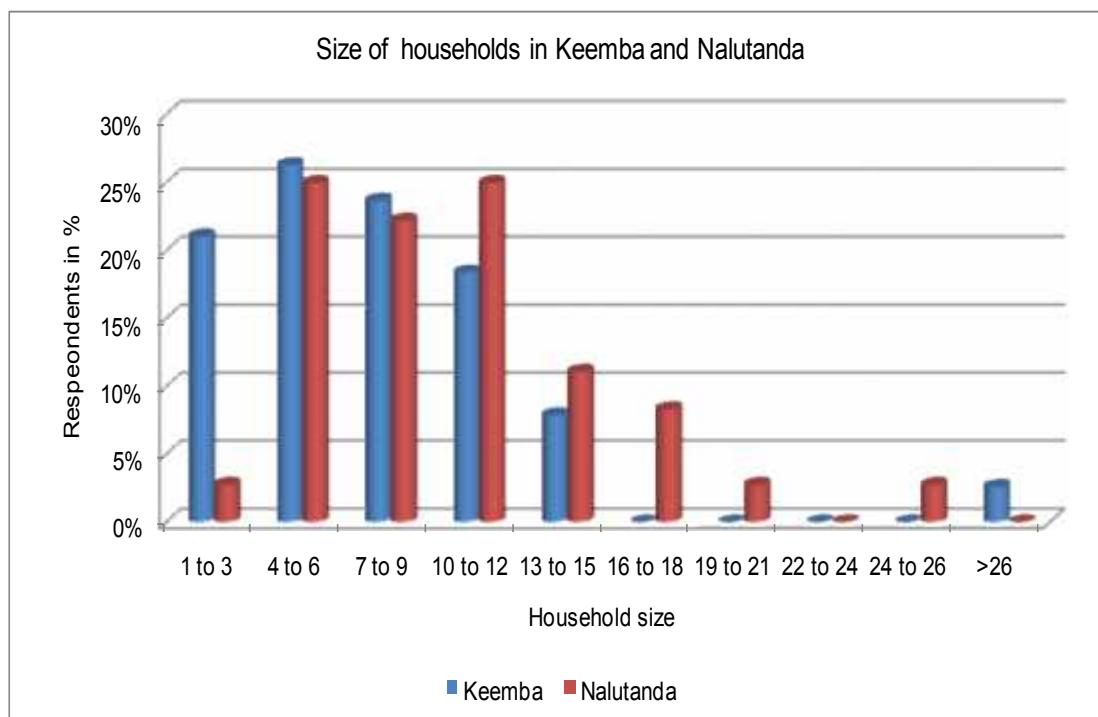
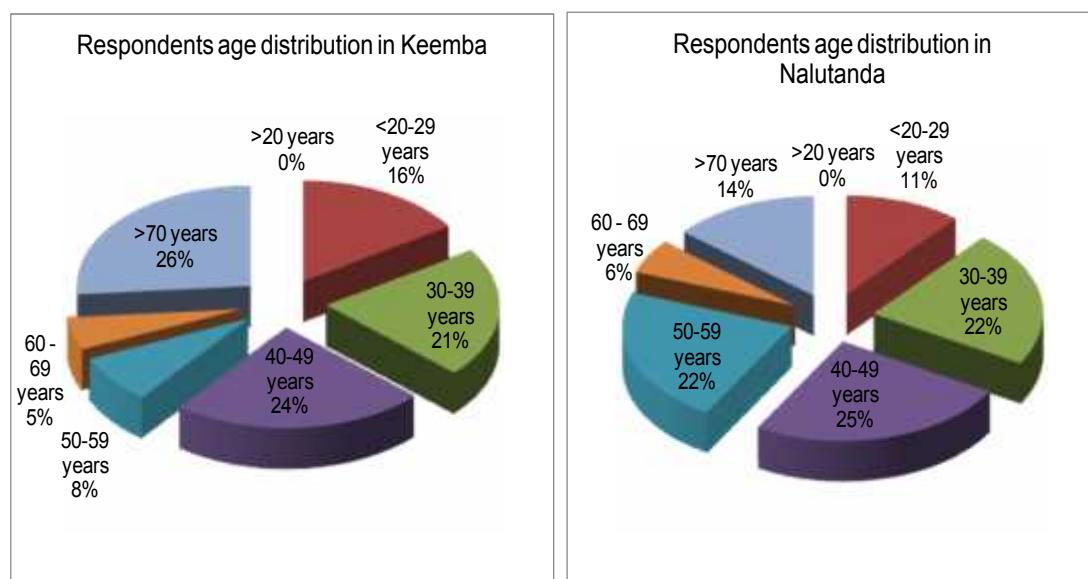


Figure 5.1: Household size in Keemba and Nalutanda

5.5.1.5 Age distribution of household heads

Average age for all respondents sampled was 49 years. This result showed that the households had enough institutional memory based on their age to know what type of capacity their communities had. No household was headed by a person aged below twenty years as shown in (Figures 5.2a and b). The data sets collected in the two camps were also comparable for the purpose of this study, based on this age distribution pattern.



Figures 5.2: Age distribution of household heads in Keemba and Nalutanda

Based on the findings, one would say both populations in the sample were still in their productive ages in general.

Age has an impact on the productive capacity of smallholder farmers (Kalinda *et al*, 2010:8). Age and productivity however are not the only parameters that define community resilience and have to be analysed with other parameters to ascertain the resilience of given community.

5.5.2 Livelihood sources & farming system

Major livelihood source for both communities was farming as illustrated in (Figure 5.3). Eighty-two percent of the respondents in Keemba practiced crop farming only compared to 81% in Nalutanda that practiced mixed farming. In mixed farming, respondents practiced both crop farming and rearing of animals. Charcoal burning

was more prominent in Keemba at 21% among the respondents compared to Nalutanda at 3% as a livelihood source. Having a quarter of the respondents in Keemba engaged in charcoal burning could be an indicator that the community members did not raise enough income from crop farming, hence resorting to charcoal burning.

This finding about the major sources of livelihoods in the two camps just confirms what is already known, that 99 % of rural based households in Monze are farmers and depend on agriculture and the natural environment for survival (GRZ, 2006a:4). The findings also show that respondents engage in other activities such as piecework and charcoal burning for survival in addition to agriculture. However whilst charcoal burning is a livelihood source and helps the community diversify their income sources, it is illegal and is a negative livelihood source environmentally. Charcoal burning degrades the environment quickly and worsens vulnerability to environmentally hazards.

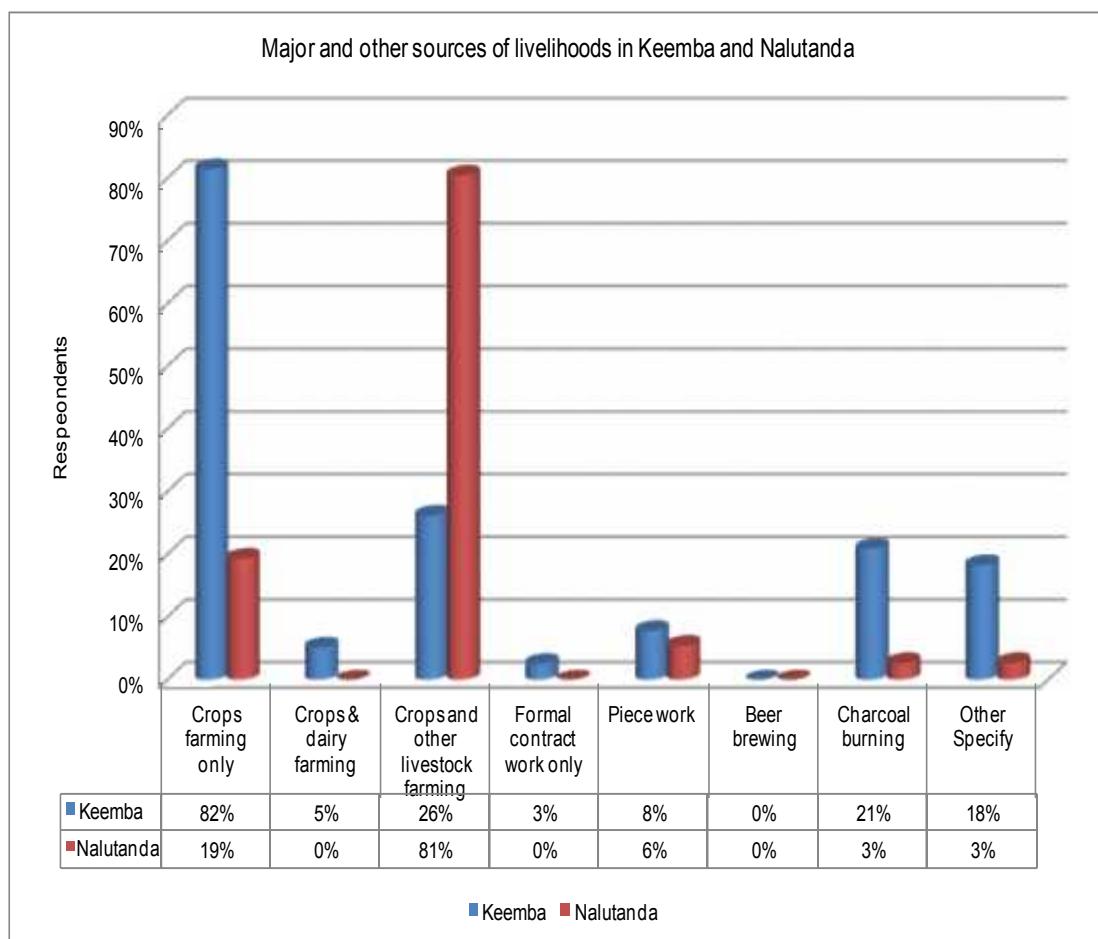


Figure 5.3: Major livelihoods in Keemba and Nalutanda

5.5.3 Physical & natural assets

5.5.3.1 Access to land for crop farming

All respondents in both Keemba and Nalutanda had access to farmland to cultivate food and cash crops as illustrated in (Figure 5.4). Sixty-six percent of the respondents in Keemba owned the land they cultivated and stayed on, compared to 58% in Nalutanda. Subsequently more respondents in Nalutanda at 42% did not own the land they cultivated and stayed on compared to 34% in Keemba. According to the respondents, agricultural productivity was not hampered by not owning the land they cultivated and stayed on. Rather they reported during focussed group discussions (FGD) that productivity was hampered due to inadequate access to fertiliser and hybrid seeds.

Two types of statutes govern land tenure in Zambia: the customary land and; the leasehold land tenure system. All the land under customary land tenure system is owned by the local chiefs. All the land under the leasehold is owned by the Republican President in perpetuity and only lend it to the user for a maximum of 99 years (GRZ 2010c:1). Land under customary land tenure system has no title and is not recognised by the lending financial institutions. Thus small scale farmers that own land under customary land tenure system rarely have access to formal credit due to inadequate collateral in form of title deeds.

Contrary to Kajoba's view (2009:8), the respondents did not regard the customary land tenure system to be a problem to their subsistence farming. They considered customary land as their inheritance and did not see why they should obtain title deeds for it. The respondents' other view was that they had enough access to land for crop farming and to graze their animals communally under the customary land tenure. As far as the communities were concerned the hindrance to increased productivity was due to limited access to farming input and not access to land.

Indirectly, limited access to farm inputs is also an indicator that the communities are heavily dependent on external supply of inputs to increase crop productivity. These findings are in line with the fears alluded to by Kajoba (2008:78) that: small scale farmers are heavily dependency on government subsidies for survival and; the

projects have created this dependency and the false impression that they can solve the many developmental problems that respondents are faced with.

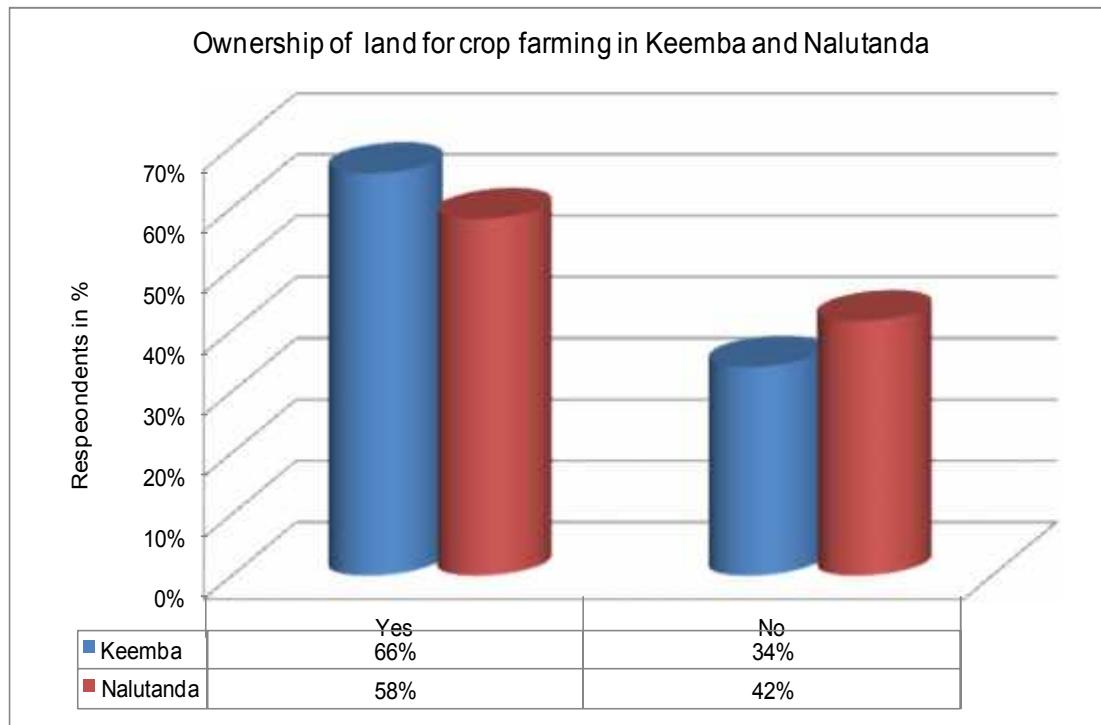


Figure 5.4: Ownership of land in Keemba and Nalutanda

5.5.3.2 Size of cropping farm plots

The size of farm plots for crop farming ranged from 0.1 hectares to more than 10 hectares among the people interviewed in both Keemba and Nalutanda. The utilised parts of these plots were between 0.25 hectares to 3.5 hectares. The majority cultivated only 0.5 hectares for maize or cotton.

This production level is very low and purely for basic survival. Such productivity levels can not enhance resilience but help the households and community to meet their basic day-to-day needs in a normal, non-emergency season.

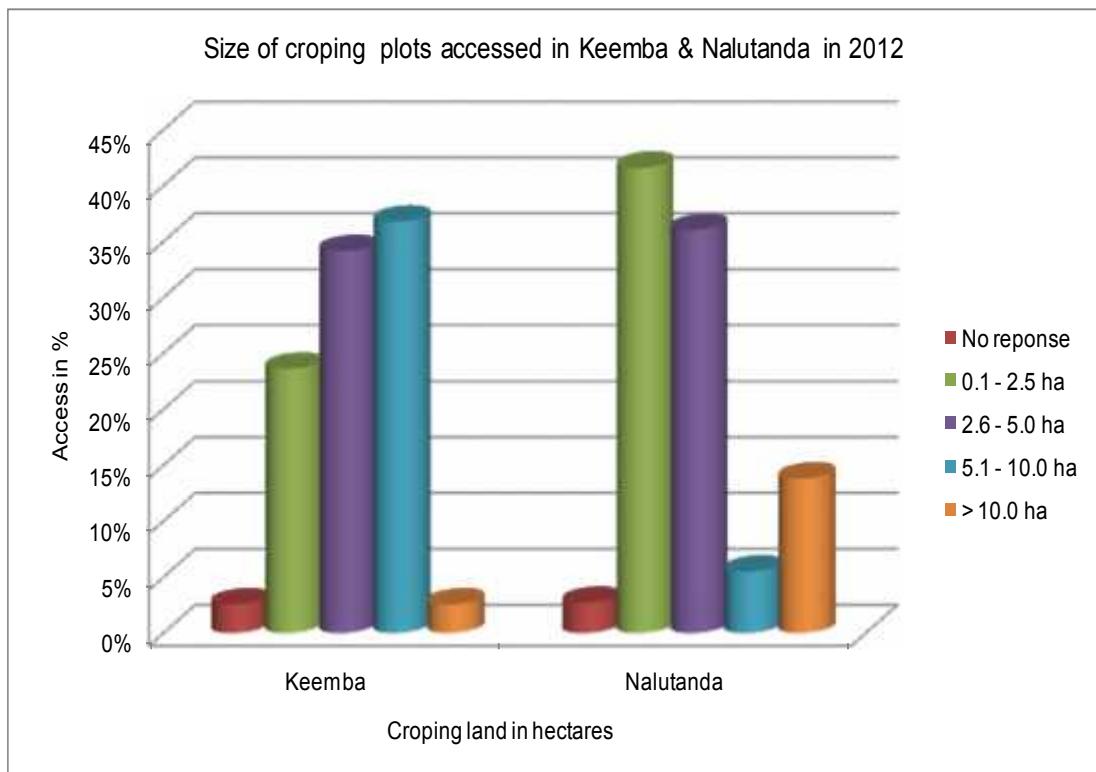


Figure 5.5: Size of farm plot size for respondents in Keemba and Nalutanda

5.5.3.3 Livestock numbers in Keemba and Nalutanda

As illustrated in (Table 5.6), respondents in Nalutanda had more heads of cattle, sheep pigs and donkeys compared to Keemba.

