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The Impact of HIV/AIDS and Drought on Local Knowledge Systems for Agrobiodiversity and Food Security

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IMPACT OF HIV/AIDS AND DROUGHT ON LOCAL KNOWLEDGE SYSTEMS FOR AGROBIODIVERSITY AND FOOD SECURITY

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Table of Contents

Acknowledgements.....	5
Executive Summary	6
Chapter 1 - Introduction	8
1.1 Country Background.....	8
1.2 HIV/AIDS in Swaziland.....	8
1.3 Rural Livelihoods and Food Security	9
1.4 HIV/AIDS and Food Security	9
1.5 Local Knowledge, Agro-biodiversity and Food Security	10
1.6 Justification	11
1.7 Specific Objectives	11
Chapter 2 - Methodology	12
2.1.1 Livelihoods Approach	12
2.1.2 Gender and Development	12
2.1.3 Cultural/Indigenous Perspective	12
2.2 Consultation Process	12
2.3 Sampling and Site Selection.....	13
2.4 Research Guide	13
2.5 Data Collection and Analysis	13
2.6 Difficulties Encountered and Limitations	14
Chapter 3 - Findings	15
3.0 Local Knowledge and Agro-biodiversity for Food Security	15
3.1 Local Knowledge and Experience in Crop Production	15
3.1.1 Local Knowledge on Production Systems.....	16
3.1.2 Impact of Drought on Crop Production	16
3.1.3 Impact of HIV/AIDS on Crop Production.....	17
3.2 Local Knowledge and Livestock Production.....	18
3.2.1 Impact of Drought on Livestock Production	18
3.2.2 Impact of HIV/AIDS on Livestock Production.....	18
3.3 Local Knowledge and Natural Environment.....	19
3.3.1 Impact of Drought on Natural Resources.....	19
3.3.2 Impact of HIV/AIDS on Natural Resources	20
3.4 Local Knowledge and Technologies	20
3.4.1 Impact of the Drought on Technology	21
3.4.2 Impact of HIV/AIDS on Technology	21
3.5 Local Knowledge and Cultural Practices	21
3.6 Gender Dimensions of the Impact of HIV/AIDS	22
3.6.1 Vulnerability.....	22
3.6.2 Gender Roles	22
3.6.3 Division of Labour.....	23
3.6.4 Home Based Care.....	24
3.6.5 Ownership and control over resources	24
3.7 Effects of HIV/AIDS and Drought on Food Security.....	24
3.7.1 Livelihood Analysis of the Impact of HIV/AIDS on Food Security	24
3.7.2 Impact of HIV/AIDS on Nutritional Status.....	25
3.7.3 The Impact of Drought on Nutritional Status.....	26
3.8 Mitigation and Coping Strategies against the Impact of HIV/AIDS and Drought	26
3.8.1 Mitigating Strategies.....	26

3.8.2 Non agricultural initiatives	27
3.8.3 Food Relief	28
3.8.4 Coping Strategies	28
3.8.4.1 Coping Strategies relating to HIV/AIDS	28
3.8.4.2 Coping Strategies Relating to Drought	28
Chapter 4 - Conclusions and Recommendations	30
4.1 Conclusions	30
4.2 Recommendations	31
4.2.1 Human Capital	31
4.2.1.1 Labour Shortages	31
4.2.1.2 Skills and Knowledge	31
4.2.1.3 Nutrition	31
4.2.3 Financial Capital	32
4.2.4 Social Capital	32
4.2.5 Gender Inequality	32
Bibliography	33
APPENDIX 1 - Tables	35
APPENDIX 2 - Questionnaire Guide	39
APPENDIX 3 - Report Back Meetings	44

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Executive Summary

Drought caused by poor rains in the last four seasons and a high incidence of HIV/AIDS are both long-term crises that create vicious cycles of vulnerability, poverty and food insecurity. This study was conducted to determine the effects of HIV/AIDS and drought on the local knowledge systems for agro-biodiversity and food security in Swaziland, as recent years have seen an increase in both types of disaster.

The livelihoods approach was used in this study to highlight the linkages between the impact of HIV/AIDS and drought on human, financial and social capital. The study found that there are numerous impacts of HIV/AIDS and drought on the different livelihood assets and the negative impacts are detrimental to food security and local knowledge for agro biodiversity. For example the drought has affected local knowledge for agro-biodiversity and food security in the following manner:

- Changes in farming patterns have been observed in all the areas whereby farmers have to adjust their ploughing time to suit the changes in climatic conditions.
- A considerable decline in yield was evident as most farmers failed to cultivate their crops in time due to the drought. Maize, legumes and root crops were all affected by the drought.
- Changes have also been observed in production of commercial crops such as cotton whereby there has been a decline in the production of this crop and other crops as well.
- Extension service is encouraging farmers to grow other drought resistant crops such as sweet potatoes, cassava, sorghum, etc. which farmers have less/no experience with.

The persistent drought has also caused a decline in food security and consequentially the nutritional status of the rural communities that were visited. Three meals a day was a luxury that most of the residents could not afford. Drought has not only affected farming practices but also food sources derived from the local ecosystem, such as wild edible, plants, fruits and insects.

Swaziland has not yet recovered from the drought and is not likely to recover quickly due to the HIV/AIDS pandemic that has exacerbated the situation. Because HIV/AIDS kills certain members of the family who have specific types of knowledge, those who are left behind will never gain this knowledge if they have not yet had the opportunity to learn. Young orphans were particularly at a disadvantage because their parents die at a time when they are still too young to learn.

HIV/AIDS was found to be more prevalent among the youth and able-bodied members of the communities and increases in morbidity and mortality result in the loss of labour for household and agricultural purposes. In some communities this resulted in less cultivated land or no cultivation at all. Households that failed to cultivate had no food available in their households and were food insecure. Due to illness and death, most of the finances were diverted to care for the sick in terms of medical bills, transportation and finally funeral expenses. Moreover, households also experience a loss in income that may be coming into the household through remittances and off-farm employment.

The death of a household member results in a change in the roles and responsibilities of the surviving members. When a male member dies, women are forced to assume male roles and vice versa. In general women bear the brunt of the burden more so than men, given their dual responsibilities of productive and reproductive roles within the household. Caring for the sick is typically assigned to the women and therefore the impact of illness in the household is felt especially hard when women are already assuming traditional male roles.

Gender analysis conducted by the research team reveals that there is a wealth of local knowledge about different aspects of the production and marketing of crops and livestock; and this knowledge is differentiated by gender roles. Additionally, when technology is involved, it is typically the male members of the households that hold the local knowledge, whereas the women hold knowledge about the practices of traditionally “female” activities such as hand ploughing and cooking.

Cultural beliefs and practices play a significant role in determining local knowledge and are at the centre of rural life. There are beliefs and practices about livestock, crops and natural resources. These practices are thought to increase yield, prevent death and conserve resources. Drought and the HIV/AIDS pandemic, however, are causing changes in farming practices to those that are less labour intensive, produce better yields and higher nutritional content; are drought-resistant, and require more technology, thus making the local knowledge obsolete. These crises have led to the adoption of numerous mitigation and coping strategies to be employed by the people in the study area.

Mitigating and coping strategies are used once the crisis has hit and a family is trying to make best out of the current situation. For example, in order to mitigate against the drought conditions most farmers have changed to cultivating drought resistant/tolerant crops and varieties. In other instances farmers are engaged in non-agricultural initiatives such as selling of firewood, producing and selling of handicraft, informal labour/part time employment, etc. In general, the communities studied have used the following strategies to deal with drought and HIV/AIDS: withdrawing children from school, reducing acreage and switching to non-labour intensive crops in order to cope with labour shortages. They also sell livestock and other assets to cope with financial challenges. Migration to work in the South African mines and even begging by the elderly were also seen. However, these coping strategies are not sustainable as they pose a major challenge to households, that of poverty and failure to attain food security.

Recommendations are made that could help to improve communities’ human capital by addressing health care, nutrition labour shortages and skills and knowledge. Financial and social capital can be strengthened by promoting community based initiatives that will build social support systems. Gender inequalities can also be reduced through increasing access to and ownership of resources and focusing extension messages to address the diverse gender roles in the household. Sustainable mitigation strategies will work to improve communities’ abilities to cope with the negative effects of drought and HIV/AIDS and to lessen their impact on local knowledge and food security.

Chapter 1 - Introduction

1.1 Country Background

The last population census of Swaziland estimated the population at just fewer than one million with the majority (70%) residing in the rural areas. Swaziland is divided into four agro-ecological zones, the Highveld, Middleveld, Lowveld and Lubombo plateau. The zones vary in rainfall pattern, altitude, topology, and soils, and consequently in natural vegetation and farming systems. (Central Statistics Office 2001). The Highveld is home to 28 per cent of the population and comprises a third of the country's total land area. It has the most rain (1,000 to 1,200mm annually), but is mountainous hence only 10% of the land is arable. Small-scale farming is the main activity and maize is the main crop. About 3 per cent of the population lives in the Middleveld, and this zone forms 28% of the total land area. It has an annual rainfall average of 800-900mm and has a relatively flat topology. It is the main agricultural zone, producing citrus, pineapple, cotton, maize, groundnut, beans and vegetables. With erratic rainfall, the Lowveld is the most drought prone zone and hunger and food insecurity is a perennial problem for the 30 per cent of the country's population that resides in this zone. It has good soils that are highly productive with irrigation. The main farming activities are sugar cane (under irrigation) and cotton, groundnuts and sorghum. The Lubombo Plateau borders Mozambique and the escarpment limit arable land. At 8 per cent of total land area, it is the smallest zone and 5 per cent of the country's population lives on the plateau. The main farming activities are cattle, maize, some cotton and minor crops. (Magagula and Faki 1999).

According to the measures of well being used by the international aid agencies, Swaziland does not qualify as a priority country for aid as it is classified as a lower middle-income country. This is according to aggregate national income measures such as per capita GNP. However, national income in Swaziland is highly skewed, showing one of the most inequitable patterns of income distribution in the region. The richest 20% of the population hold 64.4% of total income, and the poorest 20% hold 2.7% (UNDP 2001). The majority of Swazi (66%) live below the poverty line. While the increase in emergency food aid in the past few years has been a response to the prolonged drought, there is a realization that the drought worsened existing vulnerability amongst Swazi households. Some of the factors contributing to the increase in vulnerability were national, such as high unemployment, HIV/AIDS and the increase in food prices (VAC 2003). Other factors were local to the Lowveld, like poor rains and the collapse of the cotton industry that deprived Swazi Nation Land (SNL)¹ households of their major cash crop.

