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**THE IMPACT OF HIV AND AIDS ON AGRICULTURE AND FOOD SECURITY
IN SWAZILAND**

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ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
CSO	Central Statistical Office
DAPP	Development Aid from People to People
FAO	Food and Agriculture Organization of the United Nations
HIV	Human-Immuno deficiency Virus
NGO	Non-Governmental Organization
SADC	Southern African Development Community
SPSS	Statistical Package for Social Sciences
UNDP	United Nations Development Programme
WFP	World Food Programme
MOAC	Ministry of Agriculture and Cooperatives
NERCHA	National Emergency Response Committee on HIV and AIDS
SVAC	Swaziland Vulnerability Assessment Committee
SADC	Southern African Development Community

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EXECUTIVE SUMMARY

Agriculture is the main source of livelihood of the majority of people in Swaziland. About 70% of the population live in rural areas and derive their livelihoods from agriculture. HIV and AIDS pose a developmental problem and challenge the ideals of a long-term strategy for poverty reduction and food security in the country. These challenges include the depletion of human capital, diversion of resources from agriculture, loss of farm and non-farm income together with other forms of psychosocial impacts that affect agricultural productivity. The combined effects of these factors are lack of food and deterioration of access to food.

This study was conducted to examine the impact of HIV and AIDS on Agriculture and Food linkages between HIV and AIDS, agriculture and food insecurity in response to a combination of the high prevalence of HIV and AIDS in Swaziland with the rising levels of poverty and food insecurity. The overall objective of the study was to determine the impact of HIV and AIDS on agriculture and food security. Specifically, the study aimed to determine the impact of HIV and AIDS on; labour availability, agricultural production and productivity, asset ownership, food security, and to identify coping strategies that are used by affected households to sustain their livelihoods.

This study covered the rural populations of all the four regions in the country, Manzini, Hhohho, Lubombo and Shiselweni. Upon realising that HIV and AIDS still carry a widespread stigma, it was deemed appropriate to use symptoms of HIV and AIDS related infections as proxy indicators of affected households. The study employed a purposive sampling method mainly because of the advantages it has when you want to get certain desirable characteristics of the population other than getting a representative sample. The sample size was 847 households.

Whilst it remains extremely difficult to ascertain the exact impact of HIV and AIDS without relying on time series data, the study provided strong evidence of a devastating effect on agriculture and food security in Swaziland. A substantial number of the respondents (41 %) in the study reported having had at least a family member with signs of HIV and AIDS related illnesses, and the majority (77%) of them indicated that they had lost a family member as a result of HIV and AIDS related illnesses. The study indicated that 65% of the households in the sample had a sick member or had lost a member within the 18 to 59 age range in the household as a result of HIV and AIDS related illnesses.

Like in most developing countries, the HIV and AIDS pandemic in Swaziland mirrors the conditions of gender inequality and poverty. As shown by the study, women in Swaziland are more vulnerable to HIV and AIDS compared to men. About 67 percent of the households in this study had lost female members. This could be attributed to among other things, the practice of polygamy. Also, when the man falls sick it is the responsibility of the wife to provide the necessary care and take on additional duties to support the family. This has made women more vulnerable to the disease.

The mortality indicators of HIV and AIDS indicate that about 66 percent of the households with dead members in the four regions are women. The morbidity proxy indicate that in about 67 percent of households the members suffering from HIV and AIDS related sicknesses were women, thus confirming that women are more affected than men in Swaziland.

It can be ascertained that, whilst a number of the members of the affected households were living on farms, only a few of these households had reported a decline in land utilisation. The study showed that in the Lubombo region 63 percent of the households had members that were sick or had died of HIV/AIDS related sicknesses and although these were household members living on farms, only 25 percent of them experienced a fall in land utilisation. In the other regions the study indicates that about 7 percent of the affected households had experienced a decline in land utilisation. However, by utilising

further information it has been observed that households that had sick or dead members as a result of HIV/AIDS related diseases and were living on farms reported a change in their land utilisation the most.

Using the household vulnerability index (HVI), the study has shown that a considerable proportion of the households (77.9%) were in the coping households (CHH) vulnerability level, and this implies that they were in a vulnerable situation but can still cope with the situation. However, a substantial proportion (22%) could be classified as being acute level households (ALH). These households had been hit so hard that they urgently needed assistance to the extent of requiring an acute health care unit in hospital. With some rapid-response type of assistance these families could be resuscitated

The study concluded that the most affected component of agriculture was livestock, where, as a result of the pandemic, households had resorted to the sale of their livestock as a means of sustenance and to pay for medical and funeral bills. Crop production had diminished as a result of the fall in land utilisation, unaffordable inputs, household labour diverted to caring for the sick, and skilled people dying or falling sick, leaving behind people with limited skills on how to manage crop production.