These values for cattle were analysed for statistical significant and were found to be significant at 96.6% confidence level of analysis. The null hypothesis for the analysis was that the livestock numbers were close to one another in the two camps given the same farming and livelihoods systems. The null hypothesis was rejected at p value = 0.034. Numbers of sheep and goats were also analysed for statistical significance and the null hypothesis was rejected at p value = 0.10.

Table 5.6: Livestock statistics in Keemba and Nalutanda

Camp	Total number of household interviewed	Dairy cattle		Beef cattle and oxen		Goats & sheep		Pigs	Donkey	Chickens	Doves	Other
Keemba	38	2	365	116	5	0	554	5	6			
Nalutanda	36	0	1203	180	19	55	507	80	13			
Total	74	2	1568	296	24	55	1061	85	19			

High numbers of cattle, sheep and goats in Nalutanda suggest that Nalutanda had better potential for reserves in livestock form compared to Keemba despite Keemba having more developmental projects that did not translate into wealth conversion or stock.

5.5.3.4 How respondents acquired livestock

According to the findings using structured questionnaires, respondents in both communities, acquired their livestock through own savings as illustrated in (Figure 5.6).

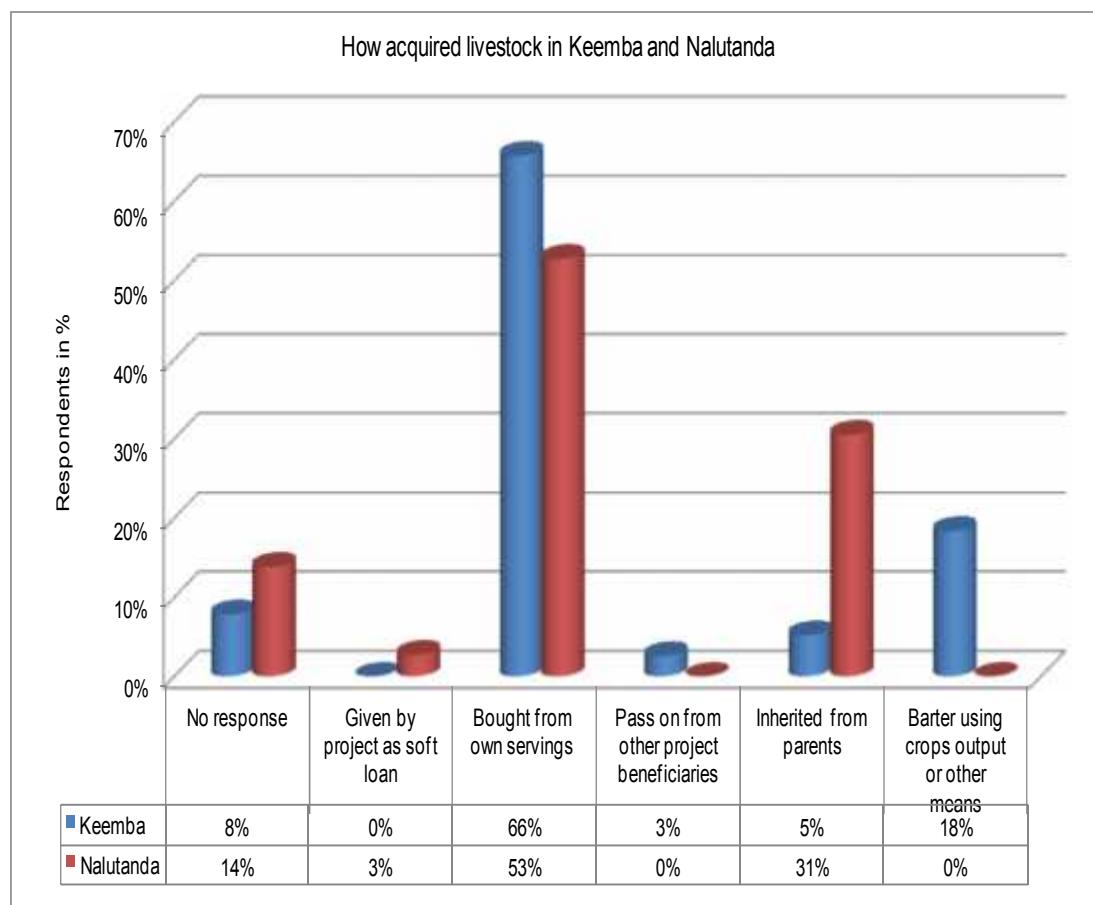


Figure 5.6: How respondents acquired livestock in Keemba and Nalutanda

Respondents did not attribute these savings to have been made through current or past agricultural development projects. They attributed this wealth creation, thus resilience enhancement to their own traditional ways of life, trade of the same livestock and other surpluses.

The focused group discussion (FGD) reviewed that both communities acquired livestock especially cattle, which was of more economic importance in two major

ways: purchases through income raised from crop sales and; payments in livestock-kind. Payment in kind further involved five additional ways for acquiring livestock:

- a) The first form of payment in kind involved a situation where someone was engaged to herd cattle for another person for no cash payment but paid in kind for every year or two worked. Such people would be paid one heifer after completing the task agreed for every year or two worked.
- b) The second form was when a relative or just other members of the community felt pity for a poor relative and gave such a person heads of oxen or milking cows to use for free and raise their own income through sale of milk or cultivating other crops using the lent oxen.

Money raised by such a poor person would be used to buy their own (poor person) livestock. The poor or vulnerable persons that were assisted in this way were not expected to sell the original stock lent to them. Instead they (poor) were expected to return the original livestock lent to them after use and acquiring their own over a period of time. Hence, vulnerable people were assisted indirectly with capital to buy their own cattle based on their being: honest despite being poor; and having potential to be viable.

- c) The third type for payment in kind was in form of dowry. This was paid to a family that was marrying off their daughter. Such parents looked forward to marrying off their daughters to receive the payment that ranged from 1 to even 20 heads of cattle per marry off. The number of cattle demanded was dependent on many factors including education level of the daughter being married off. Cliggett (2000:127) also documents this practice.
- d) The other form of payment in kind was were a relative or rich person just decided to give someone a head of cattle free of charge as start up capital though this practice was very rare.
- e) The fifth form of payment in cattle kind was a situation where livestock was paid to settle disputes such as customary court charges for marriage interference, in case were abusive language was used on someone and to pay off for some skirmishes to cite a few examples.

The fact that Nalutanda had more livestock than Keemba, suggests that the social form of passing on livestock to help one another was still in existence and was a good sign of inherent community resilience.

5.5.3.5 Livestock trends

Views of the respondents in Keemba were that they had seen a marked increase in their livestock numbers in the last ten years. Even though Nalutanda had more livestock in relative terms compared to Keemba, the respondents in Nalutanda had seen a decrease in their livestock numbers as illustrated in (Figure 5.7).

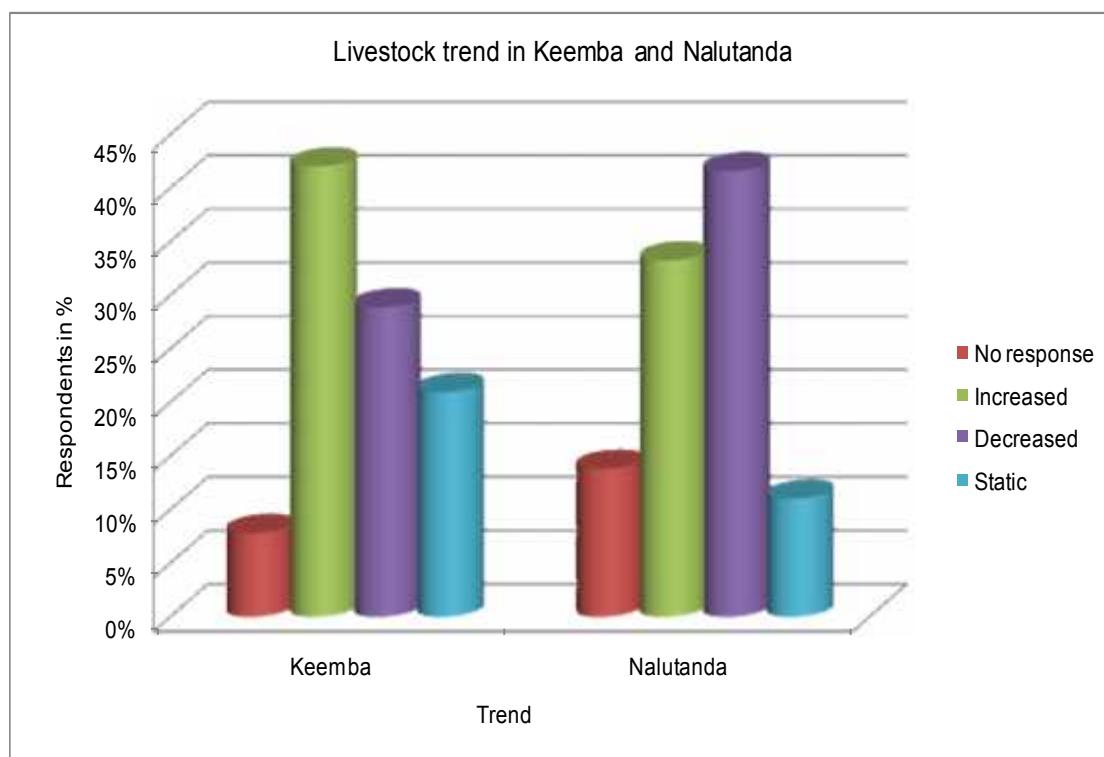


Figure 5.7: Livestock trends in Keemba and Nalutanda

Respondents in Nalutanda, considered their livestock numbers to be decreasing due to livestock diseases' impact. This finding collaborates with Cliggett (2000:127) and FAO (2005:18) that have viewed these communities in Monze to have prosperous prior to the 1990's. Poverty and vulnerability is considered to have started to increase in part due to long-term effects of drought and livestock diseases.

More findings from the FGD are that the major outbreak of the corridor disease in Monze was recorded in 1990 and that the major drought of 1992 worsened the death toll of these animals reducing the population by half. This finding shows how

communities can be vulnerable to hazards and how hazards can worsen their vulnerability.

A long-term solution to this problem of livestock diseases would be to educate the farmers to treat the livestock sub sector as a business to generate primary assets and investing that money in other assets such as property in town that is not susceptible to drought, flood or livestock disease impacts.

5.5.3.6 Attribution of the current livestock trend

Forty-two percent of the respondents in Nalutanda attributed the current decrease in their livestock numbers to past and current devastating impacts of livestock diseases. Livestock theft was another challenge in Nalutanda. On the other hand 50% of the respondents in Keemba attributed the little increase recorded in their livestock numbers due to exponential growth as illustrated in (Figure 5.8).

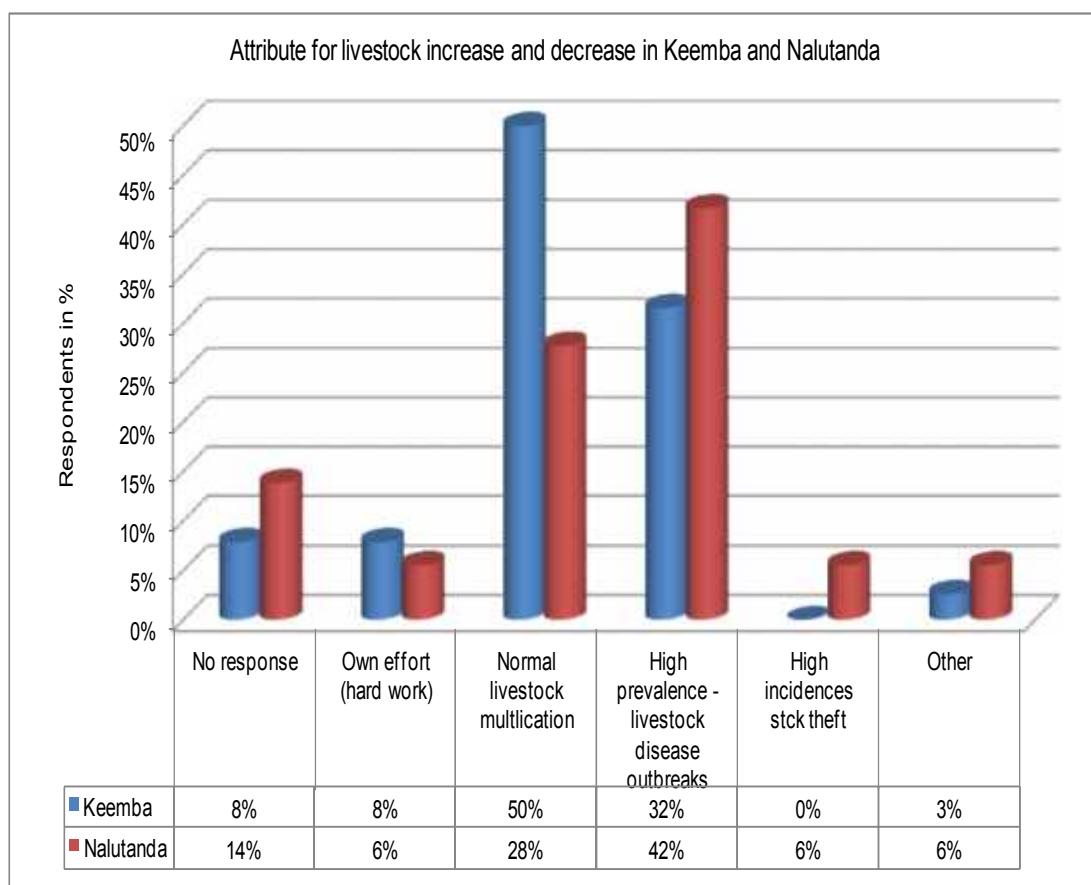


Figure 5.8: Reasons for livestock increases and decreases in Keemba and Nalutanda

5.5.3.7 Access to other sources of physical assets

The respondents' had access to other sources of physical assets apart from livestock capital, access to grazing land for livestock and land for crop farming. Additional access was to: (i) irrigation during normal dry season and during drought years, (ii) income generation through market gardening; (iii) communal grazing land; (iv) livestock dipping facilities in normal year and; (v) access to veterinary services during times of adversity.

Nalutanda had superior access to all these other physical and natural resources compared to Keemba, apart from adequacy of labour and access to veterinary services during times of adversity. Analysing adequacy of labour against family size, Nalutanda had larger family size but the households could comprise more children than adults. The question to solicit this information was not properly framed as it did not breakdown the inquiry on family size in different age groups. The researcher overlooked a detailed analysis of labour adequacy against family size as an indirect enhancer of community resilience.