1.2 HIV/AIDS in Swaziland

Since the first reported HIV/AIDS case in 1986, the HIV prevalence rates (among pregnant women) in Swaziland have escalated from 3.9% in 1992, to 38.6% in 2002. There are slight regional and age variations, with the Manzini region recording the highest prevalence rate at 41.2%, followed by the Lubombo region at 38.5%, Shiselweni at 37.9% and Hhohho the lowest at 36.6%. Shiselweni had the highest biennial jump, from 27.7% in 2000 to 37.9% in 2002. .

¹ Under the Swazi Nation Land, which represents about 74 percent of the total land, holdings are allocated by the King through the chiefs to individuals for farming and homesteads. Land is held communally and community members have free access to land and other resources.

HIV infection rates by age group show that young women between the ages of 20-29 show the highest rates, at 47.7% for ages 25-29, and 45.4% for ages 20-24. The higher prevalence rates among these economically productive age groups translate into higher HIV related morbidity and mortality rates. The overall effect is a projected negative population growth rate by the year 2010 (UNFPA 2002).

1.3 Rural Livelihoods and Food Security

Farming plays an important role in the livelihoods of Swazi households. More than 85% of rural households on SNL grow crops. Rural households in Swaziland tend to be semi-subsistent: homesteads engaged in crop and livestock production for home consumption and commercial purposes, while heavily dependant on remittances from family members employed in the urban areas. Farming activities in the rural areas therefore are crucial in securing the livelihoods of the population.

Farming practices rely on one rainy season, usually from September to March. Maize is the dominant crop, taking up 86% of the area planted on SNL. Crop failure, caused by drought, particularly in the Lowveld is becoming more common, making households vulnerable to food insecurity. Virtually all households that are engaged in farming activities use family labour. It can be assumed therefore that illness and death would affect the farming decisions and activities of rural households. The escalating HIV/AIDS pandemic, combined with the recurrent drought will have an impact on food security. HIV/AIDS was declared a national disaster in 1999 and in 2004, the government declared a state of national emergency over drought, HIV/AIDS and poverty.

For the past three cropping seasons, Swaziland has experienced poor rains, leading to shortfalls in food production, particularly in the Lowveld and Dry Middleveld. The food security situation in the country varies by agro-ecological zone. The Vulnerability Country Assessment for the current year, April 2003 to March 2004, found that the worst affected areas would incur a 6-month income/food deficit, and were in the Middleveld, Lowveld, and Lubombo Plateau. The least affected areas were in the Highveld and were going to incur a one-month deficit. The assessment also revealed that 153,000 people would require food assistance during September-November 2003, and that this number would increase to 265,000 for the period December-March 2004. The rainfall pattern for the current cropping season has continued to be erratic, indicating another year of below average harvests and complete crop failure in some areas. The assessment also noted that the HIV/AIDS pandemic was having a major impact on nutrition, food security and agricultural production and was responsible for a fast growing population of chronically vulnerable people.

1.4 HIV/AIDS and Food Security

One specific study on the impact of HIV/AIDS on agriculture and the private sector in Swaziland (MOAC 2002), found that prolonged illness and mortality due to HIV/AIDS has a significant impact on farming systems. There was a 54% reduction in maize production, a 29% reduction in the number of cattle kept, a 34% reduction in land under cultivation and 42.3% of households had changed their cropping pattern. These changes in farming systems can result in food insecurity. The study also identified the following HIV/AIDS related sources of vulnerability:

- Death and illness of younger members of the household deprives the household of labour supply;

- As remitters die, there is less production on farms because there is no money for farm inputs and hired labour,
- Death of heads of households leads to loss of skills and knowledge of the farming systems,
- “Death of parents sometimes signal the end of farming” as the orphans may lack the knowledge and experience to sustain farming.

The increase in morbidity and mortality has a profound impact on rural livelihoods and household resource management. Studies from various countries in the continent identified the following changes that occur in affected households:

- Household income and expenditure patterns: spending more on health care, funeral costs, and less on children's education; reduced savings, increase in household debt.
- Time and labour allocation: more time and labour spent on caring for the sick and less on farming activities
- Farming systems: less money for farm labour and other farm inputs, reduction in land cultivated, decline in crop diversity, shift from labour-intensive crops to less labour-intensive crops; less cattle kept, loss of farming related indigenous knowledge and a shift from cash to subsistence farming.

It has also been found that the urban sick often return to their rural homes for care, thus rightly categorizing HIV/AIDS as an important rural issue. The responsibilities that the rural dwellers face in caring for sick relatives directly impacts the amount of time and labour they can devote to farming activities. Thus the threat of HIV/AIDS to food security is two-fold: lower agricultural production in the rural areas and a loss of remittance money from urban areas.

Women comprise 55 per cent of the population on SNL and 32 per cent of SNL households are female-headed. Small-scale farming tends to be labour intensive, with women responsible for most of the time consuming tasks such as planting, weeding, and harvesting. Women also shoulder the responsibilities for caring for the sick. With these traditional domestic roles, it can be expected that women would be more affected by HIV/AIDS. Accordingly, the present case study will also explore the gender dimensions of the impact of the disease on food security.

Studies have shown that drought and HIV/AIDS negatively impact agriculture and rural development. However, the nature of the impact and the necessary mitigation strategies will differ from country to country. The nature of these impacts in the context of Swaziland has yet to be understood. It is for this reason that this case study seeks to highlight the impact on the following aspects of agriculture and rural development: local knowledge, agro-biodiversity and food security.

1.5 Local Knowledge, Agro-biodiversity and Food Security

In addition to the food insecurity inherent to the HIV/AIDS pandemic, the household level effects of HIV/AIDS point to an accelerated loss of local knowledge and a threat to agro-biodiversity. This indicates a need to further investigate the linkages between HIV/AIDS and farming systems as they affect local knowledge systems, agro-biodiversity and food security. Agro-biodiversity is vital for the livelihoods and food security of small-scale farmers. The management and use of the agro-biodiversity depends on local knowledge systems, which have guided the farmers' cultivation practices and the management of their plant genetic resources. (Gari 2001).

According to Gari (2001), HIV/AIDS presents a paradox: it erodes the maintenance of agro-biodiversity and indigenous knowledge at a time when they would be fundamental in achieving food security and in mitigating the pandemic's impact. Drought has led to total crop failure in certain areas and an increase in livestock mortality; this too will have a negative impact on plant and animal genetic resources. While the use of local knowledge and agro-biodiversity might mitigate the impact on drought and HIV/AIDS, it is also threatened by these two disasters. It is therefore imperative that we also investigate what households and communities do to manage agro-biodiversity during these conditions.

1.6 Justification

Increasingly it is becoming difficult to separate the food security impact of drought from that of HIV/AIDS. The two work in tandem to cause poor harvests and reduced incomes. This has led to a programming shift by government and aid agencies towards mitigation strategies for both phenomena on food security. For example, the impact of HIV/AIDS on food security has justified and prolonged World Food Programme's (WFP) presence in the country. The National Emergency Response Committee on HIV/AIDS (NERCHA) is facilitating the cultivation of community fields in over 40 chiefdoms to feed the orphans and other vulnerable children. FAO has started a cassava/sweet potato nurseries programme and has also distributed agricultural inputs to 5000 households in the drought-affected areas. The Ministry of Education, with the support of WFP, UNICEF, Save the Children Fund and other stakeholders re-introduced and expanded the school-feeding programme. In addition, UNICEF and FAO started school gardens. The Ministry of Health has feeding schemes and is distributing nutritional supplements for pregnant women in clinics. Throughout the planting season, the Ministry of Agriculture and Cooperatives has been advising farmers to grow short, medium and long term seed varieties in order to benefit from whatever rainfall situation develops during the cropping season. Farmers in the Lowveld and Dry Middleveld were encouraged to grow drought tolerant crops such as cotton, cassava, sweet potatoes, sorghum and cowpeas.

This case study focuses on the impact of HIV/AIDS and drought on agro-biodiversity, local knowledge and the consequences of these effects on food security. The role and use of agro-biodiversity in the mitigation of the effects of drought and HIV is also explored. As a secondary objective we looked into the extent to which the issues of local knowledge, agro-biodiversity and gender are addressed in the projects that are meant to mitigate the impacts of the two disasters.

1.7 Specific Objectives

The specific objectives for the case study are to:

1. Document the role/use of local knowledge and agro-biodiversity in mitigating against drought and HIV/AIDS
2. Investigate the effects of drought and HIV/AIDS on local knowledge and agro-biodiversity
3. Document the management of agro-biodiversity during drought
4. Determine the use/role of local knowledge, and agro-biodiversity in emergency drought relief programmes
5. Explore the gender dimensions of the impact of HIV/AIDS on food insecurity.

Chapter 2 - Methodology

2.1.1 Livelihoods Approach

This approach takes into consideration that drought and HIV/AIDS impact livelihoods. When an individual farmer/person gets infected, he/she can still live for more than 10 years and will have to carry on with their daily activities. Therefore, there is a need to look beyond the health component, more precisely into how livelihoods are affected by HIV/AIDS. The effects of drought have in common with those of HIV/AIDS the fact that they both occur over protracted periods. Swazis have already dealt with drought in past years and have had to adjust their livelihoods in order to survive. The livelihoods approach has been used in this study to highlight the linkages between the impact of HIV/AIDS and shortage of rain on human, financial and social capital and serves as a guide to interventions that accept and build on these linkages.

2.1.2 Gender and Development

Studies have indicated that HIV/AIDS is a gender issue as the impacts on women and men differ markedly. It is assumed that this would also be evident in the agricultural sector as more women than men are involved in agriculture. This being true, the drought is also likely to affect more women than men.

Longwe's framework² was adopted to empower women whose livelihoods are affected by the drought and their seropositive status. It was imperative that the study should look into rural women's strategic gender needs that included:

- sexual division of labour
- women's burden of domestic labour and child care
- institutionalised forms of discrimination such as rights to own land and property
- access to credit and other resources
- freedom of choice over child bearing
- access to nutritious foods

This approach guided the study on power relations between women and men and brought to the fore the impact of gender inequalities in our societies where women in particular may find that without control over resources such as land they may find it difficult to adjust their status or change farming practices due to the drought.

2.1.3 Cultural/Indigenous Perspective

This perspective is based on the premise that every society employs its own method of identifying and treating solutions. In Swaziland for example, it is believed that farmers do possess a wealth of indigenous knowledge. The cultural/indigenous perspective helped us to identify this knowledge and find out how it has been passed on from generation to generation. Moreover, this perspective helped us to understand how indigenous knowledge assists or will assist communities to cope in seropositive societies.

2.2 Consultation Process

² The Longwe framework is one of the frameworks and methodologies used to conduct a gender analysis in development related fields. It is designed to look at women's empowerment.

A consultative workshop was held with stakeholders who are working on the issues of agriculture, food security and HIV/AIDS. These included: Food security consortium, HIV/AIDS consortium, Ministry of Agriculture and Co-operatives, Home Economics, Agricultural Extension, Fisheries, Forestry, Land Use, NGOs and CBOs. The stakeholders assisted in the identification of sites, identification of potential respondents, mobilisation of focus groups and the provision of information on the subject as key informants.