The high prevalence of HIV and AIDS in the country undermines government's effort to alleviate poverty, which in turn, makes people and households even more vulnerable to the pandemic. The death of a household member results in losses of finances that households used to get from wages and remittances from those members of the household who were in gainful employment before the household was hit by HIV and AIDS. In order to get the required financial resources, households resort to selling of their physical assets such as household assets and livestock. Most of this money is spent in paying medical bills and caring for the ill members and also to cater for post death expenses, e.g. funeral and cleansing. 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 utilize all their arable land and reduce acreage under cultivation.

In response to the pandemic and its consequences there is urgent need for government and non-governmental organizations to combine their efforts to come up with a comprehensive set of policy measures. These policy measures should include direct policy, such as health policy targeted on improving the health of those already affected, whilst providing preventive health services to those not affected. Whilst Swaziland has adopted the Primary Health Care (PHC) strategy to provide preventive and promotional health services particularly in rural areas, fewer resources are channelled towards the provision of antiretroviral drugs and food, which will help to prolong the life and enhance productivity of the affected. It is also crucial to ease women's disproportionate care burden in HIV and AIDS affected households by supporting the home-based care centres, thus allowing them more time to concentrate on income-generating projects.

As part of the policy measures there should be policy interventions that would assist the affected households to maintain their agricultural production and food security, such as agricultural policy, food-aid policy and rural development policy. These policy interventions should be aimed at mitigating the negative effects of HIV and AIDS on agricultural output. For example, in cases where labour resources are affected as a result of the pandemic, training by agricultural extension staff on the introduction of less labour-intensive crops such as growing cassava instead of maize, because it has the same nutritive value, should be encouraged. There is also a need to promote small livestock like poultry and goats as enterprises that affected households could engage in for their livelihoods.

Government should also, through its community-based programmes, revive and support labour-saving cultural practices such as communal labour to assist labour-constrained households by introducing incentive systems at the community level. Small loan facilities should be readily available to the affected households to help them purchase agricultural inputs, such as fertilizers or even start some agrarian based businesses to sustain themselves which can be monitored by agricultural extension officers. To bridge the farming knowledge gap between the affected household members and the survivors,

mainly women and children, there is need for both formal and informal training to assist them cope with the situation.

To complement the above policies there is need to develop policy interventions derived from food security and rural development programmes. In pursuing these policies, government in collaboration with NGOs should intensify its programme of distributing food aid by ensuring that HIV and AIDS households receive their quota. The study has clearly indicated that land rights are biased against women who after the death of their husbands are not allowed to own or acquire land for agricultural production. It is therefore important for policy makers and development practitioners to support the land rights of the vulnerable people and further assist them to maintain usage of the land. Also in line with empowering women, cultural practices that expose women and make them vulnerable to contracting HIV and AIDS need to be considered, especially that of having women passed down to a brother in law without her consent when the husband passes away. The mourning period for women also needs to be reviewed to allow them to engage in productive work after the death of the husband.

THE IMPACT OF HIV AND AIDS ON AGRICULTURE AND FOOD SECURITY IN SWAZILAND.

SECTION ONE: INTRODUCTION

1.1 BACKGROUND

Agriculture is the most important sector of the economy of the Kingdom of Swaziland. It contributed about 16 percent to the GDP in 2003. The sector offers employment to 75 percent of the Swaziland population and is the major source of raw materials for the local and international markets (Mushala, 2003; SHDF and UNDP, 2001). Studies done in Swaziland and other countries have shown that AIDS will have adverse effects on agriculture, including loss of labour supply and remittance of income (MOAC *at al.*, 2003; Muwanga, 2003; Swaziland Vulnerability Assessment committee (SVAC), 2004). The loss of a few workers at the crucial periods of planting and harvesting can significantly reduce the size of the harvest. In countries where food security has been a continuous issue because of drought, any declines in household production can have serious consequences. Furthermore, a loss of agricultural labour is likely to cause farmers to switch to less-labour-intensive crops (Rugambisa and Majola, 2003; Mushala, 2003).