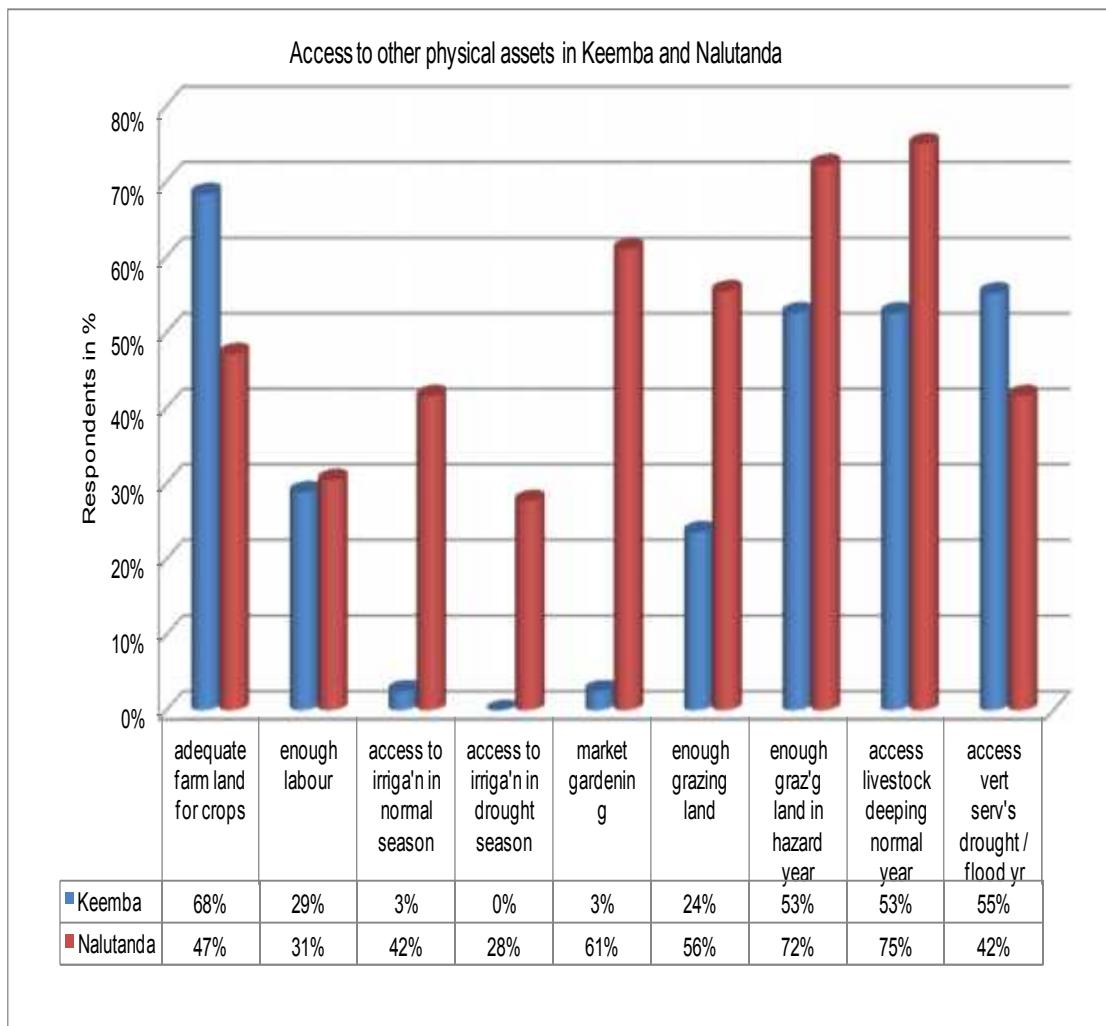


Figure 5.9: Access to other physical and natural assets in Keemba and Nalutanda

5.5.3.8 Access to veterinary services during times of adversity

As illustrated in (Figure 5.9), respondents' views in both agricultural camps were that they had less access to veterinary services during times of adversity at 55 and 42% in Keemba and Nalutanda respectively. This view was collaborated through focused group discussions (FGD) and confirmed by Dr. Nyimba, the District Veterinary Officer (Personal Interview, 29th October, 2012). This finding implied that, much as the community could have had higher levels of physical assets in form of cattle, sheep and goats for long term recovery, the quality of these assets could be compromised during times of adversity, due to inadequate veterinary services.

Inadequate veterinary support during times of crisis is a clear indication that there is little concern placed by authorities to support the most promising and inherent form of physical asset for the marginalised people of Nalutanda. This brings the design,

effectiveness and relevance of the livestock development projects being implemented in Nalutanda into question. This finding is validated by the fact that the current livestock disease prevention project, the Small Livestock Investment Project (SLIP) just vaccinates against two major diseases: the *contagious bovine pleura pneumonia* (CBPP) and *theileriosis*. *Theileriosis* is endemic in Monze and its two strains are commonly known as East Coast Fever (ECF) and Corridor disease or ‘denkete’ in the local language (Nambota, Samui, Sugimoto, Kakuta & Onuma 1994:1).

Other tick borne diseases that can affect animals like *babesiosi*, *heart water* and *anaplasmosis* are not vaccinated against by the project because the current project resources are considered not to be enough by the planners and the sponsors to be extended to other diseases of less economic importance. Vaccinating the animals against all these other diseases is the ideal strategy to enhance community resilience but communities are expected to meet part of the other costs for vaccinating their animals.

Further findings are that vaccination against ECF and Corridor disease is done by the veterinary department twice in the year in April to May and September to October. This is the period when most of the calves are dropped. The project targets calves that are aged between 2 and 18 months. This vaccination strategy is aimed at boosting immunity of these animals when young with the hope that these animals would retain their immunity as they grow up.

From a vulnerability point of view, targeting only one disease by the project still exposes the animals to other potential lethal tick and non-tick borne diseases such as anthrax. Anthrax epidemics in Zambia are frequent in the dry season and are generally associated with the onset of the first rains in October/November in the Western Province of Zambia (Siamudaala, Bwalya, Munang’andu, Sinyangwe, Banda, Mweene, Takada & Kida, 2006: 17). This is when grazing pasture is limited to the Zambezi plains. Conditions in the dry season in the flood plains in Western Province are similar to a drought season in the Kafue flats in Monze. Respondent take most of their animals to graze in the Kafue flats during drought season. Without vaccinating these animals against anthrax can prove fatal to the livestock population for Nalutanda

and Keemba in Monze during drought season thus affecting community resilience negatively.

Properly designed projects should come up with a good sensitisation and education programme to equip beneficiaries on how to market and manage their livestock during times of crisis to avoid losing out when their animals lose condition. However, there was no evidence that this type of orientation was being conducted by the livestock developmental projects in both Nalutanda and Keemba neither was there evidence of any restocking taking place. Neither were the study respondents aware of anyone in their respective camps to have received livestock from SLIP under the restocking component of the project. Ironically, none of the respondents in both camps even knew about the existence of SLIP project let along its disease prevention efforts or restocking.

Not knowing about SLIP was however possible because this project operated through the veterinary department of agriculture. Whether this was a good strategy or not to let the beneficiaries know about such a project directly was subject for further discussion and not the scope of this study.

The Small Livestock Investment Project (SLIP) was just one project that was being implemented. Project designers could argue that, projects' failure to raise community resilience in general should not be attributed to SLIP project alone, but an array of all the other projects. SLIP is however discussed in much more detail because respondents expected better veterinary support from government, implicitly SLIP project. SLIP was also the larger of the two projects that were being implemented in Monze that focused on livestock development. The other project was the Monze Smallholder Dairy Promotion Project.

According to Dr. Nyimba, *experts* at national level designed the SLIP project. It was therefore a top down designed and implemented livestock developmental project that aimed at restocking in addition to preventing the two major livestock diseases in Zambia (Personal Interview, 7th November 2012).

A preliminary follow up interview with the Mr. Mweemba, the Livestock Developmental Officer for SLIP in Lusaka, confirmed that the component of

restocking was not implemented due to ‘poor’ project design. The component was supposed to be implemented after prevalent diseases were eradicated. This component had just been redesigned to be implemented even before the major diseases were now completely eradicated (Personal Interview, 5th October, 2012).

5.5.4 Financial assets

5.5.4.1 Revenue from milk sales

Only 5.26% of the respondents in Keemba and 19.45% of the respondents in Nalutanda generated income from sale of milk as illustrated in (Figure 5.10).

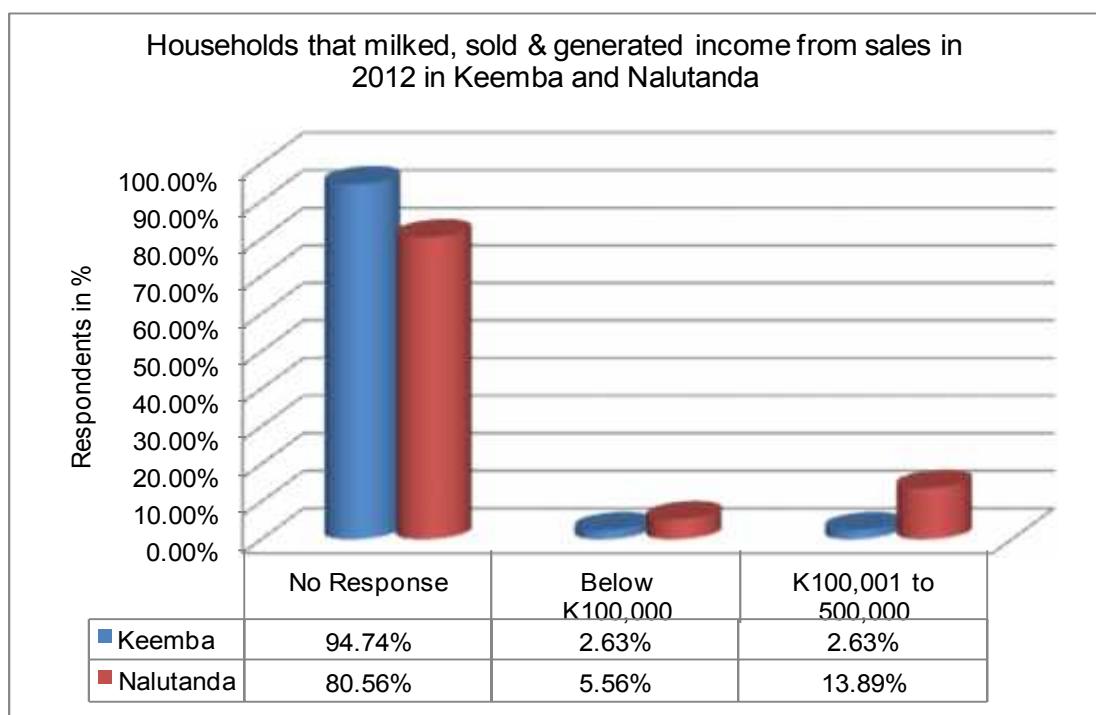


Figure 5.10: Income generated by households through sale of milk

Close to 95% of the people canvassed in Keemba and 80.56% in Nalutanda did not respond to this question suggesting that they did not have milking cows, or did not milk their cattle at all, or they only had oxen for ploughing.

It is possible however that their beef cattle could have produced milk, but were not milked for local consumption or for local sales. Again, this could be because some livestock were kept far away from homesteads in the Kafue flats in communal grazing lands. As such, this particular milk output resource was not captured in this study in case it was available to herd’s men in the Kafue flats and not to the homesteads.

The twenty percent respondents in Nalutanda and the other five percent in Keemba generated between K100,001 and K500,000 unrebased Zambian kwacha per year from sale of milk. This is approximately between US\$20 and US\$100 per year or US\$8 per month. This is not good money at any level, but can be helpful for sundry expenses such as sugar, salt, matches, batteries for their lamps, soap and toothpaste. This money can make a difference for day-to-day sundry expenses to the overall 81% that owned cattle in Nalutanda and the 31% that owned cattle in Keemba respectively (Figure 5.3), if at least one of their heads of beef cattle was a milking cow. This should have been the focus of developmental projects to encourage people to milk their heads of beef cattle as well. Projects should have also promoted good supplementary feeding strategies and general management of local breeds. Unfortunately, there was no evidence that the current projects were promoting this type of enterprise.

5.5.4.2 Attribution of increases in milk sales

The few respondents that generated income from milk sales attributed the very little increase in milk outputs and sales to the prevailing demand for milk at community level as illustrated in (Figure 5.11). Implying that the demand for milk was available, that could be exploited. On the other hand, the decrease in milk sales was associated with livestock diseases and stock theft. Again, this validated the reasons attributed to the general decrease in general livestock levels in Nalutanda.

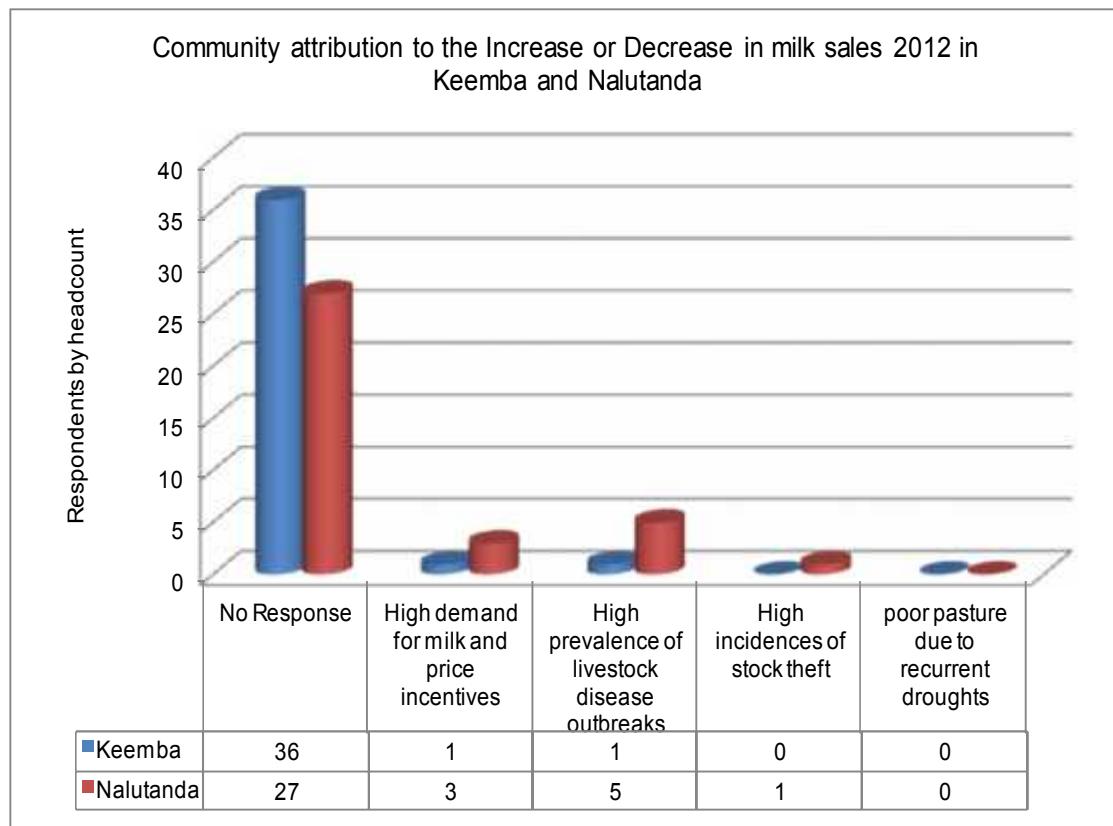


Figure 5.11: Reasons for increases and decreased milk sales

5.5.4.3 Other revenue from crops and livestock sales

Analysis of income generated from sales of livestock and crops in both camps per capita gave a good picture of prevailing household income levels as illustrated in (Table 5.7).

Crop revenue was computed from current crop outputs less quantities retained for own food consumption, seed reserves, needs to meet other social obligations like contributions to weeding ceremonies, church functions, traditional ceremonies and to offset production cost. Thus, crop revenue was computed from sales of surpluses from: maize, cotton, sweet potatoes and groundnuts. Livestock revenue was computed from sales that the respondents reported to have sold in the last one year. These sales for both crops and livestock were then aggregated within each of the two camps canvassed.

The per capita income levels generated from aggregated sales of crops and livestock per camp in 2012 were K358,187 unrebased Zambian kwacha for Keemba and K385,331 for Nalutanda respectively. In US\$ terms this was equivalent to \$71.64 and

\$77.07 per capita per annum for Keemba and Nalutanda respectively. These figures further translated into 20 and 21 cents of income per person per day in Keemba and Nalutanda respectively. This income generated was net after taking care of the cost for buying food cereal needs and cost for meeting other social obligations. The income generated was supposed to meet costs for buying new stock of fertilisers, meeting educational cost for their school-going children and to purchase other essential commodities for day-to-day consumption. This same cash generated was supposed to be used to meet needs for other essential goods that could not be produced locally such as sugar, salt, soap, clothing and materials for lighting their homes. The revenue generated per capital was very low by average Zambian and international standards to alleviate poverty and later on meet other resilience enhancement capacity.

All this income generated per capita was less than US\$ 2 per person per day confirming the fears by IFAD that people in rural areas in developing countries were very poor (IFAD n.d:1). These findings also collaborated with Jayne *et al* (2011:1) that the 2009/10 and 2010/11 bumper harvests did not translate into reduced poverty for the small scale farmers that produced below one hectare of maize despite the national bumper harvest. Neither did the bumper harvest translate into reduced hunger. The national bumper harvest came from those that produced above one hectare.

These figures clearly show that the poverty levels are still very high among the respondents in Keemba and Nalutanda when measured by cash income, material deprivation and other poverty measuring parameters. As such, economic resilience ultimately community resilience is difficult to attain with such high poverty levels.

Through statistically insignificant, Nalutanda revenue figures were higher than Keemba. Nalutanda figures were also higher despite the area having less agricultural developmental support currently and in the immediate past. These findings suggested that the many developmental projects had less influence in enhancing economic resilience let alone reducing poverty in Keemba and enhancing community resilience.

Table 5.7: Per capita income generated from crops and livestock sales

Attribute	Camps								
	Keemba				Nalutanda				
	Revenue generated from crop & livestock sales (unrebased ZMK)	Per capita income per year (unrebased ZMK)	Per capita income per year (US\$)	Per capita dollar per day		Revenue generated from crop & livestock sales (unrebased ZMK)	Per capita income per year (unrebased ZMK)	Per capita income per year (US\$)	Per capita dollar per day
Total number of households interviewed	38				36				
Total individuals from all HH interviewed	294				367				
Maize	11,157,120	37,949	7.59	0.02	12,086,880	32,934	6.59	0.02	
Cotton	8,306,796	28,254	5.65	0.02	14,144,004	38,540	7.71	0.02	
Ground Nuts	510,156	1,735	0.35	0.00	868,644	2,367	0.47	0.00	
Sweet Potatoes	3,185,700	10,836	2.17	0.01	5,424,300	14,780	2.96	0.01	
Crop Revenue	23,159,772	78,775	15.75	0.04	32,523,828	88,621	17.72	0.05	
Cattle	75,658,500	257,342	51.47	0.14	100,291,500	273,274	54.65	0.15	
Chickens	2,934,750	9,982	2.00	0.01	3,890,250	10,600	2.12	0.01	
Goats/Sheep	2,663,850	9,061	1.81	0.00	3,531,150	9,622	1.92	0.01	
Pigs	890,100	3,028	0.61	0.00	1,179,900	3,215	0.64	0.00	
Livestock Revenue	82,147,200	279,412	55.88	0.15	108,892,800	296,711	59.34	0.16	
Grandtotal income	105,306,972	358,187	71.64	0.20	141,416,628	385,331	77.07	0.21	

5.5.4.4 Micro financing & access to credit

The question to inquire about community access to credit and micro financing was not properly framed in the structured questionnaire.