2.3 Sampling and Site Selection

Sampling was done according to the 4 administrative districts, that is, Hhohho, Shiselweni, Manzini and Lubombo (see table below). Four communities were selected according to these districts and they were Mavula, Lavumisa, Mliba and Sicilweni respectively. Site selection was influenced by challenges to these communities imposed by the drought and shortages of food. The drought has become more of a trend than a shock in some communities as it has lasted for more than three years. Respondents in all communities generally described the climate as hot and dry, with one rainy season, usually from September to March. However, changing weather patterns have brought the rains earlier in the year, thus disrupting farming patterns.

Sampling by Area

Area <i>Agro-ecological zone</i>	Mavula <i>(highveld)</i>	Lavumisa <i>(lowveld)</i>	Mliba <i>(middleveld)</i>	Sicilweni <i>(Lubombo plateau)</i>	Total
Focus groups	3	7	3	3	16
In-depth discussants	6	6	5	7	24
Key Informants	4	10	6	6	26

2.4 Research Guide

The research team prepared a questionnaire guide following the consultation process and before initiating the pilot study. This guide enabled interviewers to focus their discussion and guide interviewees' responses in the right direction. Experience with open-ended discussions shows that interviewees can become carried away and start discussing issues that are not necessarily inline with the subject matter. The researchers used the guide to keep the discussion focused. The guide covered HIV/AIDS, agricultural production (background), farming systems and indigenous knowledge.

The questionnaire guide was pre-tested at Qomintaba community (Matsanjeni inkhundla) in the Shiselweni region. Fifty-five community members participated in focus group discussions separated between males, females and the youth. The research team discussed the findings of the pre-test. The instrument was then finalised.

2.5 Data Collection and Analysis

Using PRA Tools (i.e., Timelines, Cropping calendars and Transect walks) data was collected through the in-depth interviews, focus group discussions and discussions with key informants. Focus groups were used to obtain general information on the subject and were the preferred method of data collection as it generated a lot of general information from community members. In-depth interviews were used to get precise

information from individuals and also to validate and ground information gathered in the focus group discussions. The key informants were stakeholders in positions of authority who were also knowledgeable about the issues under investigation.

The research team analysed the data on site at the end of each day through in-depth discussions. The points brought out in discussion were then used during the interviews in order to fill in certain gaps and probe certain issues that were not covered adequately. A four day concluding workshop was held to analyse the data and a report was produced.

2.6 Difficulties Encountered and Limitations

A series of difficulties were encountered that condition the results of the study. There were problems in understanding some definitions of the local knowledge (e.g., fruit vs. wild tree/plant) and there was restraint shown by most community members to share the local knowledge that they possessed. There was a general reluctance among men to share their experience, especially in the focus group setting, and an overall reluctance to openly discuss health issues, especially HIV/AIDS. The researchers also found that combining two key issues (i.e., drought and HIV/AIDS) proved very difficult. There was also a raised expectation by the community that the researchers were going to distribute food aid.

Some intrinsic features of the methodology have placed limitations on the study, such as a restricted sample population, due to limited resources reserved for a wider study to be used for a policy intervention. In addition, the selection of sites for study was not based on the HIV/AIDS criteria but rather on the prevalence of drought, ecological locations and the level of food insecurity.

Chapter 3 - Findings

3.0 Local Knowledge and Agro-biodiversity for Food Security

According to the FAO LinkS training manual, “the extent to which people’s assets can be built up, balanced and contribute towards their livelihoods depends on a range of external factors that change people’s abilities to gain a living. Some of these factors will be outside their control, and may exert a negative influence.” These are known as shocks, trends and seasonality. The study identified drought and HIV/AIDS as external factors that influenced the selected communities’ livelihoods. These factors negatively influenced women, men and children’s lives and will be discussed in the following section.

FAO LinkS defines local knowledge as: “the knowledge that people in a given community have developed over time, and continue to develop.” Agrobiodiversity on the other hand refers to “the variety and variability of animals, plants and micro-organisms used directly or indirectly for food and agriculture.” The following areas of agro-biodiversity are examined in this study: crop species; animal breeds; local plants and tree species.

This section will focus on the linkages between local knowledge, agro-biodiversity and food security using gender as the fourth factor. Using a livelihood approach as stated in the methodology section, the study notes that agro-biodiversity can be considered as an important natural capital or asset for poor people’s livelihoods with a potential to contribute to food security and income generation. Also, human capital – such as local knowledge - is considered as a livelihood asset, which can contribute to different livelihood strategies. Gender roles and relations form part of the policies, institutions and processes which influence upon peoples’ “possibilities to use their assets and to achieve desired livelihood outcomes.” (LinkS, Training Manual). It is these linkages and the way they work which result in positive or negative livelihood outcomes.

3.1 Local Knowledge and Experience in Crop Production

Most of the farmers on Swazi Nation Land are engaged in dry land cropping where they grow maize (the staple crop), cotton (the main cash crop), legumes and a variety of root crops (see Table 1 in Annex 1). These crops are normally grown for both subsistence and commercial purposes. A few farmers grow sugar cane at a large scale and most farmers are involved in vegetable irrigation at a small scale mainly along the river banks.

There is a wealth of local knowledge about different aspects of the production and marketing of crops and this knowledge is differentiated by gender roles. For example, women typically possess knowledge about the production of legumes and small-scale vegetable production under irrigation for household consumption. Both men and women are involved in both the cultivation and marketing of excess amounts of vegetables and thus this knowledge is shared. The production of commercial crops such as maize and cotton is controlled by men, as they are mainly responsible for the production and marketing of these crops.

Maize, for example, was found to be the most important crop in all the studied communities irrespective of the fact that the yield had declined to almost zero in some households. Most farmers were in favour of continuing maize production because they

had a wealth of knowledge about the production of this crop (maize varieties, time for planting, etc.) and, within the community, a certain prestige is associated with one's ability to cultivate it.

3.1.1 Local Knowledge on Production Systems

In crop production, both men and women were in possession of the relevant knowledge in terms of ploughing, planting, weeding, harvesting, stalk-borer control, etc. of the different crops. A general trend has emerged that where the use of technology is required, such as ploughing by tractor, planting by planter or weeding with draft power, men hold the relevant knowledge and skills, while women have very limited knowledge on the use of most technology. For example with tractor ploughing, men know how to use them as they typically own the technology or are drivers of the tractors as employees. It was reported that most tractors are hired from local farmers or government rural development areas (RDAs).

Women and youth are typically in possession of knowledge related to activities done by hand, especially for planting, weeding and harvesting. For example in cotton farming, those involved in the harvesting are mainly women together with the boys and girls. Local knowledge on cotton picking is held by women and children as men look down upon such task because of its routine nature.

Communal activities in the production system, such as applying fertilizer is done concurrently with planting and all members of the household, including young girls and boys, are typically involved. Although both women and men were involved in the production of different crops, knowledge on the marketing of crops was generally found to be held by the males. Men were involved in the selling/marketing of legumes (especially beans), maize and cotton. Women were involved in the marketing of vegetables as they were found selling these at market places.

3.1.2 Impact of Drought on Crop Production

Drought has resulted in the decline of yields and reduction in the production of certain crops. As already indicated, maize has been affected by drought in many ways and this has resulted in food insecurity, as maize is the staple crop. There are different reasons why farmers continue to grow this crop despite its weak defences against drought. First, there is knowledge and experience around maize production and secondly there is a certain social status associated with good yields of maize. Third, there is the belief that the rains will eventually come back and lastly there is a gender issue whereby certain crops are considered feminine and therefore inferior and men who grow such crops are not respected among males. For example: a male farmer at *Mavula* wanted to know what he could do besides growing maize. When advised that he could grow sweet potatoes he responded by saying, "*angeke ngilime silimo sebatati mine*" (I won't produce a woman's crop).

Changes have also been observed in production of commercial crops, cotton is a good example. Many farmers have abandoned this crop because it is labour intensive, they have experienced a drop in selling prices, and there is a lack of farmer financial support systems in terms of inputs. In addition there has been a decline in the yield as a result of continuous drought, the costs of production are high compared to the revenue generated and the market for the crop is unfavourable. The decline in production of cotton indicates that over time there could be a loss of local knowledge about its production and currently

the decline in production has further worsened food insecurity in the communities, as the farmers are not getting income from the sale of cotton to purchase food items such as maize.

Changes in farming patterns have been observed in all the areas. Ploughing by tractors was the most preferred method of ploughing as it is faster than the other methods. Timelines of early planting were found to be the major determinants of crop yields. Those who plant in February were said to be likely to get a high yield and failure to plant in February resulted in crop failure. Hence, a high demand for tractors at specific times of the year, October when the rains start and February when the raining season ends. Most interviewees pointed out that they have to adhere to this new ploughing calendar in order to be able to harvest something and tractors have to be available at these times as oxen are still weak and not fully recovered from the harsh winters and the drought. Due to inadequate numbers of tractors, both government-owned and private, there was a significant reduction in yield as most farmers complained that by the time they get a tractor, the rains have already stopped. This was found to be the case at all the research sites.

Changes in the crops cultivated are also occurring slowly. There has been pressure exerted by extension services to grow other drought resistant crops such as sweet potatoes, cassava, sorghum, etc. In most of these communities farmers had already lost the local knowledge on sorghum production since their forefathers had stopped growing sorghum years back. Interviewees from *Lavumisa* pointed out that they stopped growing sorghum because birds used to eat the crop in the field before it was ready for harvest. Because of lack of knowledge on production of these drought-tolerant crops there have been no substantial yields.

Another constraint associated with growing such crops is lack of seeds at the local level. It was found that because of the drought and low yields local seeds that used to be kept for planting during the next season are regrettably consumed due to a lack of food for the family. In most of the areas that were visited there were no seeds kept for the next season as farmers were hoping to buy hybrid seed or ask for seed from neighbours and relatives (*kwenanisa*). This means that local knowledge on keeping seed has been affected and the youth will probably never know the local varieties of crops in their communities.

3.1.3 Impact of HIV/AIDS on Crop Production

Although the drought has had a significant impact on crop production, farmers have failed to recover from this because of the HIV/AIDS scourge that was said to exacerbate the problem. Interviewees pointed out that in their families there is no ritual or ceremony that is held to pass on knowledge to other members of the family, most local knowledge is passed down through observation and experience in working with elders. Because HIV/AIDS kills certain members of the family who have certain types of knowledge, those who are left behind will not have the knowledge if they have not yet given themselves time to learn. Young orphans were particularly at a disadvantage because the parents die at a time when they are still too young to learn.