The Kingdom of Swaziland is experiencing its fourth consecutive year of adverse climatic conditions. Declining crop production is increasing the number of people facing varying degrees of food insecurity (FAO/WFP, 2005). Furthermore, livelihoods across all Agro-Ecological Zones (AEZ) and administrative regions have been damaged due to the continuing downward spiral of increasing unemployment, HIV and AIDS prevalence rates and poverty. Even in cases where households have close to a normal harvest this year, it cannot be assumed that they have sufficiently recovered from several years of successive crop failure. Many households are facing chronic and acute food insecurity, which is not merely caused by poor climatic conditions, but is also compounded by the effects of HIV and AIDS and a general economic decline (FAO/WFP, 2005).

Swaziland is one of the countries most affected by HIV and AIDS epidemic in Sub Saharan Africa (Mushala, 2003; NERCHA and UNAIDS, 2003). More than 75% of the population is classified as rural, while only 22.5% reside in urban areas (SVAC, 2004). Between 1997 and 2003, the annual increase in the rural population was 2.01% compared to 2.79% recorded between 1986 and 1997. This decline in population growth rate is conjectured to be a result of decrease in fertility and increased mortality. The mortality rates in Swaziland had been declining until the 1990s when the trend was reversed due to an increase in the HIV and AIDS epidemic (SVAC, 2004).

The first HIV infection in Swaziland was identified in 1987 (Swaziland Government, 1998). The government responded by establishing the National AIDS Prevention and Control Programme (NAPCP), which was later renamed the Swaziland National AIDS/STI Programme (SNAP), with support from the WHO's Global Programme on AIDS. By the end of the 1990's a standard package of interventions had been put in place. As in most countries this was done through the Short Term Plans which evolved into Medium Term Plans (Whiteside *et al.*, 2003). The interventions included mandatory screening of all donated blood; Information, Education and Communication programmes (IEC); condom promotion and distribution; and the establishment of AIDS Information and Support Centres. For the first seven years of the epidemic the main source of data were notified AIDS cases and there was a steady increase from the earliest AIDS case in 1987 to over 150 in 1993. In 1992 the original national survey of women attending ante-natal clinics (ANC) was carried out, and HIV prevalence in this group was found to be 3.9 percent.

In 1999 the King declared HIV and AIDS a national disaster and a Cabinet Committee on HIV and AIDS and the Crisis Management and Technical Committee (CMTC) were established. Government recently set up the National Emergency Response Committee on HIV and AIDS (NERCHA) as a multi-sector body to co-ordinate the government response. NERCHA replaces the dissolved CMTC. Other initiatives for the prevention and control of the epidemic have been spearheaded by the Federation of Swaziland Employers (FSE), NGOs, churches and communities (Whiteside *et al.* 2003)

According to the Swaziland Vulnerability Assessment Committee (SVAC) and the SADC and FANR VAC (2003), the HIV and AIDS epidemic has a major impact on nutrition, food security and agricultural production in Swaziland. All aspects of food security, availability, access and use of food are affected. It is commonly agreed that HIV and AIDS has contributed to the problems faced by rural households in Southern Africa. However, the extent of the contribution and how it varies according to demographic structure and the mortality and morbidity profile of households has not yet been ascertained. This study therefore, is designed to reduce this information gap and extend the understanding of the impact of HIV and AIDS on agriculture and food security.

1.2 HIV AND AIDS PREVALENCE IN SWAZILAND

Swaziland has one of the highest prevalence of HIV in the world, standing at 42.6 percent at the end of 2004 (FAO/WFP, 2005). This shows a 4% increase since 2002. UNAIDS (2002) presented the following information on HIV and AIDS prevalence in 6 countries in the Southern African region (Table 1.1). The Table indicates that 33.4% of the adults in Swaziland were estimated to be living with the AIDS virus in 2001.

Table 1.1 HIV/AIDS Prevalence in Selected Southern Africa Countries

Country	Estimated number of people living with HIV and AIDS in 2001			New AIDS orphans 2001	New AIDS deaths 2001
	Total	Adults	Adult rate		
Zimbabwe	2,300,000	2,000,000	33.7%	780,000	200,000
Zambia	1,200,000	1,000,000	21.5%	670,000	120,000
Mozambique	1,100,000	1,000,000	13.0%	420,000	80,000
Malawi	850,000	780,000	15.0%	470,000	80,000
Lesotho	360,000	330,000	31.0%	73,000	25,000
Swaziland	170,000	150,000	33.4%	35,000	12,000
Total	5,980,000	5,260,000	20.4%	2,448,000	497,000

Source: UNAIDS, 2002

The excess morbidity and mortality due to the disease has wide ranging socio-economic implications for the national economy and various sectors. According to NERCHA & UNAIDS (2003), Swaziland is rated as having the second highest national ANC HIV prevalence in the world with very little difference shown between the country's four districts. This is indicative of population morbidity and close links between rural and urban areas in Swaziland. Table 1.2 indicates that in 2002 Hhohho had the lowest rate at 36.8% and Manzini the highest at 41.2 %. These are the richer and more urbanised districts while the poor and more rural districts of Lubombo and Shiselweni had prevalence rates of 38.5% and 37.9%, respectively (SVAC, 2004).