The researcher tried to link micro financing and access to credit to increased coping capacity to bounce forward after disaster. The researcher also tried to establish whether the community would attribute their increased access to micro financing to agricultural development projects' support or not.

Secondly, the researcher tried to avoid a question that would give a yes or no answer. This was done to avoid introducing bias. In Zambia, poor people respond in the negative to questions that attempt to solicit their views on projects' financial impacts on their livelihoods. They answer in the negative to attract continued sympathy with

their poverty status. In the same vein, small scale farmers in Zambia have equally associated loans to be grants (Wichern, Hausner & Chiwele, 1999:9). Hence, the question on micro financing was indirectly framed to ask the community members as to whether their access to credit had increased or not on a scale of: don't know, not changed, decreased, increased or not applicable to them.

The range of answers given could therefore not give a clear answer as to whether the respondents had access to credit or not, let alone whether that access had increased or not and whether the increase could be associated to developmental projects or not. Ninety-five percent of the respondents in Keemba felt the question was not applicable to them whilst 85% of the respondents in Nalutanda did not know the micro financing concept at all. These answers could imply that the question was not clear or they did not truly know the concept.

During the FGD, the respondents indicated that they did not have access to cash credit or to micro financing to invest in farming. Pre-financed cotton growing and subsidised inputs for maize growing were the only form of credit that the community members knew about and had access to at community level. The other forms of credit they knew about were animal restocking and livestock pass on from the Monze Small-Scale Dairy Association but they did not have access to any of these.

5.5.5 Risk awareness as part of community resilience capacity

The analysis of risk was done to assess contribution of the existing developmental projects at enhancing this capacity. Analysis of risk was incorporated in this study to demonstrate that the communities are aware about prevailing risk in their communities based on indigenous knowledge and that they can contribute to properly design developmental projects if and when consulted.

5.5.5.1 Enhanced hazard awareness capacity

As illustrated in (Figure 5.12), both respondents in Keemba and Nalutanda were very much aware of the prevalent hazards that affected their areas and livelihoods. The most prominent hazard was drought as perceived by the communities at 97% and 100% in Keemba and Nalutanda respectively. The second prevalent hazard was the floods at 95% and 94% in both Keemba and Nalutanda respectively.

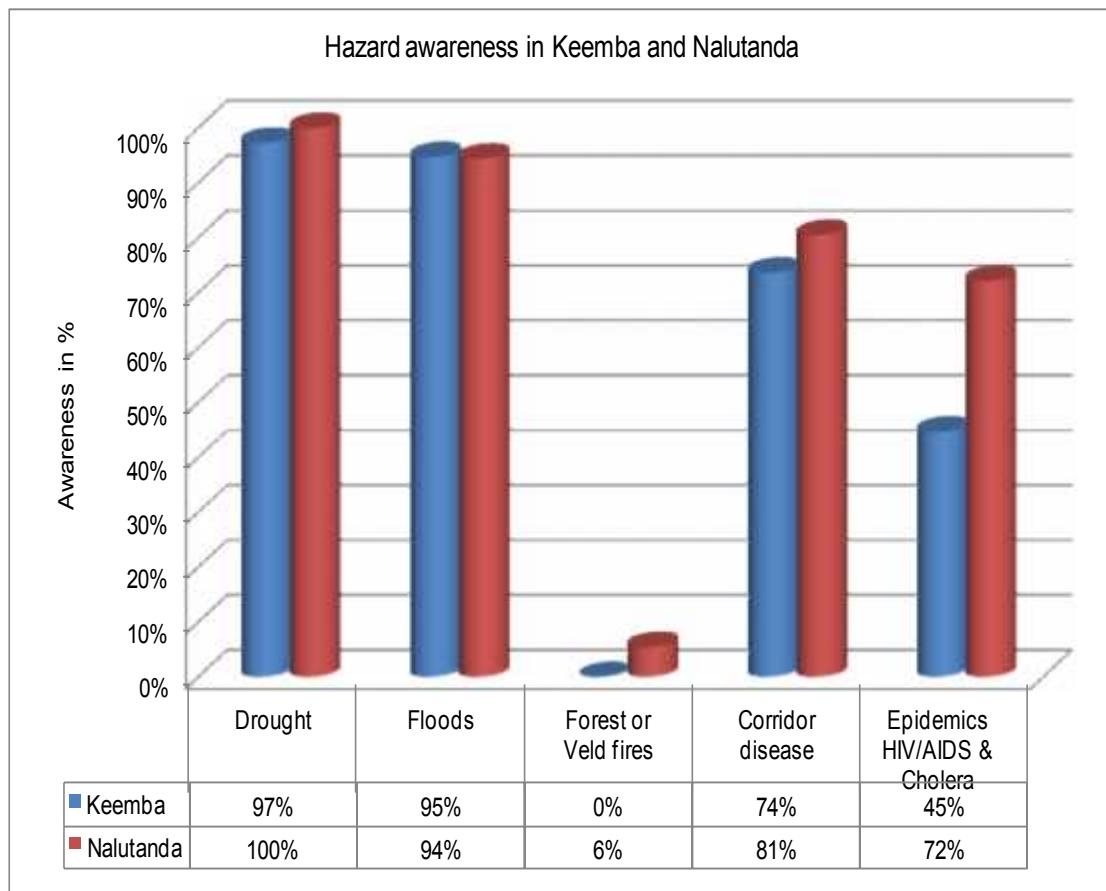


Figure 5.12: Hazard awareness capacity and most prominent hazard

Based on FGD findings in (Table 5.8), drought occurrence in 2003/04 corresponded with community views documented in the east of Monze during the same period by Mugabe *et al*, (2010:16). This finding demonstrated the consistency in the indigenous knowledge the community had with hazard awareness. However there was no evidence that this capacity was enhanced by existing developmental projects. It was experiential.

Table 5.8: Disaster occurrence year based on focused group discussion

Hazards and years of occurrence	Hazard type	Camps	
		Keemba	Nalutanda
	2001/02;		
	Drought	2003/04	2000 & 2002
	Floods	2007/08	2007/08
	Corridor disease	2010 & 11	Annually
	Cut / Army worm	-	2011/12
	New castle disease	2011	-
	Locusts	2004/05	-
	Large grain Borer	2007	-

5.5.5.2 Perceived hazards of highest magnitude

The community were even aware of hazards considered the most dangerous in both camps. Drought was considered the most dangerous followed by livestock diseases as illustrated in (Figure 5.13). Despite being very widespread, floods were not considered second most dangerous.

This finding clearly demonstrates that being widespread does not necessarily translate the hazard(s) into bigger disaster outcomes. Bigger disaster outcomes are dependent on extent of damage, caused by the hazard(s) on vulnerable livelihoods (Wisner *et al*, 2004:50). This finding is also a confirmation of the theoretical suggestion for practitioners to analyse hazard from perceptive of frequency, magnitude and vulnerability impact and not just mere occurrence (Reed, 1997:10).

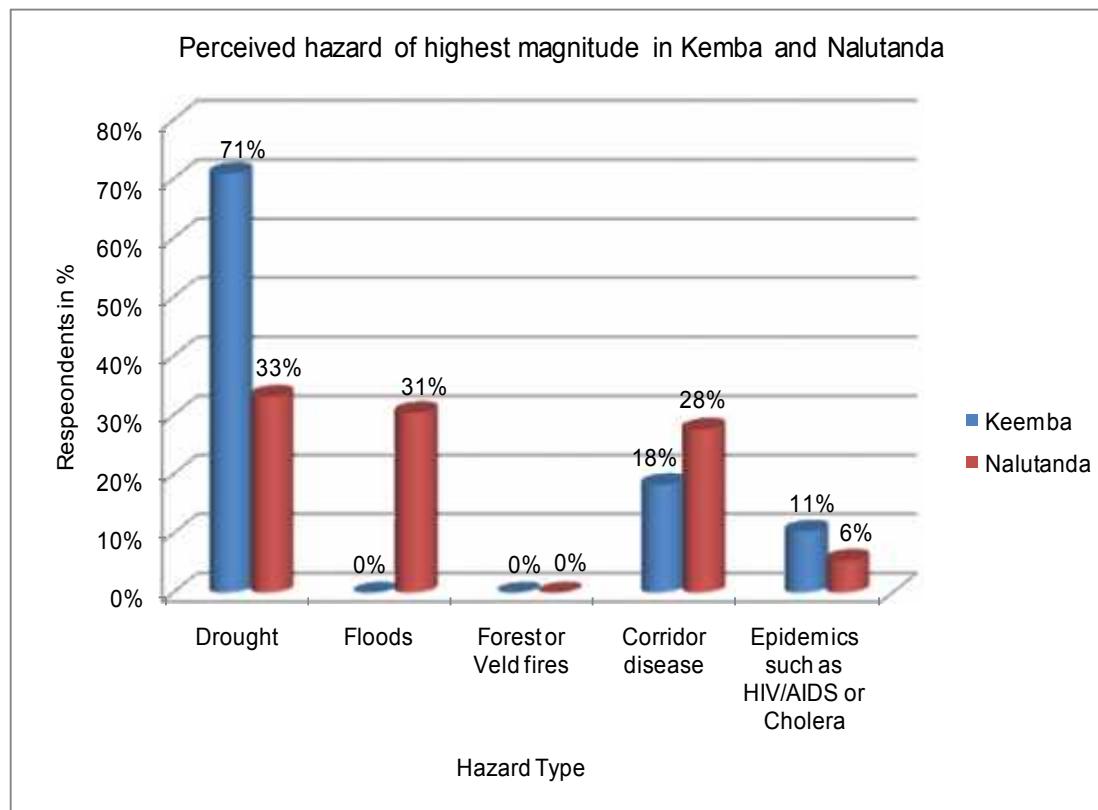


Figure 5.13: Perceived hazard of highest magnitude in Keemba and Nalutanda

5.5.5.3 Enhanced vulnerability awareness capacity

As illustrated in (figure 5.14), 95% of households interviewed in Keemba and 56% percent in Nalutanda regarded the poor in their communities to be more at risk of hazard impacts. The respondents perceived the poor to be more at risk due to their

inadequate means to cope with hazard impacts. Poverty was believed to compound the social vulnerability of those already vulnerable. Again this finding confirmed what others scholars have already found out that the poor tend to be more at risk than those with unlimited access to resources (Wisner *et al*, 2004:50).

This view of the poor being more at risk was more reinforced in Keemba than in Nalutanda even when Keemba was better serviced by developmental projects. This view could suggest that there were more poor people in Keemba despite being serviced by more projects. This finding would further suggest that the volume of the support provided by the seven developmental projects in Keemba was also on the lower side and that targeting was probably not well done as well. The other implication was that the projects had low impact on alleviating poverty let alone enhancing community resilience.

This finding also demonstrated that the community were aware of who was vulnerable, how they were vulnerable and how they were affected by hazards. Based on this indigenous knowledge, the community had inherent capacity to advise project planners on how what project activities to embark on. The community also had capacity to advise planners on how to target their support to the most needy to optimise projects' impact to enhance community resilience.

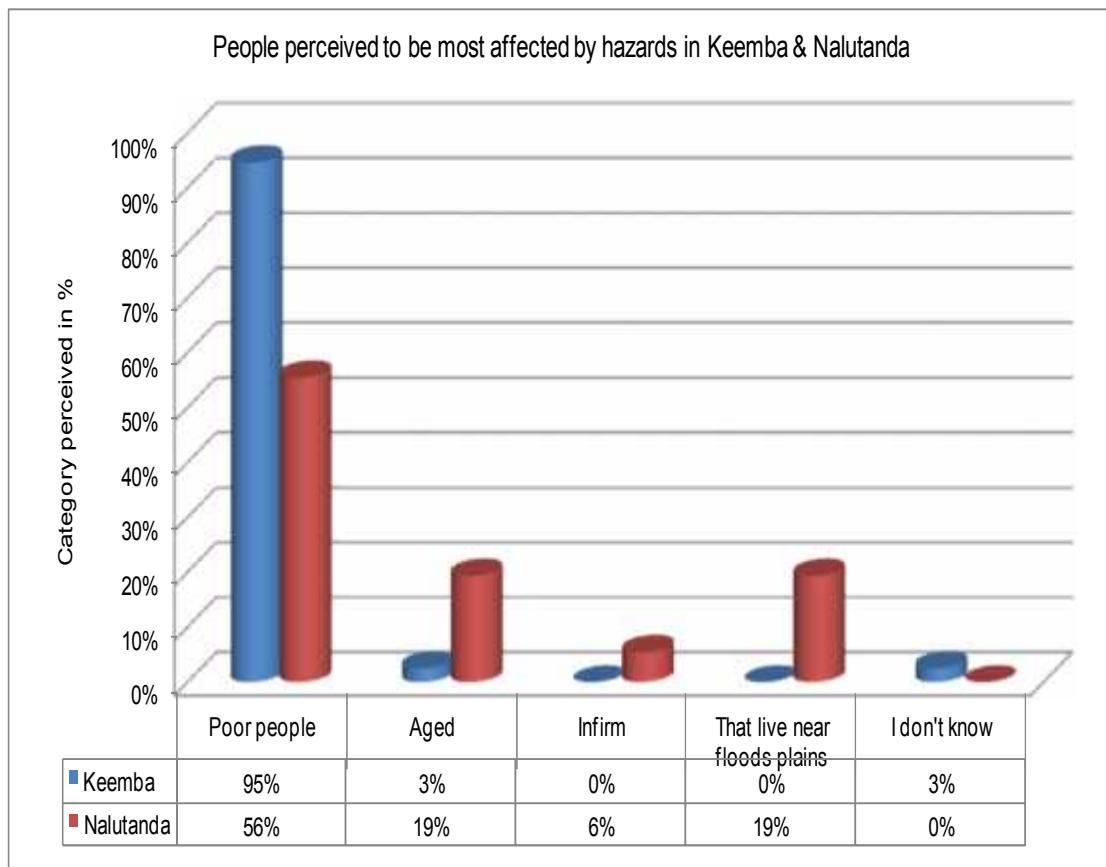


Figure 5.14: Type of people perceived more vulnerable by the respondents

5.5.5.4 Enhanced early warning capacity

As illustrated in (Figure 5.15), both communities had well developed early warning mechanism. The most prominent mechanism was indigenous knowledge in form of experience on hazard manifestation. As already reported during the demographic characteristic, the average age was 49 years and all these respondents were sampled on the basis of having stayed in the area for at least not less than ten years for the study to have quality responses. As such the respondents had enough institutional memory to know the type of hazards that manifested in their areas and how they manage such hazards. Secondly, the respondents recognised weather programmes on radio as another source of early warning information.

Based on the findings there was evidence that this aspect of community resilience was well supported by the developmental projects through radio programming that complemented indigenous knowledge. This initiative was in line with what de Leon (2012:484) had recommended, that developmental practitioners should complement

local indigenous knowledge with external scientific early warning messages for the former to be effective.