The findings indicated that because of HIV/AIDS, homesteads have not been able to produce the needed food that is required at household level. This has been identified by other studies such as the FAO (2000) study. This study indicated that the spread of HIV/AIDS to every homestead has the potential to reduce the communities' ability to

produce and buy food as neighbors become too over burdened to help each other with food, loans or a hand in the fields.

3.2 Local Knowledge and Livestock Production

Communities keep cattle, goats, pigs, and local chickens for selling whenever there is a need for cash. The raising and tending of both small and large-breed livestock are done by all members of the household, with different responsibilities according to gender and time availability. For example, women tend cattle while the children are at school, but the children look after them after school. However, men and boys have vast knowledge regarding cattle farming and are primarily responsible for the decision-making and marketing of all livestock (see Table 2 in Annex 1).

Poultry is raised by all groups but women possess the majority of local knowledge on tending the birds. In some communities, both men and women were raising broilers for commercial purposes and they had similar knowledge on raising them until they were ready for market. Other homesteads keep donkeys as a source of draught power and men are responsible for hiring them out to generate income.

3.2.1 Impact of Drought on Livestock Production

The findings indicate that the drought has adversely affected livestock production in terms of numbers and local knowledge. At one household at Sicilweni a farmer pointed out that he lost about a hundred cattle the previous year (2003) due to the drought. At Lavumisa interviewees pointed out that some cattle kraals are empty, as livestock have died due to the drought. Poultry were also fatally affected by drought and owners were found selling chickens that have died due to drought by the roadside.

Some local breeds have been completely wiped out and with them the local knowledge on livestock production. Male interviewees at Lavumisa pointed out that most of the cattle that they keep are cross breeds (as the local breeds have become too expensive due to their limited number) and do not respond to rituals that are normally performed on local breeds. For example, farmers pointed out that household heads used to burn certain concoctions to ensure that the cattle return home on their own in winter. Most of them complained that the cross breeds do not respond to this and as one farmer in a focus group put it “letamanje tinkhomo uma utibhunyisela atibuyi” (the cross breeds that we have do not respond to our rituals and once you perform the ritual on them they go and never come back). Now farmers who had such knowledge cannot use it for the benefit of their stock and hence this knowledge has been rendered useless, they must now gain new knowledge for handling cross breeds.

3.2.2 Impact of HIV/AIDS on Livestock Production

HIV/AIDS has intensified the negative impact of drought on the livestock by further depleting herds. Swazi tradition orders the slaughter of a beast when a family member dies in order to take care of the mourners; HIV/AIDS has increased the frequency by which this tradition is practiced. Also, there is an increase of livestock sold to pay for hospitalisation or treatment of sick members of the household. Traditionally, Swazi farmers will sell cattle only when they are really desperate. A farmer at Lavumisa said “ziphelile izinkomo yilokugula ngoba siyathengisa siyokwelapha laba abagulayo,” (our livestock are finished because of chronic illnesses because we have to take the sick for treatment).

Specifically, the death of a male member of the household was found to affect livestock production as men hold the majority the local knowledge about and experience with livestock. Once the male member is chronically ill or dies the livestock will be left in the hands of female members and children who may have very little or no knowledge at all on the livestock industry.

3.3 Local Knowledge and Natural Environment

Natural resources are broadly defined as all those things available to human beings as gifts of nature. Vital natural resources to the Swazi are land, wildlife, fisheries, forest, wild vegetables and fruits and water. Swaziland uses the 'khonta' system whereby men are allocated land by a chief and in return pay allegiance to that chief. The communities did not complain of land shortages, the land was considered to be fertile, the only problem being dry land farming as the rains commonly fail. Women do not access such land in their own right, but do so under the legacy of men.

The interviewees had considerable knowledge of the land, wild life, and eco-system and were able to identify a wide variety of wild, edible fruits, plants, insects and fauna that could be used for consumption or sale (see Tables 3,4,5,6 &7 in Annex 1). Elder women had local knowledge on the use of wild edible plants for food whereas elder men had local knowledge on the medicinal components. Proper management of natural resources ensures their sustainability and food security. Hunting for game, for example used to be an annual activity in most of these communities. It was done during the winter, which is when the animals are not reproducing. Hunting was a male-based activity, normally carried out in groups using traditional weapons such as knobkerries and dogs; fathers would invite their sons to some of the hunting expeditions where they learned to hunt.

Some activities that were traditionally assigned by gender have experienced a change of roles due to commercialization and scarcity. The collection of fuel wood and water are good examples. Traditionally, collecting firewood and water are women's activities; however men are increasingly involved in firewood collection for roadside sale. Also, the scarcity of firewood and the drying up of rivers and streams means that one must travel further to collect more wood and water. Thus men in these communities have taken up the responsibility of fetching water and fuel wood using wheelbarrows, vans and draught power.

3.3.1 Impact of Drought on Natural Resources

The drought has had a drastic effect on natural capital. Dry climatic conditions like those found in the studied areas impact negatively on the environment. The findings indicate that many tree species are no longer present in the communities and those that are, are less fertile than they used to be. The drought has also resulted in extinction of plants eaten by animals, thus threatening game with extinction. The government has built game reserves to protect the remaining animals, meaning that communities have been deprived of their cheap source of protein from game meat.

The rivers have been reduced to small streams by the drought and communities can hardly get water for domestic use let alone irrigation. Also, the natural and man-made dams have dried up resulting in serious shortages of water for both human and animal consumption and irrigation. The few rivers and streams are now shared between humans and animals and this can also lead to diseases and other health related

problems.

The harsh weather conditions have also affected the ecosystem as there has been a decline in edible insects that used to be plenty in the olden days. Most of the edible insects only come out from the ground after there have been heavy rain. Because of the drought these have not been seen over a long period. The unavailability of these edible insects resulted in the decline of the nutritional value, as these were a source of protein in the summer and autumn seasons.

The drought has also affected wild edible plants and fruits. At the report back workshops participants identified some wild edible plants that are no longer available or can hardly be seen. Some of these wild edible plants included umdzayi, inkhakha, inshubaba and emahala. All of these have been affected by the weather conditions. Mushrooms for example were no longer available as they only surface after thunder and rain.

3.3.2 Impact of HIV/AIDS on Natural Resources

Increase in morbidity results in indiscriminate exploitation of natural medicinal plants to cure diseases and HIV/AIDS. Traditional healers and herbalists particularly at Nkonka were accused of digging and stripping off bark from certain trees which eventually wither away. Some of these medicinal plants are now extinct as there is no control over how much could be taken away and no knowledge of how to preserve or domesticate the plants.

Another factor that interviewees said contributed to the decline in yield and taste in natural foods is the mortality of community members who had knowledge on management of certain tree species. The new generation was accused of not respecting cultural taboos such as those that discourage pregnant women from collecting certain wild fruits. These are part of the traditional myths and some rural people could not be persuaded to recognise other factors, such as drought, that may be causing the decline in yield.

HIV/AIDS has a specific negative impact on women and children in terms of access to natural and other resources. Once the owner of a resource dies women and children are affected because they could be deprived of resources. For example, when a man dies, the land is reallocated by the chief and where Swazi Nation Land is concerned, women and children are not allocated land.

3.4 Local Knowledge and Technologies

The basic infrastructure (transport, shelter, energy, communications and water systems), production equipment and tools that enable households to maintain and enhance their relative wealth were inadequate in most communities. A transect walk at Mliba, Sicilweni and Lavumisa showed that the main roads were tarred, but the challenge is accessing the roads that are gravel and rugged. As the weather was hot and dry the roads had ridges and dongas that were impassable. Public transport was very scarce, with one public transport to ferry residents to the nearest towns, and this did not operate on routes where the roads are bad. Morbidity has also increased demand for transport and at Sicilweni for example interviewees pointed out that they had to hire transport to take sick people to the nearest hospital, which is more than 50km away. The cost of transporting a patient to the hospital costs more than E200 (\$33) one way. Key informants at Sicilweni pointed out that they are ever indebted to neighbours and

relatives for transport used to ferry their relatives who are chronically ill to hospitals and the deceased to the morgue.

Communication systems were very poor in all the communities where telephone lines are far away from the communities. Cell phone connection was also poor quality and hence communication with the outside world was almost impossible. HIV/AIDS has increased demand for such services as patients need constant contact with the medical personnel and with hospitals. As one female interviewee put it, “we need to be in contact with medical doctors now and again because my son has been sick for a long time. We spend a lot of money hiring a bakkie only to be told to take him back home with us and bring him back after a certain period. If only we could contact the nurses over the phone and ask for advice it would certainly be cheaper than having to drive all the way to hospital just to seek for opinion.”

The water system was as bad as the communication system where very few communities had fully developed tap water systems. Mavula had piped water, but it was not accessible by all community members. This is because the water levels have dropped due to the drought. Water has become a scarce resource in the community because of the drought and negatively affects the chronically ill because walking long distances to fetch water is now required.

3.4.1 Impact of the Drought on Technology

Weather conditions have had a negative impact on local knowledge for technology. Local knowledge about draught power has been lost as farmers' draught animals (mainly oxen) have been killed by the drought or are too weak to work during the dry months. Interviewees called upon government to provide them with tractors as the ground was too dry for ox ploughs. Donkey power is being encouraged by agricultural extensionists as donkeys need less grazing area than oxen, they can work for longer hours, the manure is good for fertilizer, and they are drought-resistant. However, donkey power was found to be used only to a limited extent as some cultural beliefs have prohibited its widespread adoption. This signifies a shift in needs for local knowledge from traditional ploughing technologies to the use of tractors and donkey power.

3.4.2 Impact of HIV/AIDS on Technology

Chronic illness and shortage of finances to take care of the sick are forcing most farmers sell off their assets in order to get cash to care for the sick and pay for transportation costs to take the sick to hospitals and health centres. In the studied communities, sale of ploughs, hand hoes and other household tools were said to have taken place. Farmers were also found to sell livestock, both large and small stock in order to cope with chronic illnesses. At Lavumisa, chickens were for sale along the roadside and the price was quite high because the hospital bills and the need for nutritious food are very high for HIV positive people and others who are chronically ill.

3.5 Local Knowledge and Cultural Practices

Cultural beliefs and practices play a significant role in the lives of rural communities and are at the centre of rural life. There are beliefs and practices about livestock, crops and natural resources and these are often the foundation of local knowledge.

Beliefs and practices relating to livestock centre on cure and treatment of diseases in livestock. There are traditional cures found in local fruits, plants and trees that can assist in birthing and can prevent abortion in cows. These practices were not only limited to large breed livestock; there were specific practices for small ruminants as well. Focus group discussants pointed out that sesame (ludvonca) is used to make goats more productive by increasing their fertility. Through the use of the sesame, goats have a higher possibility of giving birth to twins. Farmers from the dry areas do grow sesame and most use it in winter to fulfil this ritual even though they believe that the cross breeds do not respond to it.