Table 1.2 Swaziland HIV Infection Trends among ANC Respondents by Region (1994-2004)

Region	HIV Prevalence (%)					
	1994	1996	1998	2000	2002	2004
Hhohho	15.5	26.3	30.3	32.3	36.8	45.1
Lubombo	16.8	26.5	31.5	34.5	38.5	41.9
Manzini	15.6	27.7	34.8	41.0	41.2	42.5
Shiselweni	16.8	23.9	29.6	27.0	37.9	40.3

Source: FAO/WFP (2005)

The increase in the morbidity of the 15-19 and 20-24 age groups shows that Swaziland still has a long way to go in bringing the epidemic under control. This indicates that there will be a rise in illness and death until at least 2008. Table 1.3 below illustrates the HIV prevalence by age group from 1994-2002.

Table 1.3 Swaziland HIV Prevalence among ANC Respondents by Age Group (1994-2002)

Age Group	HIV Prevalence (%)				
	1994	1996	1998	2000	2002
15-19	17.8	24.1	25.6	26.3	32.5
20-24	18.8	32.3	38.4	42.5	45.4
25-29	14.3	27.2	38.0	40.7	47.7
30-34	10.8	21.7	24.8	29.7	29.6
35-39	9.1	11.0	21.8	17.0	23.9
40+	18.3	11.7	25.7	26.9	25.0
Total	16.1	26.0	31.6	34.2	38.6

Source: NERCHA & UNAIDS, 2003

A study by Swaziland VAC (2004) to determine the links between HIV and AIDS, current demographic status and livelihoods in rural Swaziland revealed that respondents reported high rates of chronic illness. They reported rates of chronic illness decrease from age 0-4 years to age 10-14 years. Thereafter, the chronic morbidity rate increases linearly with age. Even at ages where one would expect individuals to be healthy and not exhibit signs of any chronic illness, e.g. between the ages of 15 and 29, nearly 9% of inhabitants of rural areas were classified as being chronically ill. This could possibly be attributed to the impact of HIV and AIDS, given the high HIV prevalence rates (SVAC, 2004). The study further found that 15% of women in the age group 35-39 years were reportedly suffering from bouts of chronic illness. In the age group 45-49, nearly a quarter of women were reported as chronically ill (see Figure 1.1). These trends are ominous, given the important role that women play as homemakers, income earners and subsistence agriculturalists.

The high rates of chronic illness among those older than 50 years probably relates more to the normal aging process than any single factor. Furthermore, there appeared to be a substantial gender difference with women being more likely to suffer from chronic illness after the age of 10 years. These periods of being unable to be productive have significant effects on child care activities, food production, domestic

management and other income generation activities in rural Swaziland (Swaziland VAC, 2004).