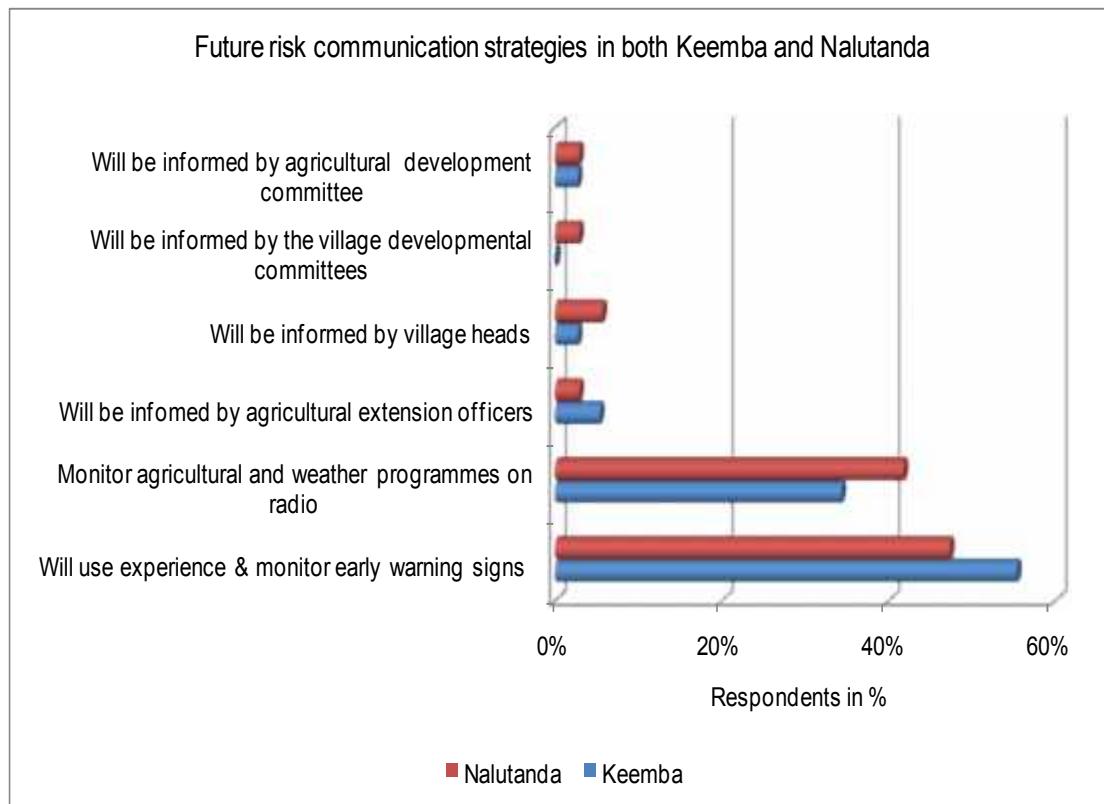


Figure 5.15: Future risk communication strategies

5.5.5.5 Attribution for increased risk awareness capacity

As illustrated in (Figure 5.16), respondents in both communities attributed their increased knowledge in risk awareness levels to:

- (i) a combination of personal experience or indigenous knowledge, and;
- (ii) improved radio reception and programmes in risk information dissemination, on all aspects of hazards. These radio programmes were not agricultural developmental specific but general in developmental issues that included agriculture. These radio programmes focused on hazards as part of day-to-day, sector specific activities including agro meteorological information as part of the national early warning system. Thus, these programmes mainstreamed DRR in their programming unwittingly. Aspects of hazard warnings intensified during the rainy season on issues of epidemics especially cholera prevention. These programmes also discussed the need to plant early to medium maturing crop varieties of maize. They also gave updates on

progression of the seasonal rainfall and other notices like the latest incidence of army worms.

Allowing community radio station to broadcast appropriate information for the local community is good as it provides a parallel dissemination and communication change that ensures that people understand the message, which is crucial for response preparation. Eventually this adds to the enhancing resilience in the long run (de Leon, 2012:484).

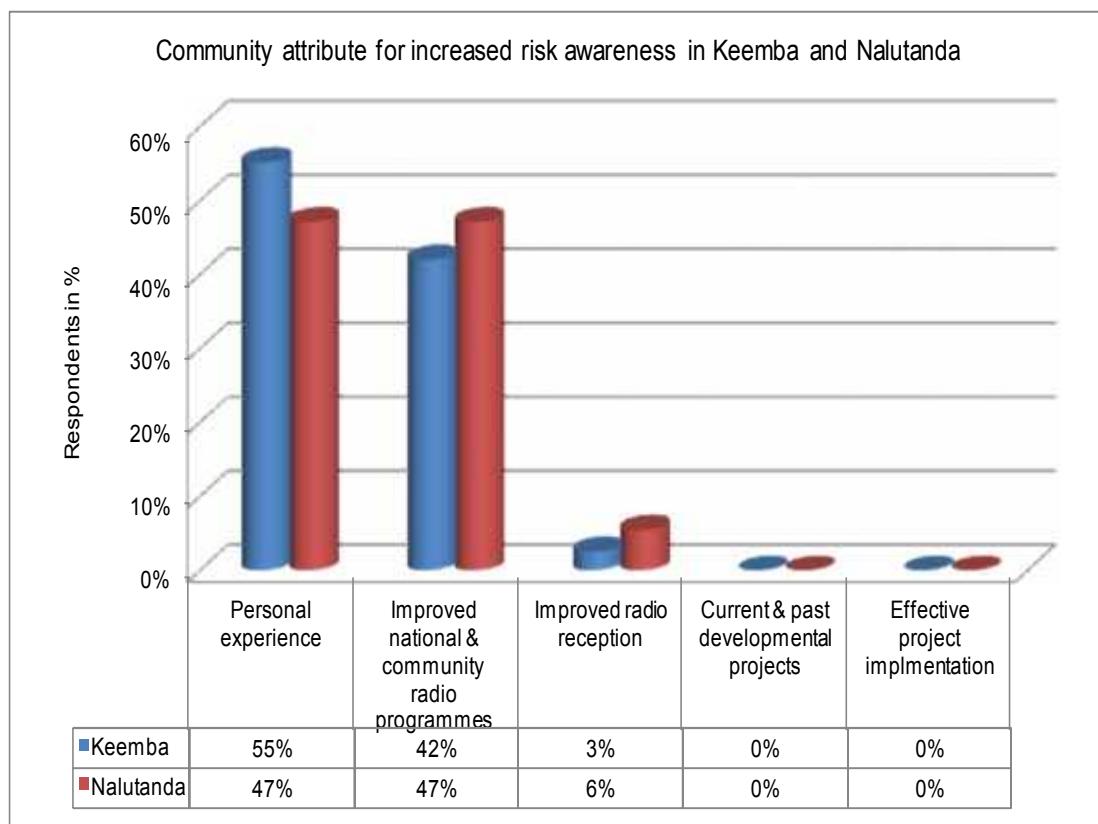


Figure 5.16: Community attribute for increased risk awareness capacity

5.5.6 Political assets as part of community cohesion

5.5.6.1 Community disaster preparedness plan & co-ordinating committees

As illustrated in (Figure 5.17), 97% percent of respondents in Keemba and 86% of the respondents in Nalutanda were not aware of the existence of any disaster management and mitigation committees in their communities.

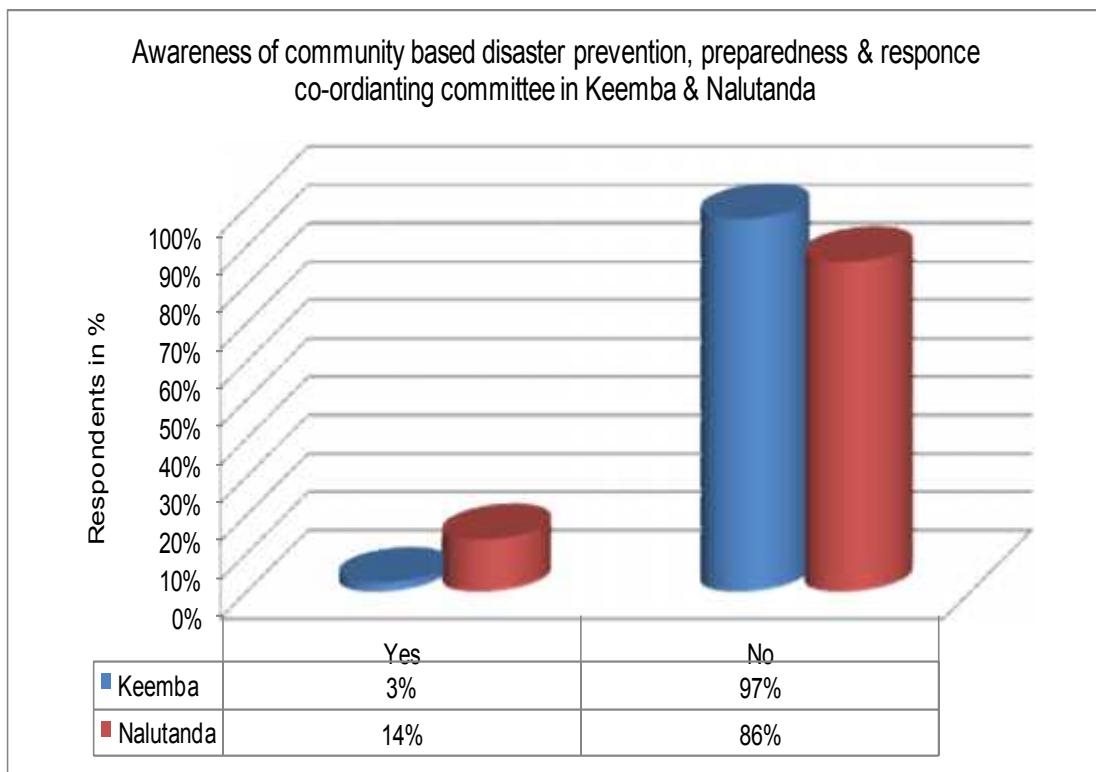


Figure 5.17: Awareness of presence of community disaster management and mitigation committees

Even the 14% of the respondents in Nalutanda that acknowledged knowing the existence of such committees, were referring to other committees that were not necessarily for disaster risk preparedness and response co-ordination. They referred to sector specific developmental co-ordinating committees in health, agriculture and local government to name a few.

This finding shows that the satellite committees as proposed in the Disaster Management Act number 53 of 2010 of the law of Zambia are not formed yet at community level to help co-ordinate risk reduction in Keemba and Nalutanda.

Given these findings, one would have the understanding that communities in Keemba and Nalutanda do not yet have the capacity to demand for disaster risk reduction focused type of developmental interventions from developmental service institutions. The community does not even have a co-ordinated front for lobbying government or other stakeholder for DRR focused developmental projects like in Bangladeshi (Practical Action, 2011). There is no evidence that developmental projects have attempted to build this DRR co-ordination capacity at community level either in Keemba and Nalutanda.

5.5.7 Coping response mechanisms

Respondents in both communities had similar coping mechanisms as illustrated in (Figure 5.18). The coping mechanisms were physical, physiological, social and economical. Of interest was the sale of livestock at relatively lower prices in Keemba during times of adversity as a major coping mechanism compared to Nalutanda. Since Keemba had many developmental projects, one would expect Keemba to have more income and other assets and accumulation of capital compared to Nalutanda. As such, one would further expect people in Keemba to have a wider base of assets and to fall back on those assets to cope with adversity. The fact that they sell off their cattle at very relatively lower price is an indication in itself that they have less alternatives hence easily panic to use the reserves in adversity. This is an indicator of being less resilient compared to Nalutanda with fewer developmental projects.

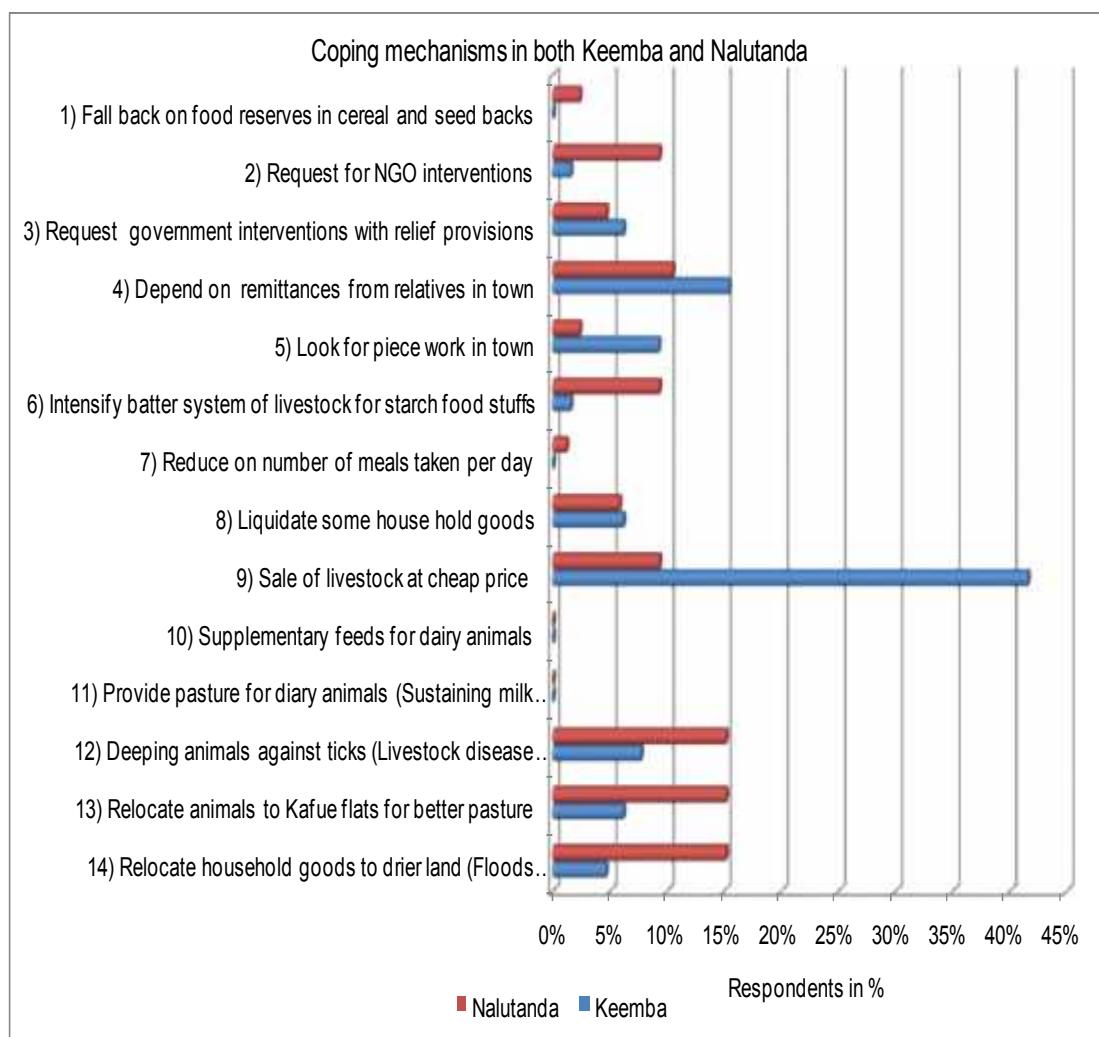


Figure 5.18: Coping response mechanisms

5.5.8 Social assets as part of community cohesion

5.5.8.1 Community willingness to assist other vulnerable members

Eighty two percent of respondents in Keemba did not have an idea of how their community assisted the most vulnerable during times of need. This is compared to only 6% of the respondents in Nalutanda that did not know how their community assisted the most vulnerable during times of adversity as illustrated in (Figure 5.19).

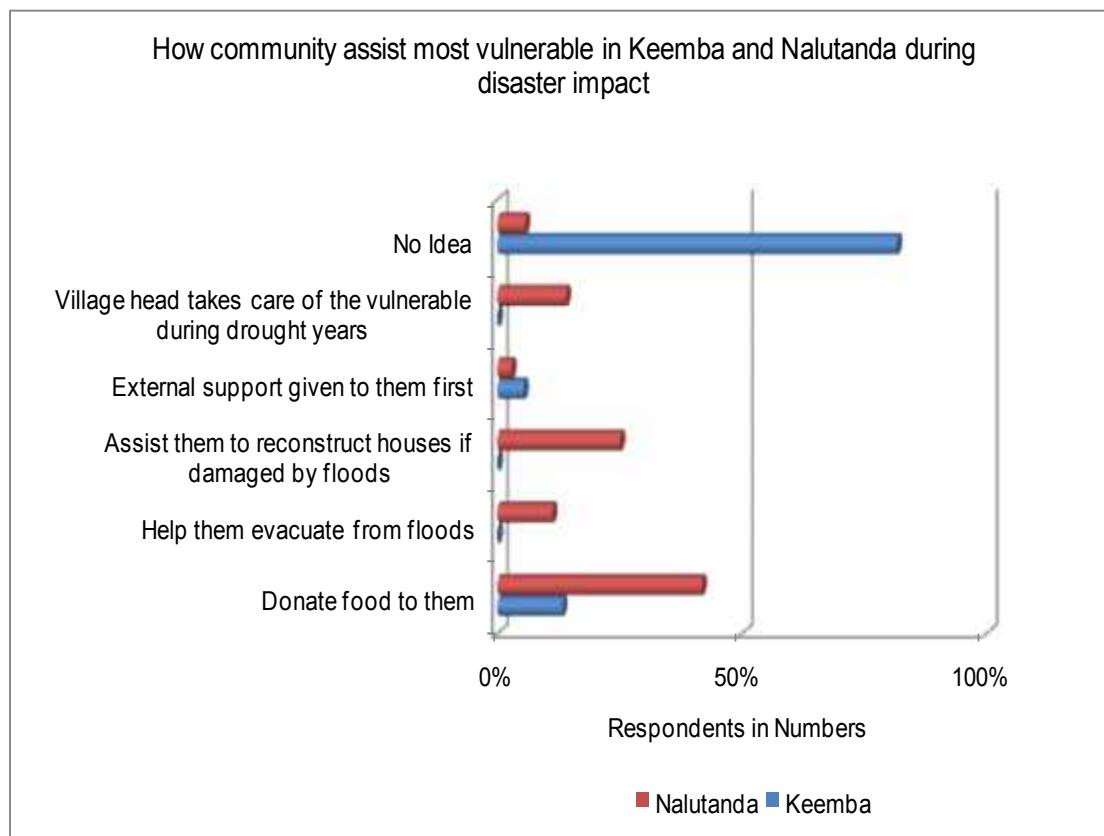


Figure 5.19: How community assist the vulnerable to manage disaster outcomes

The large number of respondents in Keemba that did not know how their community assisted one another during times of need is an indicator of less cohesion among community members. Ideally, community members have an obligation to support others vulnerable members in a more cohesive community. This is in addition to having individual coping mechanism thus self-protection. Community cohesion is a good indicator of community resilience (Centre for Community Enterprise, 2000:18).