Local knowledge relating to crops consists of ways to improve yield by preventing bird and insects from eating the crop and limiting weather hazards. Interviewees from Lavumisa shared the belief that the smoke emitted from burning a nocturnal bird (malwelwe) can prevent birds from eating sorghum in the fields during the day. Most interviewees also believed that smoke from a tree (umhhohlo) is directed to blow across the field and the tree cuttings with leaves are left in the middle of the maize field to prevent stock borer.

People shared confidence in certain practices regarding preservation of natural resources, particularly wild life. For example, they believe that droppings from rabbits can be used to prevent dogs from defecating in the yard. One discussant pointed out that “if you sprinkle rabbit’s droppings all round your homestead, the dogs will not mess up your yard.”

3.6 Gender Dimensions of the Impact of HIV/AIDS

The findings of the case study indicated that local knowledge was gendered where different groups of people were found to have different knowledge. The local knowledge of each group was divided according to whether or not they own, access or control a particular resource, gender roles and division of labour. This was also found to be the case in terms of the impact of and vulnerability to HIV/AIDS. In Swaziland, women comprise 55 percent of the population on SNL and 32 percent of SNL households are female-headed. In addition small-scale farming tends to be labour intensive, with women responsible for most of the time consuming tasks such as planting, weeding and harvesting. Women also shoulder the responsibilities for caring for the sick and take on the brunt of activities that are left undone when household members die or fall ill. Therefore, this study has revealed the gender dimensions of the inequitable impacts of HIV/AIDS.

3.6.1 Vulnerability

Both women and men from the studied communities were vulnerable to HIV/AIDS. However, women were more vulnerable to HIV/AIDS because of their physiological make up and socio-cultural factors. Women also lacked control over resources and hence were more vulnerable to poverty. Interviewees noted that due to the prevailing situation of food insufficiency at community level, women sell sex for food outside of their communal areas in a bid to alleviate the poverty situation. This has resulted greater risk of contracting HIV/AIDS as transactional sex makes women more vulnerable to HIV/AIDS.

3.6.2 Gender Roles

The death of a household member results in a change in the allocation of household roles. When a male member dies, women are forced to assume male roles and vice versa. However, the activity profile indicates that women do already assume traditionally male roles particularly the agricultural ones. Hence, the HIV/AIDS epidemic that has reduced rural populations exacerbates the situation of women who have already assumed traditionally male roles and responsibilities in the household. The study has found that there was a general failure by men to take over women's agricultural tasks such as cotton-picking threshing and winnowing. Men have also failed to take over women's traditional roles, such as cooking, child care, caring for the sick, etc. In most of the communities men have been observed to take over women's roles of fetching water and collecting firewood, as they are able to use technology to facilitate the task. Failure by men to take over women's traditional roles creates a void in the household's livelihood strategy and is likely to result in poverty and food insecurity.

3.6.3 Division of Labour

There was a clear division of labour in all the communities whereby the youth, women and men had clear-cut roles in the household and the community (see table below). Illness or death of one member requires intra-household reallocation of labour and a heavier load for the remaining members of the household. In some areas farming was not occurring at the homesteads as some farmers were already sick, children were attending school, and others were taking care of their relatives at hospitals. The death of household members has resulted in poor performance of certain tasks and a decline in area cultivated as remaining members fail to cope. In some instances the household suffers a heavier blow if the deceased member had certain skills and knowledge that was not passed on before the household member dies.

Activity Profile

Activity	Adults		Children	
	Men	Women	Boys	Girls
Ploughing (Draft)	vv	v	v	v
Ploughing by hand	v	v	v	
Ploughing by tractor	v		v	
Planting by plough	v	v	v	
Planting by planter	v		v	
Planting by broadcasting	v	v		
Planting by hand	v	v		
Weeding by hand	v	v		
Weeding by draft	v		v	
Fertilizer application	v	v	v	v
Harvesting	v	v	v	v
Cotton picking		v	v	v
Threshing		v		v
Winnowing		v		v
Tending cattle	v	v	v	v
Milking	v	v	v	v
Tending poultry	v	v	v	v
Tending small stock	v	v	v	v
Fetching water	v	v	v	v
Fetching firewood	v	v	v	v
Cooking		v		v

Child care		v		v
Caring for the sick		v		v
Woodwork	v			
Handicraft		v		
Watering vegetables	v	v	v	v

3.6.4 Home Based Care

Society dictates that the burden of caring for ill family members rests mainly on women and the girl-child. Terminally ill people are increasingly being cared for at home and that responsibility falls mostly on women. Women 's role as care-givers often means that they are left with less time for work, school or other household duties and this limits their economic and social progress.

3.6.5 Ownership and control over resources

The study found a link between the custodianship of local knowledge and the ownership and control over resources. In all the study areas, it was found that men held the majority of ownership and control over resources such as land and livestock, where women were only able to access these through marriage. Men were therefore the repositories of knowledge on the production and sale of crops and livestock. It was found that as women were responsible for cooking and providing nutritious food for the household, they were given control over small plots to grow crops of their choice, which were mainly legume crops for relish. As women have access and control over these resources for household consumption, they hold the local knowledge for producing these crops. Many of which are drought tolerant, as the women were willing to adopt drought resistant varieties that could improve household food security.

3.7 Effects of HIV/AIDS and Drought on Food Security

An intended national and household level outcome for people's livelihood strategies is food security, referred to by a right to "access by all people at all times to adequate, safe and socially acceptable food to meet nutritional needs for an active and healthy life" (LinKS, 2004). This case study has used livelihoods analysis of the situation in Swaziland to determine the impact of HIV/AIDS and Drought on food security.

3.7.1 Livelihood Analysis of the Impact of HIV/AIDS on Food Security

Assets are the stocks of resources available to households, which are used to pursue a combination of livelihood strategies. Access to, use of and interaction among the five main assets serves as the foundation of peoples' adaptive strategies and, therefore, their livelihood systems. The three main livelihoods assets that have been affected by the HIV/AIDS epidemic are: human, social and financial capitals.

HIV/AIDS had a negative impact on **human capital** as it threatens the very survival of the human race. The findings indicated that HIV/AIDS has affected all the different aspects of human capital that are: labour, skills/knowledge, health, all of which are important in pursuing sustainable livelihood strategies. The increase in morbidity and mortality in the communities studied resulted in the loss of labour for household and agricultural purposes. As already indicated HIV/AIDS is more prevalent among the youth and able-bodied members of the communities. Illness/death of a member means that a

household has fewer members in agricultural production. In some communities this resulted in less cultivated land or no cultivation at all. Households that failed to cultivate had no food available in their households and were food insecure. Once knowledgeable members no longer make a meaningful contribution to food production young and inexperienced labour force takes over, and without relevant knowledge there is evident reduction in food availability. Hence, most women headed households and all the child-headed households in the case study were food insecure.

Death of a male family member means loss of knowledge on technological skills. The family may resort to hand ploughing and planting which may result to low yields and poverty. On the other hand males had no knowledge on household tasks and these include cooking, fetching water, handicraft making, etc. The death of a female member therefore, means loss of such skills and may result in poverty and malnutrition as there will be no food to eat for the children.

Social capital refers to that part of human resources determined by the relationships people have with others. These relationships may be between family members, friends, workers, communities and organisations. The findings of the case study indicated that because of illness and death the well-established Swazi network of the extended family comes under threat. Chronic illnesses and death directly affects this network and diverts extended family labour to caring for sick family members and leaving less time for food production. Most women interviewees pointed out that they spend most of their time visiting sick relatives and friends and caring for sick family members and less time in productive work.

Caring for family members and burying the dead takes precedence over any other productive activity. In Swazi culture when the head of household is sick or a member dies, agricultural work stops (kuyatilwa) as members and neighbours are in mourning. Women are expected to be indoors (fukama) for days before burial and only leave after burial to cultivate fields. As the scourge of HIV/AIDS rages on families are affected as they spend most of the time indoors mourning and this has a negative effect on food self-sufficiency. There were indications in the studied areas that showed that families were not coping at all as family members were falling sick and dying. Without this social network agricultural production suffers and food security is threatened.

HIV/AIDS is also detrimental to **financial capital**, as most money is diverted to care for the sick members of the household. This results in low yields and disaster for those who market crops for their livelihood, as they have no surplus for the market. The same happens when the household member engaged in income generating activities has to stop working due to illness. The findings of this study indicate an increase in expenditure on food and hospital bills as spending on education and agriculture decline among the communities.

Chronic illnesses have resulted in heavy borrowing by communities for agriculture, hospitals and funerals. As there has been a decline in yields, loans particularly for cotton production have not been serviced. Lending institutions have stopped giving money to farmers and there is a decline in production of commercial crops such as cotton. Community members in the case study were also indebted to their neighbours and relatives who lend them money for hospitals and to purchase inputs.

3.7.2 Impact of HIV/AIDS on Nutritional Status

HIVAIDS also affects nutrition by decreasing food consumption and impairing nutrient absorption. As a result of being HIV/AIDS affected, the household may lack food and the time and the means to prepare meals. The findings indicate that most households could only afford one meal per day. This was particularly true for women who were skipping meals to ensure that their families had a meal on each day. The main meal for most households was lunch and this was normally served between 11:30 and late evening. This meal is normally thick porridge from maize meal and is served with relish from beans, vegetables or locally available edible plants, in some communities relish was even a luxury. Farmers at Mavula were fishing at the dam, thus providing an additional source of protein for their families. Supper for most households was served from leftovers and mostly without any relish. Most of the communities cook once a day, in the morning for lunch and for supper. On average, women have about 2 meals a day while the men and children have 3 meals a day. This shows that the feeding patterns for women and men are different and that women serve the little food to their husbands first and the remainder to their children. This is consistent with women's caring role and the preference to eat less in order to save on the little food that is available. Men had better health than women who were not eating a balanced meal; this was also the case for chronically ill members of the household. As Whiteside (2003) argued, "...Reduced intake and food quality are likely to hasten progression to full blown AIDS among people already infected with HIV. Reducing food consumption ("belt tightening") is not a viable option, where requirements for energy and micronutrients are markedly increased."

3.7.3 The Impact of Drought on Nutritional Status

The persistent drought has also caused a decline in the nutritional status of the rural communities that were visited. Nutritional foods that are grown have lost some of the nutritional value because of the drought. Certain varieties of maize such as the local varieties like silver king have been replaced by drought tolerant varieties that are low in nutritional value. Farmers pointed out that they grow certain legume varieties that are drought tolerant but significantly low in nutritional content. In the majority of the communities studied the breakfast meal was made up of thin porridge from the yellow maize that is received as food aid. Some have sour porridge (emahewu) for breakfast, while for others this would be their meal for the whole day.