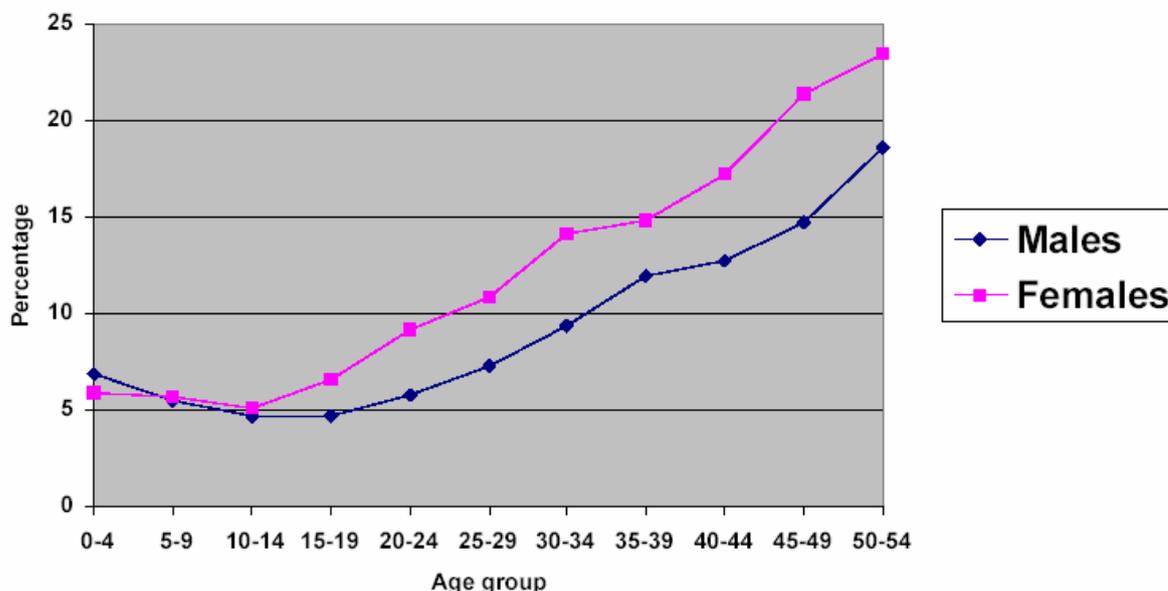


Figure 1.1 Prevalence of chronic illness by age and sex

SVAC (2003) survey found a crude death rate of 25.8 for the total rural population. A breakdown of death by age and sex revealed that a high death rate was reported for the 0-4 years age group. Also as expected there were very low reported death rates for the age group 5-19 years. Virtually no gender differentials are found at these age groups. At this stage of the life cycle, human beings are healthy and experience low mortality. In terms of HIV and AIDS the older children in this group are at high risk of HIV infection, but as a result of the epidemiology of the disease, if infected in their teenage years, such persons will only show symptoms and die later. The death rate increases rapidly in the 20-29 years age group. Typically this is also a healthy age group and one would expect low mortality. However, this is not the case in Swaziland. The study also found that the death rate among the females aged 20-29 was more than 50% higher than the comparable male rate. This is consistent with the typical pattern of HIV infection and AIDS-related mortality in sub-Saharan Africa, where younger females are being infected at rates higher than their male counterparts. An even higher crude death rate was found in the 30-54 age group. The gender differentials were reversed in this age group and among males the death rate is 61 per 1000 males. Although the death rate was higher in the category of persons aged 55 and older, it is more important to take note of the fact that the number of deaths

among those aged 30- 54 was more than double the number found in the 20-29 age category. This has many social and economic implications since this group is considered the core productive segment of a population (SVAC, 2004). Table 1.3 presents 2003 death rates in rural Swaziland.

Table 1.4 Death rates in Swaziland, 2003

Age group	Crude death rate (Number of deaths per 1000 persons)			Number of deaths
	Male	Female	Total	
0-4	44.4	41.9	43.2	4.612
5-19	3.3	3.5	3.4	1.187
20-29	19.6	30.5	25.3	3.345
30-54	61.1	43.0	51.1	7.763
55+	76.9	52.5	63.6	3.878
Total	26.7	25.1	25.8	20.785

Source: SVAC, 2004

1.3 JUSTIFICATION OF THE STUDY

In the World Bank report (2000), it is indicated that the impact of HIV and AIDS in Swaziland is diverse, but not enough data exists on how the epidemic has affected the economy of Swaziland. Very little is known about the costs elsewhere in the developing world. However, this is now being remedied by some countries in Asia. In some cases it is necessary to predict what the impact will be on households from observing how these have responded to similar crises in the past. If policies are to be properly targeted, there is a need for empirical work.

The findings of FAO's activities carried out in Eastern Africa reveal that the impact of HIV and AIDS on agricultural production systems and rural livelihood cannot be generalized, even within one country, and must be separated into spatial and temporal dimensions. The studies conducted in Uganda, Tanzania and Zambia have shown that HIV and AIDS follow a different pattern in each village and district. Geographic and ethnic factors, religion, gender, age, marriage customs and agro-ecological conditions play a role in the pattern and impact of HIV and AIDS and in people's perception of the disease. Communities can be grouped in pre-impact (infections exist, but the

impact of the disease is not visible), early impact (visible impact, but community coping mechanisms still work) and full-impact communities (high prevalence of HIV and AIDS -related morbidity and mortality, traditional coping strategies do not work any more). Such differentiation is important for the planning and implementation of location-specific intervention strategies like is the case in Swaziland, especially if Swaziland has to intensify the fight against the HIV and AIDS pandemic.