Based on the findings, community members in Nalutanda were more supportive of one another's cause. They donated food to the most needy during times of adversity.

They also gave the most vulnerable people first priority to access externally donated food aid. Nalutanda Community further assisted their most vulnerable to evacuate from flood hazards, and assisted the vulnerable to reconstruct houses after flood impact. The village heads assisted by taking care of the most needy during times of drought in various ways as well.

Coupled with fewer widows, one would conclude that Nalutanda Community was more cohesive as far as assisting the needy were concerned and was a more stable community. This is despite it having fewer agricultural development projects. There was no evidence however that agricultural development projects had contributed to this cohesion.

Low voluntarism and coherence in Keemba could be explained by the lack of civic commitment and the rise of individualism that is being exhibited in the world currently especially in urban areas (Wilson, 1997:745). This is possible for Keemba being closer to town than Nalutanda. However, this element was not researched fully to be conclusive. It required a different methodology including cost surface analysis to be conclusive.

5.5.9 Other findings from user perspective

5.5.9.1 Irrigation facilitation

Community members that participated in the focused group discussion did not know of any irrigation developmental activities that were being facilitated by any project in their respective areas, apart from the new initiated government irrigation scheme project at Munyenze, north of Keemba area. This particular project was still under development by the time of finalising this dissertation. Work on this particular project commenced in January 2012. The project was meant to benefit 100 households that lived near the dam and irrigation facility to irrigate their crops and water their livestock.

The impact of the project on improved food security and later on livelihoods and enhancing community resilience was yet to be seen among the would be beneficiaries in the near future.

5.5.9.2 Communal cereal and seed banks

Through focused group discussions (FGD), the community members in both camps did not know this concept. Ironically, the FGD meeting in Nalutanda was held at a marketing / meeting centre that also housed a communal storage facility. This storage facility was constructed by the Programme Against Malnutrition (PAM) NGO in 1994 as part of the communal cereal banking concept. It had capacity to store 2,000 x 50 kg bags or 100 metric tonnes of maize grain.

There was no evidence that any of the current or immediate past agricultural development projects in Nalutanda had oriented the community on the concept of community cereal or seeds bank.

5.5.9.3 WVZ community disaster preparedness planning facilitation

World Vision Zambia (WVZ) Choongo Area Development Project (Choongo ADP) facilitated this practice in Keemba only. Apparently, none of the respondents in Keemba were aware about this concept that was facilitated by WVZ. This view was confirmed and validated during focussed group discussion. WVZ had facilitated this exercise for five years so far since the inception of the Choongo ADP project in 2007 (Mr. Munkombwe, Developmental Facilitator, Agriculture & Food Security, 6th November, 2012). As such, the study expected the respondents to be aware about this plan, considering that it was revised every year. Furthermore, WVZ practiced the bottom-up planning approach to plan their projects. Again none of the 38 participants in the sample survey in Keemba nor those that attended the FGD in Keemba indicated to have been involved or consulted by WVZ Choongo ADP planners when planning the current project.

The FGD was not necessary convened to inquire about WVZ Choongo ADP in particular; it was to discuss all the agricultural development projects that were being implemented in Keemba in general. The question on WVZ facilitation arose due to their annual facilitation for community disaster preparedness planning (CDPP).

5.6 Overall community perception of projects' impact

Based on focused group discussions, most respondents appreciated the government Farmer Input Support Project (FISP) as a poverty alleviation and food security project because it provided them with an opportunity to participate and receive the subsidised

fertilisers. This finding was supported by the sample survey results as can be seen in (Figure 5.20). Since the communities defined resilience from the perspective of inadequacy means by individual households to meet daily food needs, coupled with inadequacy means to meet other cash needs, the communities were of the view that the FISP helped them to grow the maize crop for own food requirements and to sell surplus to raise cash. Communities' further views were that, this project also guaranteed them a market and a good market price for their maize outputs, thus highly regarded from this perspective. The problem with this project in their view however, was that it provided limited support to individual households in terms of pack size. The project only supported households to grow a quarter of a hectare of maize to be used for both food and cash. Thus this project support, only guaranteed production of close to one metric tonne of maize grain in a season that was only enough for household food needs.

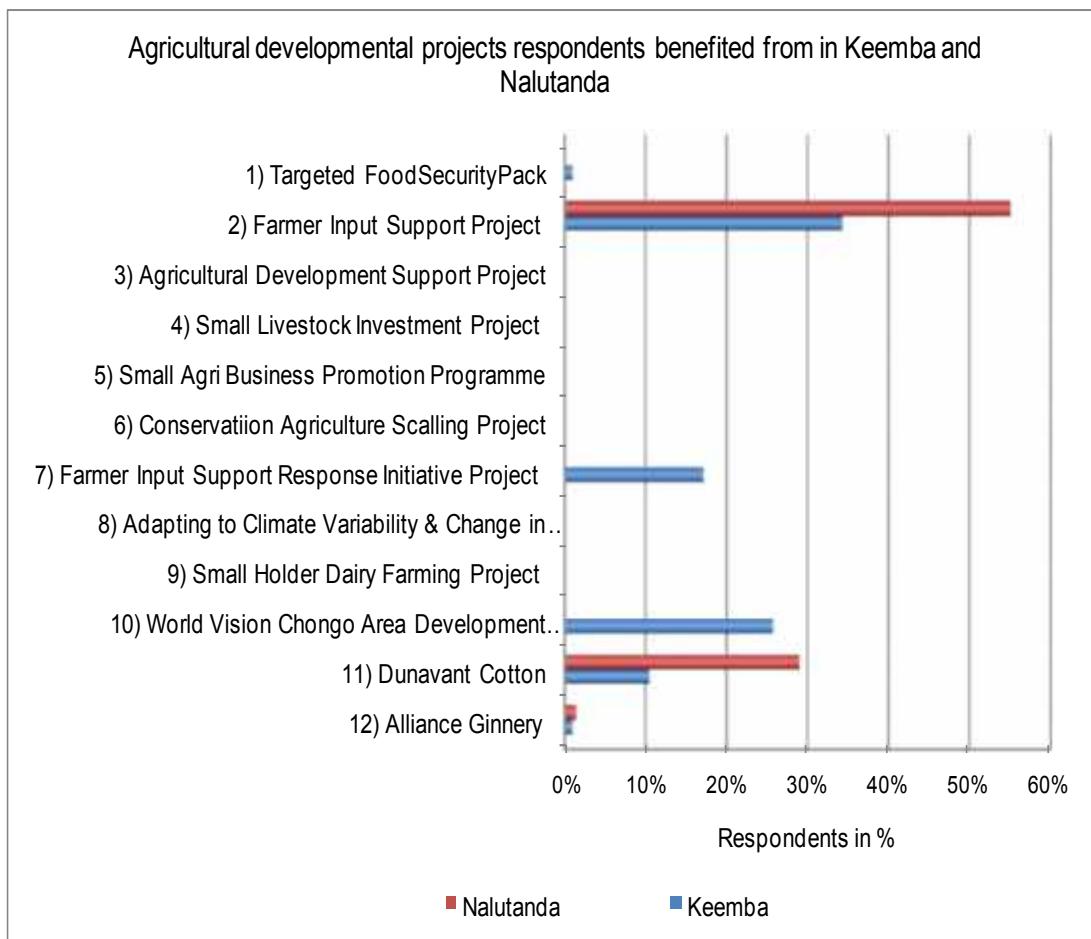


Figure 5.20: Actual projects that respondents benefited from in Keemba and Nalutanda

5.7 Conclusion

This chapter presented the study findings and discussions. The findings were from two perspectives: the planner and the user.

Since Keemba Community had more agricultural development projects, the study assumed that this community had more resilient capacity compared to Nalutanda with fewer developmental projects. This was with respect to all elements of community resilience analysed in the study. In summary the findings and discussions are tabulated below:

5.7.1 Six sustainable livelihoods assets analysed and discussed from end user perceptive

- The quality of sustainable livelihoods assets and community risk governance capacity in Keemba was not superior to that of Nalutanda contrary to the expectation. Community members in Nalutanda had more livestock reserves than in Keemba that had more developmental projects. Thus Nalutanda Community members with less developmental projects had more reserves that could be used for long term coping and recovery than in Keemba.
- Respondents in both communities had very low per capita income and reserves implying that poverty levels were very high in both camps. This interesting finding confirms what scholars have argued that poverty and vulnerability are not the same concepts. Nalutanda community members are relatively, more resilient compared to Keemba based on measures of community resilience, but are still poor by analysis of poverty just like in Keemba.
- Respondents in both communities were not aware about the existence of community disaster preparedness committees in their respective areas. Therefore, these communities could be described as lacking capacity to demand for DRR inclined developmental projects from the authorities.
- Respondents in both areas had good access to good radio reception and thus good access to national early warning information systems on agro-meteorological, pest infestation incidences and information on epidemic disease preventions.
- Despite having similar characteristics in many aspects of livelihood assets, Nalutanda was better organised as far as response and community volunteerism was concerned.

- Respondents in both communities did not associate their levels of resilience capacity to the effect of the current or past projects but indigenous knowledge.
- Respondents in both camps were affected by similar hazards in the same years, and both communities were very much aware of how vulnerability manifested and how it could be addressed if consulted. The communities' members were therefore a good resource on their own to better guide project planning and targeting, but were less involved in the whole planning process, implementation, monitoring and evaluation.
- Respondents in both communities defined resilience as inadequate access to adequate food and other basic needs for survival and '*proper living*'. They defined resilience and vulnerability descriptively as they had no single word in the local language to describe each of the two terms.

5.7.2 Effectiveness of project planning & implementation from planners' perspective

- Ten out of twelve agricultural development projects were centrally planned in Lusaka, apart from the WVZ Choongo Area Developmental Project (WVZ Choongo ADP); and the Monze Smallholder Dairy Improvement Project.
- Subsequently all the other ten projects were planned using the top-down planning approach.
- Implementation co-ordination of the other ten developmental projects was also done at Lusaka, national level.
- The researcher did not access any of the twelve developmental projects' documents for over a period of seven months. This was due to extended bureaucratic procedures to obtain authority from respective implementing organisations' Directors.
- The District Disaster Management Committee (DDMC) was not very effective at championing DRR mainstreaming issues into all developmental projects, as they had no control or say on how these projects were designed and implemented at national and local level. Since the projects were designed at national level, it implied that superiors to line ministry's district staff designed these projects. Based on protocol, the district officers could not challenge their superiors from head office on project planning and implementation.

- Even though the community did not attribute their inherent and enhanced resilience to the current agricultural development projects, these projects could have had an impact on enhancing basic survival, but basic survival was not enough to afford the communities to bounce forward after disaster impact. The communities needed more support even in terms of policy and ideological pronouncement because the problems with the design process for these projects were not just technical but ideological as well as policy oriented. Thus, the problem was based on transforming structures in the sustainable livelihood model (SL) model used to analyse resilience in this study.
- Based on the results of the study using the sample survey, it is further clear that both communities had inherent resilience but that this resilience was ignored to some extent by planners of centrally planned, designed and co-ordinated developmental projects. These projects did not address community inherent capacity to enhance community resilience in terms of communities' major sources of income.
- Technically, the projects did not promote critical activities such as irrigation activities; real crop diversification; restocking nor micro financing; or cereal/seed bank promotion that could help the communities enhance their livelihoods. Neither did the projects help reorganise community based disaster risk reduction co-ordinating committees. There was also no evidence that disaster risk assessments were undertaken prior to projects' design.
- The projects partly addressed the major sources of livelihoods, which was crop farming and livestock rearing but still over emphasised and promoted crop maize production for food as well as cash at expense of other critical livelihood sources.
- At macro level, the national budgetary allocation to subsidise maize production and marketing was so high, but this support translated into very little packs for the individual households to have impact to enhance community resilience.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

The previous chapter presented and discussed the research findings. This chapter concludes the study, highlights the summary of contributions and makes suggestions for further research.

6.2 Conclusion

The aim of this study was to analyse why social vulnerability among people at risk in Monze was still high despite the prevailing many agricultural development projects being implemented. Thus, the study analysed how agricultural development projects were designed and implemented to enhance community resilience. The study also assessed actual resilience of two communities and compared resilience of one of the two communities that had many developmental projects implemented with another that had less.

The overall study assumption was that the developmental projects did not effectively contribute to increasing community resilience because the projects were poorly designed and implemented. Poorly designed projects were those that did not mainstream DRR into them to increase resilience over and above what already prevailed in the two communities. To measure this hypothesis, the second assumption was that community resilience levels in Keemba were more than in Nalutanda that had fewer developmental projects.

In this way, the study attempted to discount poor project design and implementation as not the cause of increased social vulnerability if Keemba Community, with more developmental projects had more enhanced resilience compared to Nalutanda with fewer developmental projects. However, if the resilience levels in Keemba that had more developmental projects were lower or similar to that of Nalutanda, then the projects had less impact at enhancing community resilience. If the later were the findings, then the study would conclude that poor design and implementation could have been the contribution factor for the projects not to have enhanced community resilience.

Community resilience could not be measured directly but indirectly: by assessing actual resilience capacity in a community; coupled with other project impact assessment reports. Hence the adoption of the mixed methods approach to undertake this study. The study therefore analysed proper project design, implementation and subsequent project contribution to enhance community resilience from two perspectives: the planner and the user. A sample survey research methodology was therefore used to undertake the study from a user perspective to: (i) analyse proper designing of projects and (ii) analyse contribution of the developmental projects towards increased community resilience capacity in the two sampled communities in Monze. Content analysis was also used to complement sample survey methodology to analyse project documents from a planner's perspective.

The summary of findings were that the community in Nalutanda camp with less agricultural development projects being implemented in the area, had better resilience capacity than Keemba that had more developmental projects. This finding implied that the many agricultural development projects in Keemba had no much impact at enhancing community resilience in the area. Low project impact to enhance community resilience in Keemba could be associated with poor project planning and implementation that did not address community resilience in full despite the increased conceptual knowledge among developmental practitioners on how to mainstream DRR.

In the final analysis, the developmental projects being implemented in Monze can be described as not effective at enhancing community resilience among people at risk, due to their poor design and implementation. These projects are therefore not very relevant to enhancing community resilience in their current state. These projects need to be relooked at if they are to be more relevant. Developmental practitioners need to redesign these developmental projects by mainstreaming DRR in them if the projects are to be more relevant to enhance community resilience.

The major weakness with the current projects from user perspective is that the projects "*promises too much but delivers so little*". The projects give very high expectations to the people at risk to help address their low productivity problems through increased productivity and thus increase their resilience. The people at risk

are actually on their own in terms of finding means of survival and to increase their resilience but need to be informed through policy pronouncement to fend for themselves and not depend on the projects for increased productivity and resilience.

Though controversial as it may sound, it would be better not to implement these agricultural development projects in their current social welfare form, but to commercialise them and make them demand driven.

6.3 Summary of contributions toward DRR policy debate in Zambia

From a user perspective, the study has shown that DRR is not yet fully incorporated into non-emergency agricultural development projects in Monze. This can be generalised for all other agricultural development projects being implemented in other parts of Zambia except for projects that exclusively focus on DRR.

Based on the major limitation faced by this study, access to design, implementation, monitoring and evaluation documents/reports for public agricultural development projects' is a challenge in Zambia. It is likely that this hindrance has made other independent scholarly evaluation of existing developmental projects for DRR to be very difficult.

6.4 Recommendations

- Agriculture still plays an important role in sustaining people's livelihoods in Monze and can still play a leading role in enhancing community resilience, but developmental project planning and implementation process needs to be streamlined in real sense to involve the community in a more practical way.
- Government should come up with guidelines on how agricultural development projects should be designed to mainstream disaster risk reduction to benefit the poor and socially vulnerable communities. The guidelines need not be very detailed, but should provide outlines of the alternative frameworks preferred for project planning in Zambia. If such guidelines exist, then they have not been disseminated or publicised.
- The District Disaster Management Committees (DDMC) should be proactive at constituting community satellite disaster management committees whose capacity in DRR monitoring and lobbying should be enhanced as well.

- Government should develop policy guidelines on how the public can access national or locally planned, and implemented agricultural development projects' documents to review. The public should have the liberty to access these public project documents without any restraint from the officers or planners or implementers. This is so considering that these are public projects financed with public funds. The public should have the liberty to study these developmental project documents and make informed contribution on how to improve DRR programming. Not all officers in public offices are experts in DRR. The officers can therefore benefit from the expertise of private citizens and other stakeholders that are not in government.

6.5 Suggestions for further research

A baseline study on community resilience has been done for Monze in these two agricultural camps but in a non-disaster year. A longitudinal study of the sampled households and communities can therefore be done in future to assess how these households and communities would have responded to the actual disaster impacts vis-a-vis their current resilience levels. This should be done to test their future resilience against actual disaster impact and how their resilience could have improved by then.

Considering that farmers considered drought and livestock diseases as major hazards that affected their livelihoods, a case study to document detailed impact of these hazards on poverty and resilience can be done. Results from such a study could help contribute to finding better ways of enhancing disaster resilience at community level in Zambia.