3.8 Mitigation and Coping Strategies against the Impact of HIV/AIDS and Drought

Mitigating strategies are activities that can be adopted so to prevent the destruction of one's livelihood. Coping strategies, on the other hand, are used to deal with the repercussions of a crisis that has already hit. The devastating impact of HIV/AIDS and drought on the communities in the case study did not mean the end of life as Seeley (2002) points out: "(living with HIV/AIDS) means earning a living, raising a family, making a home, relaxing, joking, weeping and dying. Just like anyone else." The impact of these crises means that living life becomes that much more difficult. Therefore, it is pertinent that farmers adopt viable mechanisms that will ensure that daily life will continue, illness will not be spread, livelihoods will not be destroyed and food security will not be jeopardized. This study found that both sustainable and unsustainable mitigation mechanisms and coping strategies were in place in many of the communities.

3.8.1 Mitigating Strategies

In order to mitigate against the drought conditions most farmers have changed to cultivating drought resistant/tolerant crops. Most interviewees in the case study pointed

out that farmers are now cultivating or interested in cultivating drought resistant/tolerant crops such as: white beans (insambansamba), cassava (umjumbulo), sweet potatoes (Bhatata), mungo beans (mngomeni), cowpeas (tinhlumaya), juko beans (tindlubo). Men and women are both responsible for these crops and share their production. However men take the lead role in the marketing of the produce.

Extension has re-introduced sorghum production in drought prone areas such as those in the case study through the NERCHA Indlunkhulu project (Sicilweni). The crop performed well under the dry conditions, demonstrating that the crop can do well under the trying conditions of drought. There is small-scale vegetable production under irrigation for household consumption in all areas and resale of excess crops is used to generate income by both men and women. There is minimal farming of green mealies in some areas (Mnjoli) along the riverbanks by locals. Others mitigate the effects of drought by farming along the catchments for household level crop production.

3.8.2 Non agricultural initiatives

Non-agricultural income generating activities are common mitigation strategies in the case study areas. They include:

- Selling of firewood – men select the type and quality of wood for sale and collect it from the forests; women and children are responsible for selling it.
- Producing and selling of handicraft – mats (emacansi), brooms (imishanyelo), titja tetjani produced and sold by women, while for tinjujo, tilwabhu, tinswebhu are sold and produced by men.
- Selling of thatching grass was an activity for women who also had the experience and expertise in selecting the quality grass, cutting it and storing it.
- Production and selling of traditional beers is the responsibility of women who are the experts in its brewing and marketing.
- Market stalls selling: sweets, biscuits, fat cakes, fruits and vegetables by women who know where to purchase the raw material as well as producing the products. The men construct the stall.
- Informal labour/part time employment: doing laundry work by women, felling of trees, fence construction, fetching water by men.
- Carpentry – is mainly by men who have the knowledge on the selection of the wood and its quality as well as the market outlet.
- Acquisition of loans for business initiatives: both genders have the knowledge on where to access the loans and the loan terms for the different enterprises.
- Money was given by relatives, friends to both men and women.
- Remittances: children and husbands/wives who work bring money home from employment in order to buy food for their households. Women, men and children were all involved in wage employment.
- Engaged in income generation projects: block-making (male youth) as they have the skills and knowledge of how to make the bricks, second hand clothing, hawking was done by women who know where to purchase the stock and possible markets for it.
- Full time employment for both men and women.

Drought has forced most able-bodied farmers in the communities to migrate to South Africa and other places to seek employment. Most of the people found in the areas visited were women, retired men, children and the chronically ill. Women were also found to be bartering their labour for food. Most of the women interviewed pointed out that during the harvesting season they go to their natal homes in the high rainfall areas

to work for food. This was found to be a very common practice in all the areas in the case study.

3.8.3 Food Relief

To mitigate the effects of food security, outside assistance is also present in the area. NGOs such as World Vision, Lutheran Development Services, Red Cross and Swaziland Farmer Development Services provide food aid to communities such as: Nkonka (Lavumisa), Sicilweni (Sithobela) and Mnjoli (Mliba). There were complaints at Mavula that although they were food insecure they do not receive any food aid. There are a few programmes that provide food for orphans using both food aid and the farming of communal land. While food aid seems to be appreciated there have been complaints by the communities that rations are not adequate to last them for a month, the food is not palatable and causes skin rashes, and not all the homesteads are benefiting from the programme as the selection criteria for the beneficiaries is questionable.

3.8.4 Coping Strategies

Communities that were studied were faced with a lot of challenges related to the persistent drought and HIV/AIDS that had a negative impact on their livelihood. In order to deal effectively with these challenges, numerous coping strategies have been adopted by community members.

3.8.4.1 Coping Strategies relating to HIV/AIDS

Children particularly school going children were affected by illness and death of household members. In most communities, the families dealt with this challenge by withdrawing children from school in order for the boys to look for work and the girls to assist the women of the household in caring for the sick. Most orphans had to leave school as there was no money to take them through to higher levels. However the introduction of a government sponsorship came as a relief to many households and has allowed a number of orphans go through their education.

As a result of chronic illnesses and/or death of household members labour is lost in caring for sick and in attending funerals. In most households labour was reallocated among healthy or surviving spouses, and resulted in heavier workloads, especially for women. Most households in the case study decreased the acreage planted in order to cope with labour shortages. Reducing acreage means that households get a lower yield and it is a challenge to household food security. Another coping mechanism is to fall back on the strong social and family network of Swazi society. Most respondents pointed out that relatives, friends and neighbours who are not affected are called upon to assist the affected household. These provide food, money, transport and other assistance to relatives and friends.

Government has introduced free medical consultancy and medication for HIV positive patients and for poor households to help them to cope with the increased expenditure for medical bills and funerals. Transport and access roads to these medical facilities however, remain a challenge.

3.8.4.2 Coping Strategies Relating to Drought

The persistent drought in the communities that were visited brought about food insecurity and other challenges. The following coping strategies have been used:

- Begging for food from neighbours especially the aged
- Asking for food from relatives in areas that have had better harvests
- Working for neighbours in exchange of food, e.g. harvesting labour, fetching water etc
- Some men indulge in traditional beer, which is also regarded as a source of food to fulfil their hunger
- Some people have borrowed land from high rainfall areas to farm
- Temporal migration to areas where drought is not severe

Chapter 4 - Conclusions and Recommendations

4.1 Conclusions

Crises such as drought, chronic illnesses and HIV/AIDS negatively impact livelihood assets and are found to result in food insecurity. The impact of the epidemic on household labour represents one of the major losses to the household's human capital. Chronic illness of a household member limits a member's productive capabilities. Secondly, chronic illness and death of a household member results in reduction in labour available to the household for household and agricultural production. Illnesses and death also results in the loss of knowledge that individuals possess on cropping systems, prices and marketing, livestock raising, etc. Skills such as brick making, stove making, etc. are also lost when a member falls sick and eventually dies.

Financial capital is threatened as wages from heads of households and remittances from employed members of the household decrease or disappear with illness and drought. There is also a liquidation of physical assets (household, machinery and livestock) in times of crises in order to obtain the required financial resources to be spent on paying medical bills, buying groceries for the ill members and to cater for funerals. Financially challenged household members also ask relatives and friends to assist as the social capital from the nuclear family fails to cope. The natural capital is also under attack as households fail to utilise all their arable land and reduce acreage under cultivation.

Gender inequalities exacerbate the impacts of HIV/AIDS on rural households. Women are more physically vulnerable to HIV/AIDS than men and they are also more susceptible to social and economic outcomes caused by the epidemic. When a husband dies a woman loses income if the husband was a wage earner and any income from self-employment as this income-generating activity is usually ceased. Men are responsible for certain agricultural tasks and once they are deceased women have to take over these tasks particularly agricultural tasks. This results in the increase in women's workload as they are expected to perform all agricultural tasks, household tasks and also care for the children and the sick members of the household and the community.

HIV/AIDS increases the nutritional demands in households, as HIV positive household members require highly nutritious food. People living with HIV/AIDS have special nutritional needs to assist them in remaining active and productive workers, wadding off the opportunistic infections and prolonging their lives. "Various studies indicate that people who are food insecure, especially those who eat inadequate amounts of calories and nutrients, are more vulnerable to HIV infection. In such cases, HIV infection tends to process rapidly to full blown AIDS which in turn leads to rapid death." (UNDP, 2000)

Both HIV/AIDS and drought push rural households into vicious cycles of food insecurity that debilitate their livelihood strategies. Households employ both mitigation strategies to minimize the negative impacts of these crises and they endeavour to cope with their ailments in order to improve their livelihoods. Some of these coping strategies include withdrawing children from school, reducing acreage and switching to non-labour intensive crops in order to cope with labour shortages. They also include selling livestock and other assets to cope with financial challenges. However, these coping strategies are not sustainable as they pose a major challenge to households, that of poverty and failure to attain food security.

4.2 Recommendations

The above conclusions indicate that HIV/AIDS and drought have both long-term negative impacts on communities and nations. This calls for sustainable strategies to mitigate this impact. The following are some recommendations of programs or actions that could help to create these sustainable strategies.

4.2.1 Human Capital

- Creation of more health facilities and mortuaries and locate them closer to the rural communities.
- Increase in the number of Rural Health Motivators (RHMs) in the communities for a more effective coverage.
- Provision of protective materials for RHMs and caregivers such as diapers, condoms, latex gloves, etc.

4.2.1.1 Labour Shortages

- Introduction of labour saving technologies to save both agricultural and household labour. This includes women and children friendly agricultural equipment and male friendly household technologies.
- Formation of labour sharing associations.
- Efforts should be made to make more tractors available during October and February when there is high demand to maximize use of the rains, this could be done through the government service or through tractor hire services.
- Formation of community care associations to assist with caring for sick members of the community.
- Potable water for household use would reduce the need to travel long distances to collect water.

4.2.1.2 Skills and Knowledge

- Access to extension services via the Ministry of Agriculture, NGOs, DPMs office should be increased and the extension messages should be directed to all members of the community.
- Skills training should be gender neutral, that is, both women and men can be trained in all skills, including men trained in clay pot making, home economics, etc. and women trained in carpentry, hide making, tractor driving, etc.
- Establish community seed banks in order to ensure a reserve for planting the next season.
- Encourage farmers to transfer agricultural knowledge to their spouses and children at the initial stage of family formation so that they possess this knowledge and apply it when the need arises.
- Knowledge sharing among community members should also be encouraged so that more than one person in the community has knowledge on certain practices.
- Capacity building programmes for communities on: HIV/AIDS, Nutrition, Life Skills especially for the youth, and group development could increase community knowledge about these issues.

4.2.1.3 Nutrition

- Irrigation for nutritional foods - better irrigation schemes will help to produce the non drought-resistant local varieties that are the staples of Swazi diet.
- Nutritional education programmes should be initiated to teach the basics of a healthy diet and to inform about the nutritional advantages of growing certain

types of crops.