1.4 OBJECTIVES

The general objective of this study is to improve the understanding of the impact of HIV and AIDS on agriculture and food security and the coping strategies adopted by those affected as a response to the epidemic in Swaziland. The specific objectives are:

1. To review existing literature on HIV and AIDS in Swaziland
2. To identify the impact of HIV and AIDS on Agriculture and food security
3. To examine the changes in decision making as a result chronic illness like HIV and AIDS within households
4. To identify the coping strategies adopted by HIV and AIDS affected households

SECTION TWO: REVIEW OF RELATED LITERATURE

2.1 THE RELATIONSHIP BETWEEN HIV AND AIDS AND AGRICULTURE AND FOOD SECURITY

2.1.1 Household food security

HIV and AIDS is a huge health problem with profound social and economic implications. In relation to food and nutrition security, it is obvious that HIV and AIDS has affected and is likely to continue to affect the ability of households to access food in the quantities and quality necessary for household members to lead an active and healthy life. Barret (2003) noted that in most parts of sub-Saharan Africa, households are facing very high healthcare costs, labour shortages, declining assets base, breakdown of social solidarity and social bonds, downshifting in cropping systems and livestock management.

The World Food Programme (WFP) (2002) highlights that food shortage in the Southern African region is part of the problem but the core of the issue is AIDS. HIV and AIDS increase the food industry demand through its impact on:

- Household's ability to produce food, because of labour shortages and loss of knowledge about farming households;
- Household's ability to buy food, because of impoverishment due to the loss of productive family members and of assets;
- Communications ability to produce and buy food, as the epidemic reaches every home and neighbours become too overburdened to help each other with food, loans or a hand in the fields; and on
- Countries' ability to import food, as HIV and AIDS reduce GDP growth per capita.

2.1.2 Household agricultural labour supply

The quantity of labour is further affected as members of the afflicted households spend time looking after the sick and burying the dead and less time in agricultural pursuits. Other members of society are also affected, as a result of the time spent at funerals and visiting the sick as a way of subscribing to society. This enables the

family to claim benefits in times of hardship (Bota *et al.*, 2001). Similar trends have been observed in Uganda, Tanzania and Zambia (UNDP/FAO 1995). Traditionally, funerals ceremonies lasted 4-7days, with more 'festivities' after one month or a year. However, the customs are changing to shorter and less expensive ceremonies.

Shah *et al.* (2001) in a study conducted in Malawi found that the impacts of chronic illnesses are similar to those described elsewhere in Eastern and Southern Africa. The loss of adult labour leads to a suite of changes in affected households' use of land and other resources. Agricultural activities are often delayed, with negative effects on production, and some of the land is often left fallow. Surviving household members may be under increased pressure to seek *lilima* (agricultural labour, paid in cash or kind) or may pursue non-agricultural income generating activities that yield a quick return. In either case, labour available for on-farm work is further reduced, and less available at critical moments in the season. Affected households are also frequently forced to reduce their reliance on labour or input-intensive crop or livestock enterprises, and to focus on activities that are of reduced scale and with fewer risks, but that also have lower output or provide less income (du Guerny, 2002).

2.1.3 Impact of HIV/AIDS on households

In a pure subsistence model one would find only the farm and household as components. This model is disappearing and is being replaced by a model with three components. The off-farm component is now integrated. This means that the farm-household is becoming more dependent on off-farm sources of income; whether it is cash to buy inputs into the farm (seed, fertilizers, pesticides or equipment), improve the nutrition of the household or pay for school fees or medical costs. Off-farm sources of income entail sending labour to the city (for example for construction), to mines, to work on plantations or in the textile industries. This kind of labour requires very few marketable skills and finds itself at the bottom of the totem pole. Both males and females are therefore very vulnerable to exploitation and to HIV infection. The structural link between the farm-household and the outside world, established through the movement of household members, creates the channel for the flow of not only cash, but also HIV and hence leads to the destruction of the household.

Most studies on the impact of HIV and AIDS have focused on the farm-household level. A typical mechanism through which the HIV impact occurs is that of the migrant worker who falls ill while away, uses his savings for medical treatment and then returns to the farm-household to be cared for and to die. By attacking the able-bodied and active adolescents and adults, HIV and AIDS undermine the farm-household through the direct loss of labour for the farm and of time available for both farm and household tasks. In order to cope with this, the farm household has to reallocate both available labour and the time of the household members (du Guerny, 2002).

Hunter and Williamson (1997) presented the potential impact of HIV and AIDS on a household. They divided this impact into three categories; impact on families, children and communities as indicated in Table 2.1 below.