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8. APPENDIX

Annex 1: Community Resilience Assessment Questionnaire

Questionnaire No: _____

Thank you for your help and time for me to learn about how agricultural development projects are designed and implemented by developmental practitioners, and how these projects contribute towards disaster resilience building in your community.

This assessment is part of a study by the University of the Free State in Bloemfontein South Africa pursuing academic research in Zambia to gain a better understanding about agricultural development projects and disaster risk reduction in Monze District. Anything that you say during this interview will remain confidential, and will be used for research purposes only. This assessment may take a couple of hours to complete and I would be so grateful to learn from you.

Date of Interview ____ / ____ /2012 Name of Interviewer _____

PARTICIPANT BACKGROUND INFORMATION		
Chiefdom <input type="text"/>	Name of Agricultural Camp <input type="text"/>	
Name of Village/Farm/Plot/Resident <input type="text"/>	Year Established <input type="text"/>	
Name of Respondent: <input type="text"/>	Relationship to Head of Household: (Choose number from List) 1.Wife/Husband 2. Brother/Sister/ Cousin 3.Son/Daughter 4.Nephew/Niece 5.Parent / Parent-in-law / Uncle / Aunt 6.Grandchild 7. Household Head	
Name of Household Head <input type="text"/>	Age of Household Head: <input type="text"/>	
Gender: <input type="text"/>	Marital Status: 1. Married 2.Divorced 3.Single 4.Widowed/widower (Choose answer) <input type="text"/>	
Family Size <input type="text"/>		
Highest level of education attended by head of household? <input type="text"/>	1. Primary 2. Secondary 3. Tertiary 4. No formal education attended <input type="text"/>	

**INCREASING COMMUNITY CAPACITY TO INCREASE SUSTAINABLE LIVELIHOODS
ASSETS**

<p>1. What type of livelihood sources are members of the household involved in? (Tick Yes or No)</p>	Tick <input checked="" type="checkbox"/>																												
	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">Livelihood sources</th> <th style="width: 25%;">Yes</th> <th style="width: 25%;">No</th> </tr> </thead> <tbody> <tr><td>1) Mixed farming</td><td>Yes</td><td>No</td></tr> <tr><td>2) Diary & Livestock Farming</td><td>Yes</td><td>No</td></tr> <tr><td>3) Crop farming only</td><td>Yes</td><td>No</td></tr> <tr><td>4) Formal contract work</td><td>Yes</td><td>No</td></tr> <tr><td>5) Piece work</td><td>Yes</td><td>No</td></tr> <tr><td>6) Beer brewing</td><td>Yes</td><td>No</td></tr> <tr><td>7) Charcoal Burning</td><td>Yes</td><td>No</td></tr> <tr><td>8) Other Specify</td><td>Yes</td><td>No</td></tr> </tbody> </table>		Livelihood sources	Yes	No	1) Mixed farming	Yes	No	2) Diary & Livestock Farming	Yes	No	3) Crop farming only	Yes	No	4) Formal contract work	Yes	No	5) Piece work	Yes	No	6) Beer brewing	Yes	No	7) Charcoal Burning	Yes	No	8) Other Specify	Yes	No
	Livelihood sources	Yes	No																										
	1) Mixed farming	Yes	No																										
	2) Diary & Livestock Farming	Yes	No																										
	3) Crop farming only	Yes	No																										
	4) Formal contract work	Yes	No																										
	5) Piece work	Yes	No																										
	6) Beer brewing	Yes	No																										
7) Charcoal Burning	Yes	No																											
8) Other Specify	Yes	No																											
<p>2. How many livestock does your household have ?</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 5%;">Livestock</th> <th style="width: 25%;">Number</th> </tr> </thead> <tbody> <tr><td>1) Dairy cattle</td><td></td></tr> <tr><td>2) Beef cattle and oxen</td><td></td></tr> <tr><td>3) Goats & sheep</td><td></td></tr> <tr><td>4) Pigs</td><td></td></tr> <tr><td>5) Donkey</td><td></td></tr> <tr><td>6) Chicken/Ducks/ Guinea Fowls</td><td></td></tr> <tr><td>7) Doves</td><td></td></tr> <tr><td>8) Other Specify:</td><td></td></tr> </tbody> </table>		Livestock	Number	1) Dairy cattle		2) Beef cattle and oxen		3) Goats & sheep		4) Pigs		5) Donkey		6) Chicken/Ducks/ Guinea Fowls		7) Doves		8) Other Specify:										
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<p>3. What method best describes how you acquired the livestock you have?</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tbody> <tr><td>1) Given by project as soft loan</td><td></td></tr> <tr><td>2) Bought from own savings</td><td></td></tr> <tr><td>3) Received as pass on from other project beneficiaries</td><td></td></tr> <tr><td>4) Inherited from parents</td><td></td></tr> <tr><td>5) Barter system using crops outputs or other means</td><td></td></tr> </tbody> </table>		1) Given by project as soft loan		2) Bought from own savings		3) Received as pass on from other project beneficiaries		4) Inherited from parents		5) Barter system using crops outputs or other means																		
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4. How would you rate your livestock numbers in general the last 10 years?	<p>1) Increased</p> <p>2) Decreased</p> <p>3) Static</p>	<input type="checkbox"/>
5. What do you attribute your answer in Q4 above to?	<p>1) Own effort (hard work)</p> <p>2) Good external support from Vet Dept & other agric projects</p> <p>3) Normal livestock multiplication</p> <p>4) High prevalence of livestock disease outbreaks</p> <p>5) High incidences of stock theft</p> <p>6) Other Specify</p>	<input type="checkbox"/>
6. Does your cattle produce any milk for sale?	<p>1) Yes</p> <p>2) No</p> <p>3) Not applicable - Don't have any</p>	<input type="checkbox"/>
7. How much revenue do you make per year from sale of milk?	<p>1 Below K100,000</p> <p>2 K100,001 to 500,000</p> <p>3 K500,001 to 1000,000</p> <p>3 K1000,000 to 1,500,000</p> <p>4 K1,500,001 to 2,000,0000</p> <p>5 Above K2,000,000</p>	<input type="checkbox"/>
8. How would you rate your income from milk in the last 10 years?	<p>1) Increasing</p> <p>2) Decreasing</p> <p>3) Static</p>	<input type="checkbox"/>
9. If increased or decreased, what would do you attribute your answer in 8 to?	<p>1) Good marketing arrangements through parmalat</p> <p>2) High demand for milk and price incentives</p> <p>3) High prevalence of livestock disease outbreaks</p> <p>4) High incidences of stock theft</p> <p>5) Lack of pasture and supplementary feeds during dry season</p> <p>6) Poor pasture due to recurrent droughts</p> <p>7) Lack of good demand for milk locally</p> <p>8) Lack of refrigeration facilities</p>	<input type="checkbox"/>

	<table border="1"> <tr><td>9</td><td>Declining quality of grazing lands</td></tr> <tr><td>10</td><td>Other</td></tr> </table>	9	Declining quality of grazing lands	10	Other																			
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10	Other																							
10. Apart from sale of milk, what is the other major source of cash income for your household in a year?	<table border="1"> <tr><td>1)</td><td>Field Crops sales</td></tr> <tr><td>2)</td><td>Vegetable crop sales</td></tr> <tr><td>3)</td><td>Livestock sales</td></tr> <tr><td>4)</td><td>Petty trading</td></tr> <tr><td>5)</td><td>Contract work/Formal employment</td></tr> <tr><td>6)</td><td>Remittances</td></tr> <tr><td>7)</td><td>Pension</td></tr> <tr><td>8)</td><td>Social grants</td></tr> <tr><td>9)</td><td>Pension</td></tr> <tr><td>10)</td><td>Other Specify:</td></tr> <tr><td>11)</td><td>No source of cash income</td></tr> </table>	1)	Field Crops sales	2)	Vegetable crop sales	3)	Livestock sales	4)	Petty trading	5)	Contract work/Formal employment	6)	Remittances	7)	Pension	8)	Social grants	9)	Pension	10)	Other Specify:	11)	No source of cash income	
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11. Can you estimate how much total income your household makes per year from the major source mentioned above?	<table border="1"> <tr><td>1)</td><td>Below K100,000</td></tr> <tr><td>2)</td><td>100,001 to 500,000</td></tr> <tr><td>3)</td><td>500,001 to 1000,000</td></tr> <tr><td>4)</td><td>1000,000 to 1,500,000</td></tr> <tr><td>5)</td><td>1,500,001 to 2,000,0000</td></tr> <tr><td>6)</td><td>Above 2,000,000</td></tr> </table>	1)	Below K100,000	2)	100,001 to 500,000	3)	500,001 to 1000,000	4)	1000,000 to 1,500,000	5)	1,500,001 to 2,000,0000	6)	Above 2,000,000											
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12. Do you own the farm you are staying on?	<table border="1"> <tr><td>1)</td><td>Yes</td></tr> <tr><td>2)</td><td>No</td></tr> </table>	1)	Yes	2)	No																			
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13. How big is your land where you can cultivate crops?	<table border="1"> <tr><td>1)</td><td>0 – 2.5 ha</td></tr> <tr><td>2)</td><td>2.6 -5 ha</td></tr> <tr><td>3)</td><td>5.1 – 10 ha</td></tr> <tr><td>4)</td><td>Above 10 ha</td></tr> </table>	1)	0 – 2.5 ha	2)	2.6 -5 ha	3)	5.1 – 10 ha	4)	Above 10 ha															
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14. Is land on your farm adequate for your field crop farming activities?	<table border="1"> <tr><td>1)</td><td>Yes</td></tr> <tr><td>2)</td><td>No</td></tr> </table>	1)	Yes	2)	No																			
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15. Do you have enough labour to	<table border="1"> <tr><td>1)</td><td>Yes</td></tr> </table>	1)	Yes																					
1)	Yes																							

cultivate crops on your farm?	2) No	
16. Do you have access to irrigation facilities during a normal year?	1) Yes 2) No	<input type="checkbox"/>
17. Do you have access to irrigation during drought year	1) Yes 2) No	<input type="checkbox"/>
18. Do you practice market gardening?	1) Yes 2) No	<input type="checkbox"/>
19. Do you have enough grazing land for your animals in a non-drought or flood year?	1) Yes 2) No	<input type="checkbox"/>
20. Do you have good access to grazing land during drought or flood years?	1) Yes 2) No	<input type="checkbox"/>
21. Do you have access to livestock dipping facilities drought and flood years?	1) Yes 2) No	<input type="checkbox"/>
22. Do you have access to veterinary services during drought and flooding seasons?	1) Yes 2) No	<input type="checkbox"/>

RISK AWARENESS CAPACITY

23. What type of disasters have affected your household in the last 20 years whilst staying in this area? (Tick all that apply)

Types Disasters		Yes	No
1) Drought		Yes	No
2) Floods		Yes	No
3) Forest or Veld fires		Yes	No

	<table border="1"> <tbody> <tr><td>4)</td><td>Shack fires</td><td>Yes</td><td>No</td></tr> <tr><td>5)</td><td>Corridor Disease</td><td>Yes</td><td>No</td></tr> <tr><td>6)</td><td>Road and other accidents</td><td>Yes</td><td>No</td></tr> <tr><td>7)</td><td>Epidemics such as HIV/AIDS or Cholera or Dysentery</td><td>Yes</td><td>No</td></tr> <tr><td>8)</td><td>Other: Specify</td><td>Yes</td><td>No</td></tr> </tbody> </table>	4)	Shack fires	Yes	No	5)	Corridor Disease	Yes	No	6)	Road and other accidents	Yes	No	7)	Epidemics such as HIV/AIDS or Cholera or Dysentery	Yes	No	8)	Other: Specify	Yes	No						
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24. What caused these disasters in your view?	<p style="text-align: right;">.Tick</p> <table border="1"> <tbody> <tr><td>1)</td><td>Corresponding hazards (poor rainfall, too much rainfall)</td><td></td></tr> <tr><td>2)</td><td>In adequate veterinary support services (inadequate dipping, inadequate vaccination)</td><td></td></tr> <tr><td>3)</td><td>Lack of livestock vaccination</td><td></td></tr> <tr><td>4)</td><td>Poverty</td><td></td></tr> <tr><td>5)</td><td>Low coping capacity / Low resilience</td><td></td></tr> <tr><td>6)</td><td>High exposure to hazards impacts</td><td></td></tr> <tr><td>7)</td><td>Other</td><td></td></tr> </tbody> </table>			1)	Corresponding hazards (poor rainfall, too much rainfall)		2)	In adequate veterinary support services (inadequate dipping, inadequate vaccination)		3)	Lack of livestock vaccination		4)	Poverty		5)	Low coping capacity / Low resilience		6)	High exposure to hazards impacts		7)	Other				
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25. Which one do you consider most the most dangerous disaster in your area?	<table border="1"> <tbody> <tr><td>1)</td><td>Drought</td><td></td></tr> <tr><td>2)</td><td>Floods</td><td></td></tr> <tr><td>3)</td><td>Forest fires</td><td></td></tr> <tr><td>4)</td><td>Shack fires</td><td></td></tr> <tr><td>5)</td><td>Denkete (Corridor Disease)</td><td></td></tr> <tr><td>6)</td><td>Road and other accidents</td><td></td></tr> <tr><td>7)</td><td>Epidemics such as HIV/AIDS or Cholera or Dysentery</td><td></td></tr> <tr><td>8)</td><td>Other: Specify</td><td></td></tr> </tbody> </table>			1)	Drought		2)	Floods		3)	Forest fires		4)	Shack fires		5)	Denkete (Corridor Disease)		6)	Road and other accidents		7)	Epidemics such as HIV/AIDS or Cholera or Dysentery		8)	Other: Specify	
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26. Why do you consider the disaster above as the most dangerous to your community?	<table border="1"> <tbody> <tr><td>1)</td><td>Affects many people</td><td></td></tr> <tr><td>2)</td><td>Impact last longer</td><td></td></tr> <tr><td>3)</td><td>Affects our most important source of food (livelihoods)</td><td></td></tr> <tr><td>4)</td><td>Difficult to manage with own resources</td><td></td></tr> <tr><td>5)</td><td>Other Specify:</td><td></td></tr> </tbody> </table>			1)	Affects many people		2)	Impact last longer		3)	Affects our most important source of food (livelihoods)		4)	Difficult to manage with own resources		5)	Other Specify:										
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27. What livelihoods are mostly affected by these disasters in your community?	<p style="text-align: right;">.Tick</p> <table border="1"> <tbody> <tr><td>1)</td><td>Food crop outputs / production</td><td></td></tr> <tr><td>2)</td><td>Cash crop outputs</td><td></td></tr> <tr><td>3)</td><td>Water for drinking</td><td></td></tr> </tbody> </table>			1)	Food crop outputs / production		2)	Cash crop outputs		3)	Water for drinking																
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4)	Pasture for animals		
5)	Milk production		
6)	Houses		
7)	Other Specify:		

SOCIAL VULNERABILITY AWARENESS

28. Whom do you consider the most exposed people to these disasters in your community (Most Vulnerable)?

- | | | |
|---|---|--------------------------|
| 1 | Poor people | <input type="checkbox"/> |
| 2 | Aged | <input type="checkbox"/> |
| 3 | Infirm | <input type="checkbox"/> |
| 4 | Those that live near flood plains | <input type="checkbox"/> |
| 5 | Those that live near mountainous places | <input type="checkbox"/> |
| 9 | I don't know | <input type="checkbox"/> |

29. How does the community assist the most vulnerable during times of adversity?

Tick

- | | | |
|---|--|--------------------------|
| 1 | Donations of food | <input type="checkbox"/> |
| 2 | Help them evacuate from floods | <input type="checkbox"/> |
| 3 | Assist them to reconstruct houses if damaged by floods | <input type="checkbox"/> |
| 4 | Community gives them preference to be assisted first by externally generated support | <input type="checkbox"/> |
| 5 | Village head men takes care of them during drought years | <input type="checkbox"/> |
| 9 | I don't know | <input type="checkbox"/> |

30. How do you rank community willingness to assistance the most vulnerable now, compared to five and ten years ago?

- | | | |
|----|--------------------------------|--------------------------|
| 1) | Increased | <input type="checkbox"/> |
| 2) | Decreased | <input type="checkbox"/> |
| 3) | Not increased (Static or Same) | <input type="checkbox"/> |

RESPONSE PREPAREDNESS CAPACITY (COMMUNITY EARLY WARNING & RISK GOVERNANCE)

31. How will you be made aware as a household and community of any impending disasters next year in case you have a drought, flood or an outbreak of livestock diseases for cattle?