4.2.3 Financial Capital

- Introduce rural credit schemes to offer small loans to rural communities.
- Encourage communities to form associations for savings and credit.
- Creation of off-farm job opportunities in the rural communities, such as processing and industry would improve opportunities for wage employment.

4.2.4 Social Capital

- Government should enhance the already existing community based institutions to assist affected rural communities with income generating projects.
- Creation of marketing outlets for products made by community members: handcrafts, carvings, and vegetables.
- Local leaders could assist their chiefdoms by providing the needed infrastructure such as roads, clean water, etc. for marketing and transporting the sick to hospitals cheaper.
- Specifically, the construction of accessible feeder roads would create easier movement within the communities.
- Construction of dams to increase food production for consumption and sale and also to irrigate commercial crops.

4.2.5 Gender Inequality

- Propose legislation that will increase access to and ownership of resources, including credit, for women.
- Design specific extension services to target specific issues that face women and youth.
- Seek to address inequities in cultural practices that make women more vulnerable to HIV/AIDS.

Bibliography

Barret, T. (2003). The Challenges of HIV/AIDS for Food Security and Nutrition. Paper delivered at the Barcelona AIDS Conference, July 2002.

Central Statistics Office, (2001), Swaziland Agricultural Survey 2001/02

Dlamini-Kunene, F.P.N. (2003). HIV/AIDS on Agriculture in Swaziland: The need for alternative policy intervention. An unpublished MA research paper, Williams College, CDE, Williamstown, Massachusetts.

Dong, Q. and Hourihan, J. (2004). The Impact of HIV/AIDS on Rural Livelihoods in Northern Province, Zambia.

FAO (2003). FAO/WFP Crop and food supply assessment mission to Swaziland, Special report, June 2003.

Gari J. A., (2001). Agrobiodiversity, Food Security and HIV/AIDS Mitigation in Sub-Saharan Africa Strategic Issues for Agricultural Policy and Programme Responses.

FAO (2004). LinkS Training Manual, 2004, Rome, Italy.

Loewenson, R. and Whiteside, A. (1997). Social and Economic Issues of HIV/AIDS in Southern Africa, SAfAIDS Occasional Paper Series No.2, Harare, Zimbabwe.

Magagula G. T. and Faki H. M. (1999). Comparative Economic Advantage of Alternative Agricultural Production Options in Swaziland.

MOAC, FES and UNTG (2002). The Impact of HIV/AIDS on Agriculture and the Private Sector in Swaziland. Jubilee Printers & Publishers, Matsapha, Swaziland.

Mutangadura, G., Mukuruzita, D. and Jackson, H. (1999). A Review of Household and Community Coping Responses to the HIV/AIDS epidemic in the rural areas of sub-Saharan Africa. UNAIDS Best Practice Paper, June 1999. New York, UNAIDS.

Rugambisa, J.I. and Mabuza, M.L. (2003). An assessment of the effect of HIV/AIDS on food security and natural resources management. A research document submitted the United Nations Development Programme (UNDP), Swaziland.

Swaziland Human Development Forum and United Nations Development Programme (2001). Swaziland Human Development Report 2000. Economic growth with equity. UNDP, Mbabane.

Swaziland National Vulnerability Assessment Committee (2004). A Study To Determine The Links Between HIV/AIDS, Current Demographic Status And Livelihoods In Rural Swaziland, Mbabane, April, 2004, Swaziland.

Swaziland National Vulnerability Assessment Committee (2003). Swaziland Livelihood Based Vulnerability Assessment. Mbabane.

Tumushabe J. and Waal A. (2003). HIV/AIDS and Food Security in Africa: A Report for

DFID.

Whiteside, A., Hickey, A., Ngcobo, N. and Tomlinson, J. (2003). What is driving the HIV/AIDS epidemic in Swaziland and what more can we do about it? Report prepared for the National Emergency Response Council on HIV/AIDS (NERCHA) and United Nations Programme on HIV/AIDS (UNAIDS), Mbabane, Swaziland.

UNDP, (2001), Swaziland Human Development Report, 2000

World Food Programme (2001). Food Security and HIV/AIDS. Information Notes. WFP/EB.3/2002/IFN/18. Rome, Italy.

APPENDIX 1 - Tables

Food Security

Table 1. Crops

Type of crop	Responsibilities			Local knowledge		
	Men	Women	Child.	Men	Women	Child
Maize (ummbila)	v	v		v	v	
Sorghum (emabele)	v	v		v		
Cowpeas (Tinhlumaya)		v			v	
Beans (Sigwaca) (Insambansamba)	v	v		v		
Mung Beans (Mangomeni)		v			v	
Jugo beans(tindlubu)		v			v	
Groundnuts(emantongomane)	v	v		v	v	
Sweet potatoes	v	v				
Melons /cucurbits (Emaselwa, emajoti, ematsanga)		v			v	
Vegetables	v	v		v	v	
Cash Crops: Cotton	v	v		v		

Defination of term on Local Knowledge: In terms of responsibility for production by the specific group: Men, women, children

Table 2. Livestock

Type of livestock	Responsibilities			Local knowledge		
	Men	Women	Child.	Men	Women	Child
Cattle	v			v		
Goats	v	v			v	v
Chickens	v	v		v	v	v
Pigs	v	v			v	
Guinea Fowls (Imphangele)	v	v			v	v

Defination of term on Local Knowledge: In terms of responsibility for production by the specific group: Men, women, children

Agro-biodiversity Management

Table 3. Wild Plants – Edible

Type of plant	Use of plant	Availability period	Local knowledge		
			Men	Women	Child.
Ligusha	Source of relish	Spring and summer		v	
Imbuya	Source of relish	Spring and summer		v	
Emahala	Relish Medicinal – B.P.	Throughout the year	v	v	
Sikhwa	Source of relish	Throughout the year		v	
Ingotjwa	Relish Medicinal	Throughout the year	v	v	
Mandwandwe	Relish	Cultivated plant and available in spring and summer		v	
Chuchuza	Relish	Spring and summer		v	
Mushrooms	Relish	Summer	v	v	
Inkakha	Relish Medicinal –B.P.	summer	v	v	
Inshubaba	Medicinal	Summer	v	v	

Defination of LK. : In terms of use of the plant by the specific group: Men, women, children

Table 4. Wild Fruits – Edible

Type of plant	Use of plant	Availability period	Local knowledge		
			Men	Women	Child
Emantulwa	Source of food and as fruit juice	Summer	v	v	v
Figs (emakhiwa)	Source of food mixed with emasi and as a fruit	Throughout the year	v	v	v
Palm fruit	Source of food as a fruit	Throughout the year	v	v	
Umkhwakhwa	Source of food	Winter	v	vv	
Emahlala	Source of food	Winter	v	vv	
Emaganu	Source of food, making traditional beer	Summer		v	vv
Tinganu	Used with relish as a spice	Winter		v	v
Umncaka / tineyi	Used as a fruit	Summer	v	v	v
Umpfafa	Used as a fruit	Winter	v	v	
bukhwebeletane	Used as a fruit	Summer		v	vv
Tincozi/iyindoni	Used as a fruit	Summer		v	vv

Damtiliki / sdolofiya	Used as a fruit	Throughout the year			v
Sangongongo/lahlabantfu (used in a ritual for the dead)	Fruit	Summer	vv		
Tinklele	Fruit	Summer		v	v
Guavas	Fruit	Summer	v	v	vv
Uvutfwamini	Fruit	Summer		v	vv
Ematfundvuluka	Fruit	Summer		v	vv
Emakholojtane	Fruit	Summer		v	vv
Ematelemba	Fruit	Summer		v	v

Definition of LK. : In terms of use of the plant by the specific group: Men, women, children

Table 5. Exotic Fruits – Edible

Type of plant	Use of plant	Availability period	Local knowledge		
			Men	Women	Child.
Peaches	fruit	Summer	vv	vv	vv
Berries	fruit	Summer	v	vv	vv
Avocados	fruit	Throughout the year	v	vv	v
Pawpaws	Fruit and traditional beers	Throughout the year	v	v	vv
Guavas	Fruit	Summer	v	v	vv
Banana	Fruit	Summer/winter	v	vv	vv
Mango	Fruit	Summer	v	v	vv
Umncozi	Fruit	Summer	v	vv	vv
Oranges	Fruit	Winter	v	v	vv

Definition of LK.: In terms of use of the plant by the specific group: Men, women, children

Table 6. Edible Insects

Type of insect	Use of insect	Availability period	Local knowledge		
			Men	Women	Child.
Tibati	Food source-relish	Summer		vv	vv
Emacimbi / Emanyamane	Food source - relish	Summer		vv	vv
Lihlabosi (ant)	Food source –relish	After rains-summer	v	vv	vv
Tinhlwa (ants)	Food source –relish	Summer or after rains			
Tintsetse (Grasshoppers)	Relish source	Summer	v	vv	vv

Definition of LK. : In terms of collection: Men, women, children

Table 7. Non -Edible Trees

Type of tree	Use of tree	Availability period	Local knowledge		
			Men	Women	Child.
Umkhaya	Firewood	Throughout the year	v	vv	v
Sitfetfwe	Firewood	Throughout the year	v	vv	v
Lusekwane / umzilazembe	Firewood	Throughout the year		v	v
Umtfombotsi	Woodwork	Throughout the year	vv	v	v
Imbondvo	Firewood	Throughout the year	vv	vv	v
Umganu	Firewood	Throughout the year			
Inhlashwana	Medicinal for prevention of abortion in cattle	Throughout the year	v		

Definition of LK. : In terms of selection and knowledge on use: Men, women, children

Table 8. Nutrition

Meal	Group			Extra food consumed in between the meals
	Men	Women	Child.	
Breakfast	v		v	Emahewu for men
Lunch	v	v	v	Depending on season: fruits, traditional brew, emahewu, roasted maize (tincobo)
Supper	v	v	v	

APPENDIX 2 - Questionnaire Guide

Date of Interview:

Community name:

Target respondents: Individual key informants – RHMs, Agric Extension Officer
In-depth Interviewees

What information do we need to get?

Used for individual-

1. Demographics

Name of head

Optional

Respondent

relationship to head.....

Area

Age of Respondent.....