Table 2.1 The potential impact of AIDS on households

The impact on family	The impact on children	The impact on communities
<ul style="list-style-type: none"> ▪ Loss of members, grief ▪ Impoverishment ▪ Change in family composition and in adult and child roles ▪ Loss of labour ▪ Forced migration ▪ Dissolution ▪ Stress ▪ Inability to parent and care for children ▪ Loss of income for medical care and education ▪ Demoralization ▪ Long term pathologies (increased depressive behaviour in children) ▪ Number of multi-generational households lacking middle generations will increase 	<ul style="list-style-type: none"> ▪ Loss of family and identity ▪ Depression ▪ Reduced well being ▪ Increased malnutrition, starvation ▪ Failure to immunise or provide health care ▪ Loss of health status ▪ Increased demands on labour ▪ Loss of schooling/educational opportunities ▪ Loss of inheritance ▪ Forced migration ▪ Homelessness, vagrancy, crime ▪ Increased stress living ▪ Exposure to HIV infection 	<ul style="list-style-type: none"> ▪ Reduced labour ▪ Increased poverty Inability to maintain infrastructure ▪ Loss of skilled labour, including health workers and teachers ▪ Loss of agricultural inputs and labour ▪ Reduced access to health care ▪ Elevated morbidity and mortality ▪ Psychological stress and breakdown ▪ Inability to marshal resources for community wide funding schemes or insurance

Source: Hunter and Williamson (1997)

2.2 FACTORS CONTRIBUTING TO THE SPREAD OF HIV AND AIDSPANDEMIC IN SWAZILAND

Several factors are thought to have contributed to the rapid spread of HIV and AIDS in Swaziland. These include the increased practice of having multiple sexual partners,

a high rate of other sexually transmitted diseases (STD), rapid urbanisation and a migrant labour force, breakdown of traditional norms, poverty, and lack of decision-making power of women in reproductive health issues (Government of Swaziland, 1998). Whiteside et al. (2003) categorised the factors contributing to the HIV and AIDS pandemic in Swaziland into two: Biological and behavioural drivers and Socio-economic drivers.

2.2.1 Biological and behavioural drivers

A number of surveys have been carried out – ranging from the 1991 Project Hope and Family Life Association of Swaziland (FLAS) Knowledge, Attitudes and Practice study to the 2003 National Behavioural Survey and the School HIV and AIDS and Population Programme (SHAPE) baseline study in 2003. In 1991, 41% respondents with high media exposure claimed to know just a little about AIDS, however knowledge about true modes of transmission was high (90- 97%). The sources of information on AIDS were ranked as follows: radio (90.4%), clinic (36.9%), newspaper (30.4%), and T.V. (19.1%). Of the respondents 55% acknowledged that AIDS is a serious disease, 70% viewed it as a current threat to the local community, and 73% believe that it will become a threat and mostly a serious threat in the future. The ideas of how to avoid it were sound: 80% thought that it could be avoided by behavioural change, 69% said they had made a change, and 9.5% said they intend to change their behaviour.

By 2003, the National Behavioural Surveillance Survey (BSS) concluded that Swazis are highly knowledgeable about HIV, AIDS and STIs, though this knowledge has not translated into desirable behavioural change. However, the study also revealed that although people are knowledgeable about how HIV is transmitted and how to protect themselves, they are still confused about many other aspects of the disease (Whiteside *et al.*, 2003).

The expectation of young men and women from a relationship is also a source of apprehension. The Family Life Association of Swaziland (1995) in a study on the needs and sexual behaviours of youth, their attitudes and family practices, in the Manzini and Lubombo regions, found that when asked what they expect from boys, the most common response from female participants was money (36.2%), sex

(30.4%), fidelity (16.9%), gifts and entertainment (5.8%), and 1.8% did not know. When males were asked what they believed girls expected from their boyfriends 38.8% said girls expected money; 18.1% expected sex, 14.3% said they expected love, hugs, kisses and to be cared for, 8.9% said they expected love, sex and money. Among the females, 87.0% believed that their boyfriends were the ones who 'pressured' them into having sexual intercourse. Some 7.8% believed it was no-one's fault, it happened spontaneously; 2.6% admitted to have insisted on having sexual relations; and 1.9% believed it was by mutual consent. On the issue of multiple sex partners, 29.6% of the respondents admitted to having had sex with more than one person in their lifetime. 29.9% (97 out of 324) of the respondents indicated that the primary cause of promiscuity was that 'girls want more money from their boyfriends'. However 69.6% of the female respondents felt that it was not a good idea to engage in sex before completing one's formal education (school, college or university) and 18.4% thought it was unwise because it could lead to dropping out of school/college/university due to pregnancy.