		Yes	No
1	Will know about it through observations & experience (indigenous knowledge)	<input type="checkbox"/>	<input type="checkbox"/>
2	Will monitor agricultural and weather programmes on radio	<input type="checkbox"/>	<input type="checkbox"/>

	3	Informed by agricultural extension officers	Yes	No
	4	Informed by the village headmen	Yes	No
	5	Informed by the village/area developmental committees	Yes	No
	6	Will be informed by the agricultural developmental committee	Yes	No
32. Do you know of any committee that co-ordinate disaster preparedness, response and recovery in your community?	1	Yes		
	2	No		
	9	I don't know		
33. If yes to 32 what is it the name of the committee called?				
34. How does the committee disseminate information about impending disaster?	1	Through village head men	Tick	
	2	Through lead farmers		
	3	Through public meetings/gatherings		
	4	Through churches, schools and clinics		
	5	By publishing leaf lets		
	6	Through community radio		
	7	Other: Specify		
35. How does the committee help your community to prepare, prevent and respond to disasters?	1	Encouraging communities members to attend public meetings to discuss developmental issues in general	Tick	
	2	Encourage crop diversification		
	3	Encourage food and seed savings		
	4	I don't know		
36. How does the committee mobilise the community to respond to hazard?	1	Though churches	Tick	
	2	Through schools		
	3	Through health centres		
	4	Other public gatherings specify:		

37. How do you rate your level of knowledge about potential occurrence of disasters of drought /flood /livestock diseases and HIV now compared to five years ago?

1	Increased
2	Decreased
3	Not increased (Static or Same)

38. What do you attribute your answer in 37 to?

1	Personal experience	Yes	No
2	Improved national & community radio programmes	Yes	No
3	Improved radio reception	Yes	No
4	Improved telecommunication	Yes	No
5	Current and past developmental projects	Yes	No
5	Effective developmental programmes and projects implementation (Give examples if it is 5)	Yes	No

COPING CAPACITY – (USE OF INDIGENOUS KNOWLEDGE & ASSETS TO COPE)

39. In future how will you respond to drought, flood and disease outbreak using own resources in case any of these occurs next year?

	Physically			
1	Relocate household goods to drier land (In case of flood)	Yes	No	
2	Relocate animals to Kafue flats where there is better pasture (in case of drought)	Yes	No	
3	Dipping animals against ticks (Livestock disease prevention)	Yes	No	
4	Provide pasture for dairy animals (Sustaining milk production)	Yes	No	
5	Provide supplementary feeds for dairy animals (this is also done in normal years however)	Yes	No	
	Economically			
6	Sale of livestock at cheap price to meet urgent cash needs	Yes	No	
7	Liquidate some house hold goods such as: Specify	Yes	No	
8	Reduce on number of meals taken per day	Yes	No	
9	Intensify barter system of livestock for starch food stuffs	Yes	No	
	Socially			
10	Send other family members to go and look for piece work in town	Yes	No	
11	Depend on cash and food remittances from relatives in town	Yes	No	
	Politically			
12	Request for government interventions with relief provisions	Yes	No	
13	Request for NGO interventions	Yes	No	
	Environmentally/Ecologically/Health			
14	Fall back on food reserves in cereal and seed backs	Yes	No	

(Tick)

40. How do you rate your recovery and response capacity now in terms of assets and knowledge compared to the past?

		Increased	Decreased	Static	Don't Know Concept	N/A
1	Cereal Banks					
2	Seed banks					
3	Micro financing					
4	Community mobilisation to lobby for external					

		support					
5	Social safety net projects						

ADDITIONAL LIVELIHOOD CAPACITY ASSESSMENT QUESTIONS

41. Estimate field crop production & reserves from this past season?

Year and Crop 2011/12 (immediate past growing season)	Area cultivated in Limas	Quantity harvested (in Kg)	Quantity sold	Estimated selling price	Quantity stored in cereal bank (in Kg)	Quantity stored seed bank
Maize						
Groundnuts						
Cotton						
Soyabean						
Sweet potatoes						
Cassava						
Cowpeas/Beans						
Sunflower						
Paprica						
Luyuni						
Sugarcane						
Soil Fertility Improvement crops: Specify						

42. How do you plan to use the reserves?

- | | | |
|---|---|--|
| 1 | Sell them during times of stress | |
| 2 | Use the reserves for food | |
| 3 | Use the reserves to pay for other social family obligations | |
| 4 | Use the reserves for barter systems of payment | |
| 5 | Use the reserves to pay for labour during the rainy season | |
| 6 | Other | |

43. Estimate field crop production & reserves from the other year/ season?

Year and Crop 2010/11 (Other past season)	Area cultivated in Limas	Quantity harvested (in Kg)	Quantity sold	Estimated selling price	Quantity stored in cereal bank (in Kg)	Quantity stored seed bank
Maize						
Groundnuts						
Cotton						
Soyabean						
Sweet potatoes						
Cassava						
Cowpeas/Beans						
Sunflower						
Paprica						
Luyuni						
Sugarcane						
Soil Fertility Improvement crops: Specify						

44. How did you use the reserves from the other season	(Tick)
	1 Sold them during this season after harvesting this years crop 2 Used the reserves for food 3 Used the reserves for barter systems of payment 4 Used the serves to pay for labour during the rainy season 5 Did not use the/were destroyed by fire, post harvest pests, /stolen 6 Used the reserves to pay for other social family obligations 7 Other

45. How many livestock have you sold in the last 12 months?	Livestock type	Number sold last one year	Estimated selling price	Total Revenue (to be computed by Interviewer later)
	1 Cattle			
	2 Goats			
	3 Pigs			
	4 Chickens/Ducks			
	5 Other specify			

AGRIC PROJECTS OPERATING IN STUDY AREA

46. List the agricultural development projects that are operating in your area that you know?

Sn	Project Title	Tick
1	Targeted Food Security Pack Project (FSP)	
2	Farmer Input Support Project (FISP)	
3	Agricultural Development Support Programme -Small Holder Commercialisation (ADSP-SC)	
4	Small Livestock Investment Project (SLIP)	
5	Small Agribusiness Promotion programme (SAPP)	
6	Conservation Agriculture Scaling up for Increased Productivity and Production (CASPP)	
7	Farmer Input support Response Imitative Project (FISRI)	
8	Adapting to the Effects of Climate Variability and Change in Agro-ecological I&II	
9	Small Holder Dairy Farming Improvement Project (Monze Dairy Farmers Co-operative Organization Project)	
10	World Vision Chongo Area Developmental Projects	
11	Dunavant cotton	
12	Alliance Ginnery	
13	Other	

47. Which project are you benefiting from ?

Sn	Project Title	Tick
1	Targeted Food Security Pack Project (FSP)	
2	Farmer Input Support Project (FISP)	

3	Agricultural Development Support Programme -Small Holder Commercialisation (ADSP-SC)	
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10	World Vision Chongo Area Developmental Projects	
11	Dunavant cotton	
12	Alliance Ginnery	
13	Other	

48. What type of support are you receiving as household from these projects?

Sn	Project Title	Yes	No
1	Seed provision (subsidy/soft loan)		
2	Fertiliser (subsidy/soft loan)		
3	Agricultural chemicals subsidy		
4	Market facilitation		
5	Conservation farming technology including crop diversification (climate change adaptation)		
6	Diary animals loans		
7	Communal bovine dipping support		
8	Hazards awareness training skill		
	Vulnerability and own capacity analysis skills		
9	Rainwater harvesting skills training		
10	Training on how manage actual crop outputs and income generated from sales of both livestock and crops beyond one year		
11	Community mobilisation during times of crisis		
12	How to manage human livestock conflict		
13	Other (specify)		

49. Are you happy with the support you have been receiving from the agricultural developmental support project(s) alluded to in question 47?	1) Yes <input type="checkbox"/> 2) No <input type="checkbox"/>
50. If the answer is NO to question 49, give reasons	<hr/> <hr/>
51. How would you like these projects to be improved?	<hr/> <hr/>
52. Do you remember being consulted when developing any of these projects?	1) Yes <input type="checkbox"/> 2) No <input type="checkbox"/>
53. If YES to Q52, which projects were you consulted when being designed?	

Annex 2 Focused Group Discussion Questions

Group A

1. How do you define resilience in your area/community?
2. How can you tell that a given household is resilient against disaster in your area?
3. How do you describe your community's resilience? Is it resilient against disaster? If it is resilient, why do you say so? If not resilient, why do you say so?
4. How did you manage disasters as households and the community in the past?
5. How do you manage the disasters as households and the community currently?
6. Would you describe the current ways of managing disasters to have improved or not, compared to how you used to manage the disasters in the past?
7. What do you attribute the current ways of managing disasters to?
8. At what stage would you require the government to provide external support when you are befallen by a disaster?

Group B

1. How many agricultural developmental projects are currently operating your area?
2. Who designed these projects?
3. Which one is the best project in your view and why?
4. As a community, which project(s) helps you to build your resilience?
5. How would you like the other projects to be improved?

Annex 3 Computation for Multi Hazard Weighting Index

Sn for Agric Block	Name of Block	Sn for Agric Camp	Name of Agric Camp	Worst affected camp by dry spells in 2011/12 growing season (Ranking values were: 3 for worst affected; 2 for Moderately affected; 1 for lowly affected; 0 for not affected)	Worst affected areas by last floods hazards experienced (Ranking values were: 3 for worst affected; 2 for Moderately affected; 1 for lowly affected; 0 for not affected) (last flood season was in 2007/08 growing season)	Most bovine disease affected camp (Ranking values: 3 for worst affected; 2 Moderately affected; 1 lowly affected; 0 for not affected) (Current)	Camp with Highest HIV/AIDS prevalence cases (Ranking values were: 3 for worst affected; 2 for Moderately affected; 1 for lowly affected; 0 for not affected) (Current 2012 prevalent rates)	Agricultural camp with most poor households hh (Ranking values were: 3 with most poor hh; 2 with moderate levels of poverty for most hh in the camp; 1 was for low numbers of poor households in the camp)	Most food insecure area this agricultural marketing season 2012/13 by (Ranking values: 3 was for the worst food insecure; 2 was for moderately food insecure; 1 was for less food insecure)	Weighted Risk
1	Monze South	1	Katimba	1	3	2	0	2	2	10
		2	Bombo	2	2	2		2	2	10
		3	Siatontola	3	2	3	0	3	2	13
		4	Sikalinda	3	3	2		3	2	13
		5	Kazungula							0
2	Monze State land	6	Kayuni	2	2	1	2	2	2	11
		7	Kaumuzya	3	1	2	2	2	2	12
		8	Malende	1	2	2			2	7
		9	Siliwi	2	1	1	1	2	2	9
3	Monze Central	10	Hamapande	2	1	2	2	2	1	10
		11	Hufwa	2	2	2		2	2	10
		12	Siakansenke	1	0	1		2	2	6
		13	Manungu A	2	1	1		2	2	8
		14	Manungu B	2	1	1		2	1	7
		15	Simwendengwe	2	0	1		2	2	7
		16	Monze Urban	1	1	1		2	1	6
4	Monze East	17	Kaumba	0	0	0	1	1	1	3
		18	Lweeta	2	0	2		2	2	8
		19	Mujika	2	3	1	1	2	2	11
		20	Namateba	2	2	3	1	2	2	12
		21	Njola	0		1				1
		22	Namakube	0		1				1
		23	Chiyobola	1	3	1	2	2	2	11
		24	Chisubo	1	1	1	1	2	2	8
		25	Ntumbo	0	0					0
		26	Moomba	0	0					0
5	Monze North	27	Hamusakwa	2	1	1	2	2	2	10
		28	Nteme	3	1	1	2	3	3	13

	29	Keembe	2	0	2	2	2	2	10
30	Banakaila	3	1	1			2	3	10
31	Bweengwa	3	2	1			2	2	10
32	Chuungu	3	2	1	2		2	2	12
33	Malundu	3	2	1	1		2	2	11
34	Naluntanda	2	1	1	2		2	2	10
Total	5 Bocks	34 Camps							0

Annex 4. All agricultural camps in Monze and respective current agricultural developmental projects operational 2000 to 2012

Sn for Agric Block	Name of Block	Sn for Agric Camp	Name of Agric Camp	Number of Villages 2010	FISP	Food Security Pack (MCDM CH)	ADSP-SC	SLIP	Adapting to effects of climate change FAO	CASPP	Small Agribusiness Promotion programme (SAPP)	FISRI	Small Holder Dairy Farming Improvement	WVI Chongo ADP	Dunavant Cotton	Alliance Ginnery	Weight
1	Monze South	1	Katimba	26	1	0		1				0					2
		2	Bbombo	20	1			1				1					3
		3	Siatontola	33	1	1		1				1					4
		4	Sikalinda	13	1							1					2
		5	Kazungula	3	1							1					2
2	Monze State land	6	Kayuni	18	1							1					2
		7	Kaumuzya	21	1							1					2
		8	Malende	3	1			1				1					3
		9	Sililwi	21	1							1					2
3	Monze Central	10	Hamapande	26	1							1					2
		11	Hufwa	17	1							1					2
		12	Siakansenke	19	1			1				1					3
		13	Manungu A	16	1			1				1					3
		14	Manungu B	11	1							1					2
		15	Simwendengwe	14	1			1				1					3
		16	Monze Urban	0	1			1				0					2
4	Monze East	17	Kaumba	16	1							1					2
		18	Lweeta	13	1							1					2
		19	Mujika	17	1	1						1					3
		20	Namateba	40	1							0					1
		21	Njola	52	1			1				1					3
		22	Namakube	19	1	1		1				1					4
		23	Chiyobola	34	1			1				1					3
		24	Chisupo	23	1							1					2
		25	Ntumbo	20	1							1					2
5	Monze North	26	Moomba	0	0							0					0
		27	Hamusakwa	14	1			1				0					2
		28	Nteme	18	1			1				1	1	1			5

	29	Keemba	23	1			1				1	1	1	1	1	7
	30	Banakaila	22	1			1				0		1			3
	31	Bweengwa	16	1			1				1					3
	32	Chuungu	21	1							1		1			3
	33	Malundu	32	1			1				0					2
	34	Naluntanda	12	1							0			1	1	3
Total		34 Camps	665													0

Annex 5 Introductory letter from University of the Free State



1 August 2011

At: Whom It May Concern
Various Government Departments
Disaster Management and Mitigation Unit (DMMU)
Non Governmental Organisations (NGO's)
Corporate Entities & Individuals

Re: MR. BOWEN BANDA, MASTERS DEGREE RESEARCH STUDENT

Dear Sir/Madam

Kindly be informed that Mr. Bowen Banda is our bonafide student (2008134484) pursuing his masters degree program in disaster management at our institution. He completed his course work for the masters in June 2010 and currently undertaking participatory action research in Zambia on community resilience and disasters. His approved topic is 'An analysis of agricultural developmental projects as a tool to increase community resilience against disasters', a case for Nonze district.

Kindly therefore help him in any way possible to successfully undertake his research activities. Whatever information collected will be used for academic purposes only.

Yours sincerely,


Audries J. Jordaan
Dimtec Director

Disaster Management Training and Education Centre for Africa (DIMTEC)
Faculty of Natural and Agricultural Sciences
Tel: +27 (0)51 4012721 Fax: +27 (0)51 4019336
Email: dimtec@ufs.ac.za
P O Box 339, Bloemfontein, 9300



Annex 6 Introductory letter from disaster management and mitigation unit, Zambia

Telephone: +260-211-252692/255725/253123/252436/253142
Fax: 260-211-255725
E-mail: dmmu@zamnet.com

In reply please quote:

No:



REPUBLIC OF ZAMBIA OFFICE OF THE VICE PRESIDENT

21st September 2012

DISASTER MANAGEMENT AND MITIGATION UNIT
P.O. Box 38963
Lusaka-Zambia

RE: REQUEST FOR INFORMATION

By copy of this letter, we would like to introduce Mr Bowen Banda to your institution. Mr. Banda is a Masters Degree student at the University of the Free State in South Africa currently pursuing an academic research on disaster risk reduction in Monze. He is researching on how agricultural developmental projects are designed and implemented by developmental practitioners / institutions / organisations and how these projects contribute towards disaster resilience building for the targeted communities.

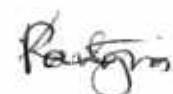
As DMMU we are of the view that this study shall benefit us to understand community disaster-resilience levels in Monze and would like to request your organisation or department to assist the bearer with information on agricultural developmental projects that you are implementing in Monze district.

Of interest to his research are the baseline study documents that your institution/organisation department undertook before the start of implementing these projects in Monze. Mr. Banda would also like to access and read through the actual projects documents or protocols, Mid terms evaluation study documents and end of projects evaluation documents. These documents will be analysed for:

- i. What the projects focus(ed) on,
- ii. Conceptual planning models used in the designing of these projects,
- iii. Involvement of the community in the designing and implementation process,
- iv. Whether baselines were done before the start of implementation,
- v. Duration of the planning process from conceptualisation to appraisal and start of the implementation,
- vi. Duration of the intervention and motivation behind the duration of the projects,
- vii. Who did the planning? Was it organisation staff both local and international or external consultants both local and international.
- viii. How their projects have attempted to incorporate disaster preparedness and response action planning at community level given the abundance of conceptual knowledge in DRR and government advocacy to mitigate long term disaster risk as per Fifth National Development Plan page 212.
- ix. Organisation policy .framework for funding and implementing community based developmental projects that aim at alleviating poverty.

Physical Address: No. 25 Tito Road, Rhodes Park, Lusaka

Your assistance in this regard will be highly appreciated.



Patrick K. Kangwa
National Co-ordinator
Disaster Management and Mitigation Unit(DMMU)
OFFICE OF THE VICE PRESIDENT