Occupation.....

place of residence

2. Activity Profile

Activity	Gender	Time
Ploughing (draft animals)		
Ploughing (hand)		
Ploughing (tractor)		
Planting (with plough)		
Planting (broadcasting)		
Planting (tractor)?		
Weeding (hand)		
Weeding (animal draft)		
Fertilizing		
Harvesting		
Threshing		
Winnowing/willing		
Tending cattle		
Milking		
Tending poultry		
Tending small stock		
Hunting		
Fetching water (distance)		
Fetching firewood (distance)		
Cooking		
Childcare		

Care of sick members
Woodwork
Handicraft
Other

3. Characteristics of Agriculture

Number of fields
Cultivated last year
Reasons for change in cultivated area
Distance of fields from home
Number of livestock
Livestock last year
Reasons for change in livestock
Number of small stock
Changes and reasons for change

4. Crop Husbandry

Area	Crop	yield	use of fertiliser	pest/disease control
------	------	-------	-------------------	----------------------

*type of farming systems used by the community-probe -on draught power or tractor, mono crop or intercropping, what is intercropped/mono cropped

Constraints faced by farmers in pursuing their livelihoods

Agro-biodiversity

Are there any edible wild plants in the area? If yes, probe on name and reason for eating it and when they are available, who collects,
Are there any edible wild fruits? If yes, probe on name, reason for eating, when available, who collects
Are there any edible wild plants that are extinct, why?
Are there any edible insects? If yes, probe on name, reason for eating them and when are they available, who collects
Are there any edible insects that are extinct
Are there any that are grown from other parts
How do you use trees/forests
Do you have a practice of tree planting
Do you plant same variety seed as of 10 years ago
Have you noticed any of the following:
-increased harvesting of wild fruits and vegetables, any extinct varieties
-increased sale of firewood
-depletion of game species
-extinction of livestock breeds

Animal husbandry

Livestock available, probe on, cattle, donkeys, mules, goats, chicken, pigs, etc
What purpose do they serve?
Who is responsible for upkeep

Hunting, what is hunted, who hunts, when
Is there any game that is extinct, why?

5. Local Knowledge

Knowledge of crops to grow in the area and who possesses such knowledge
Knowledge of seeds, which and how to find the seeds
Knowledge on how to plough and use of oxen
Knowledge on how to use fertiliser/manure
Knowledge on weeding
Knowledge on stalk borer control
Knowledge on scarring birds and rodents
Knowledge on harvesting and avoiding crop losses
Knowledge on building cribs and other food storages
Knowledge on inter cropping
Knowledge on crop rotation and conservation
Knowledge on weather hazards and control. (how to avoid weather hazards).
Knowledge on local breeds
Knowledge on health of animals
Knowledge on prevention and treatment of animal diseases
Knowledge on soil conservation
Knowledge on soil fertility
Knowledge of prices and markets

*how is local knowledge shared in the community?

6. Drought

Weather Conditions

Rain

Weather hazards

Seasons

Any changes over the last 2 years?

If yes what are the changes?

Have you experienced any drought? If so, which years?

What is the nature of the drought?

Probe on: Rain failure throughout the year

Rains come later in the year-probe on which months and for how long.

*What are the causes of the drought

what are the consequences of the drought on the following:

-agrobiodiversity

-farming systems

-local knowledge

-household

7. Food Security

Do you have food available during the four seasons

Probe on: summer, autumn, winter and spring

What food is available throughout the year?

What is the source of the available food?

Are there any changes observed overtime with household food security, if so what the changes are and which livelihood is affected?

what are the causes of the changes?

probe on: drought
illnesses

*which institutions are available in the community that support households affected by the above?

what kind of support is given

-to what extent

probe on: food for work

drought relief

NGO programme (specify)

Other-specify

who is eligible to get food aid?

what are your views about food aid?

What kind of assistance would you prefer?

8. *Sources of income

where do community members get income?

Probe on: Sale of produce

Sale of livestock

Sale of assets

Earnings

Loans

Remittances

*who has control over income (resources) at household level?

*constraints faced by a specific/given group in diversifying their sources of income

How would you like to make money?

9. Income Expenditure

How do you spend your income?

Probe on: Food

Capital items

Services, e.g. hired labour, hired draft

Farm inputs

School fees

Medical bills

others

10. Health

Are there any people in the community who are suffering from frequent or long-term illnesses

What are the symptoms

Sex of sick member/s

Length of sickness

Ability to work on farm/wage earner

Constraints due to ill health

Strategies

What are your coping strategies?

13. Recommendations

What are your recommendations

APPENDIX 3 - Report Back Meetings

At the report back workshops, a summary of the findings was presented to the communities and the stakeholders involved in the study. The report was divided into 2 sections focusing on the impact of HIV/AIDS on local knowledge for agrobiodiversity and food security and the other focusing on the impact of drought on local knowledge for agrobiodiversity and food security.

Number of Participants By Gender

area	women	men	youth	Total
Mavula	80	20	10	110
Sicilweni	50	20	30	100
Mliba	40	18	5	63
Lavumisa	20	40	4	64

As indicated by the table above, most of the participants were women. Mavula had the highest number of participants, thanks to the Ministry of Agriculture and Cooperatives who had a keen interest in the study.

Issues Raised after Presentations

a) HIV/AIDS related Issues

Definition of HIV/AIDS

To the satisfaction of the researchers, most participants were capable of defining HIV/AIDS; they understood and acknowledged that AIDS kills nations (umbulalave). They also understood the causes of HIV/AIDS and the need to protect themselves. However, most of the participants had a negative attitude towards the methods of prevention particularly condom use. Some women, men and the young participants believed that condoms have AIDS and hence their reluctance to use them. One participant at Mliba asked the question whether people who use condoms couldn't be infected. It was explained that they could be infected because of human error and also that condoms reduce the chances of getting infected not that it prevents AIDS 100%.

HIV/AIDS Infections

Most participants acknowledged that the rate of infection is high in their communities as they pointed out that strange diseases attack members of their communities and they lose weight and die. Community Health Motivators in particular who had been educated about HIV/AIDS pointed out that they care for community members who are HIV positive. Others said that the patients have already divulged to them that they are indeed HIV positive. However, most of these have not divulged their status to their immediate families because of the stigma. Participants were encouraged to take up the test and know their status so that they can deal effectively with their status and change behavior. Most women participants felt that it is the duty of their male counterparts to take their

families for the test because they are the decision makers in the homes.

Attitude and Ignorance

Ignorance particularly among the youth on HIV/AIDS still continues as they fail to change behavior. Participants also acknowledged that they had neglected their parental role because they fear that children have rights and they can take them to court. Researchers explained that the issue of children's rights is meant to protect children from abusive parents and adults and not to interfere with parents' parenting role and appropriate discipline. Participants requested for workshops and debates on rights, both women and children's rights.

Men were also said to be less concerned about the issue of HIV/AIDS, although they hold the key to the solution to this problem. Men at Lavumisa acknowledged that they are the decision makers in the home and therefore need to take decisions on how to save their families from the scourge.

The Impact of HIV/AIDS

Participants endorsed the finding that HIV/AIDS has impacted negatively on their livelihood assets and this has affected production of crops for both consumption and commercial purposes as follows:

- The ill family members no longer send remittances
- Most of the family and community labor is spent caring for sick members of the community
- Sick people return to the rural communities to be cared for
- Preference for less labor intensive crops even if the nutritional value is compromised
- Finances are spent in taking care of the sick members of the community
- Loss of local knowledge as family members fall sick and eventually die from HIV/AIDS related illnesses
- There is indiscriminate exploitation of the natural environment as traditional healers research and experiment on different herbs to find a cure for HIV/AIDS
- Women are the most affected as they are the care givers and nurturers for the ill family and community members and for orphans
- Increase in sale of livestock for hospitalization
- Slaughter of animals at funerals as it is our custom to feed the mourners.
- HIV/AIDS has caused a decline in food security

Recommendations

- Provide institutional support to communities by making VCTs and hospitals accessible to communities
- All people should work towards change of behavior including sexual behavior
- More education and campaigns on HIV/AIDS
- Mandatory testing
- Community members to support families with HIV positive members and removal of the stigma

- Food aid should be provided for people living with HIV/AIDS as their families are spending most of the time caring for them with limited resources
- Creation of job opportunities at the community level
- Supply communities with seeds for nutritious foods that they can grow and feed the HIV positive family and community members. These crops should not be labor intensive as the community members are weak from chronic illnesses

(b) Drought Related Issues

The following issues arose from the feed- back meetings:

Definition of Drought

Participants defined drought not in terms of complete absence of rain but in terms of the rainfall pattern change from what is predictable to non-predictable. This means that their problem could be solved through the provision of the means of production such as tractors so that they can plant early or as the rains become available. They see their problem as non-availability of tractors and also the tractor hire cost. Participants were educated on the use of donkeys, which are hardy and can do the same job as tractors. Participants particularly at Mavula had a negative attitude towards donkeys and discouraged farmers from rearing donkeys. When the extension officer among the team suggested that they could even use donkey manure in their fields, one elderly man warned farmers against doing that because they would have crop failure. This debate was later abandoned because of time constraint.

Attitude Towards Certain Crops

Most male participants had a negative attitude towards growing certain crops as they stuck to growing maize even when the rain affects it. Most men were adamant that they want to grow maize against all odds. Crops such as drought tolerant root crops were despised and labeled women's crops.

Unavailability of Seed/Cuttings

Participants pointed out that although they would like to grow drought tolerant crops to feed their families they couldn't find the seed or cuttings for root crops. At Lavumisa in particular participants pointed out that there are no cuttings for cassava and sweet potatoes, which they would like to grow in their area. The extension officer with the research team promised to assist farmers with cuttings. Participants also pointed out that they do not have seeds for drought tolerant legumes, which they wanted to grow. One lady participant stood up and told participants that she had a lot of seed for juko beans, peanuts and sesame. She invited farmers to come and buy this from her at a reasonable price.

Pricing

Pricing for crops was also raised as an issue. Participants were not happy with the price structure whereby government sets the price for crops such as maize and cotton when the cost of production is very high. At Mavula, participants pointed out that government is discouraging them from producing such crops if she sets the price without consultation

with the farmers. There was a request that researchers should take this up with government.

The Impact of Drought

Most participants endorsed the finding that the drought has had a negative impact in their lives in the following manner:

- Reduction in yield and nutritional status of crops and wild edible plants and fruits
- Reduction in acreage planted as the rains are not predictable
- Poor harvest has contributed to loss of income and inability of farmers to acquire loans particularly the cotton farmers
- The drought is influencing farmers to change cropping pattern from maize for example to legumes and root crops such as cassava
- Some farmers have abandoned farming and have instead acquired jobs in order to survive, and that the youth is not eager to stay in the rural areas
- Significant reduction in the number of livestock because of drought
- Reduction of the water level which will have a long term effect in the agricultural sector
- Decline in vegetation cover as lack of rain affects it
- Reduction in organic matter
- Reduction in edible tree and plant species
- Medicinal plants have dried up and debarking of trees resulted to eventual death of the tree and loss of species
- Extinction of local breeds and replacement with cross-breeds which are not preferred by farmers as they are not strong enough to be used as draught power and are very difficult to manage

LinKS Project

Gender, biodiversity and local knowledge systems for food security

LinKS project

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