Among males, 69.8% said their current girlfriends were not their first sexual partners. More males (65%) than girls (47.5%) admitted to being sexually active. The only male/female distinction in the Behavioural Surveillance Study was from students at tertiary institutions. Here the data shows that females have marginally better knowledge but are less likely to use condoms with non-regular partners (55.4% for females, 86.9% for males). Females are more likely to report Sexually Transmitted Infections (STIs) (6.6% for females, 3.7% for males). It has been suggested that boys "are pressured at an early age to experience sex and prove their masculinity". The pressure to have sex and with many partners is a socially expected competition among the youth and it is a cultural belief that girls are not women until they give birth.

2.2.2 Socio-economic drivers

Swaziland is a society where polygamy is practiced. Polygamy does not in itself lead to greater risk of HIV as long as partners are faithful to each other. However if one partner is unfaithful then it is much more likely that an infection will spread through the household. In addition the level of trust has to be greater. The issues of gender relations, the relative lack of power of women, women's status, and Swazi culture are

a concern. The United Nations Development Programme in its report entitled 'Gender focused responses to HIV and AIDS in Swaziland, found that women's vulnerability to HIV infection and AIDS is increased by economic, social and cultural factors and by different forms of violence, (particularly sexual), that place them at a disadvantage within relationships, family, the economy and society at large. Women's economic dependence on men, their high poverty levels and lack of access to opportunities and resources, contribute to their vulnerability to HIV infection and AIDS. Because of the economic dependence on men, women are unable to take control of their lives and protect themselves against HIV infection. This is because the men can withdraw the economic support if women refuse to do as they want. Most cultural expectations and practices were found to contribute to women's vulnerability to HIV and AIDS. The Swazi society expects women to be subordinate and submissive; allows men to have multiple sexual partners; and polygamy, which exposes women to HIV infection, is legal in the country.

People's mobility is known to give both the opportunity, and increase the likelihood of having non-regular sexual partners. In a setting where people don't know each other, contacts are more anonymous. When people travel they are likely to be lonelier, drink and behave differently. The people of Swaziland are extremely mobile both within the country and across borders. In 1993 a study by the Ministry of Housing and Urban Development (MHUD) found that 54% of all urban households in informal areas maintained linkages with their rural homesteads, visiting these at least once in the past month. While no recent data on internal migration exists, it is not thought that this will have changed substantially. Swaziland is a small country with good infrastructure and as a result it is easy for urban dwellers to maintain contact with their rural homesteads (Whiteside *et al.*, 2003).

In addition there is considerable cross border mobility, particularly to South Africa. There are the migrant miners, formally employed through The Employment Bureau of Africa (TEBA) and who travel as single men for periods of up to a year. There were 10 336 men employed in the mines in 1998. Many other Swazis seek employment in South Africa both formally and informally (Whiteside *et al.*, 2003).

A WFP press report (2002) states that across all the six countries visited by the WFP team, healthcare workers universally emphasised the lethal combination of hunger and HIV, how the convergence of the two calamities sharply increase people's vulnerability to infection and disease. In every country visited the special envoy's team was confronted by a devastating mix of extreme hunger and severe shortcomings in agriculture, health, sanitation and institutional capacity. The FAO/WFP (2005) estimated that 226,640 people faced food shortages in Swaziland and 27,000 tonnes of cereals will be needed to meet households' deficits in the 2005/6 marketing year.

Table 2.2 Food production

Country	Food production per capita index (average 1989 -91 = 100)		
	1991	1995	2000
Lesotho	81	80	81
Mozambique	92	89	82
Namibia	100	96	78
South Africa	98	79	92
Swaziland	102	76	67

Source: Whiteside *et al.*, 2003

2.3 THE IMPACT OF HIV AND AIDS ON AGRICULTURAL PRODUCTION

The impacts of HIV and AIDS on agricultural production and on food security have been described in a number of studies and papers. In Agriculture the argument was made that the major contribution of the agricultural sector against HIV and AIDS was to focus on the issues where it had a comparative advantage rather than attempting to carry out activities where the health sector was better equipped. From this perspective, a promising area of intervention for the agricultural sector is that of labour saving technologies (LST) (du Guerny, 1999). However, one has to keep in mind that in the case of resource-poor producers, agricultural production technologies need also to be capital saving, as credit or cash are not readily available. HIV and AIDS deplete both the human capital base, through reducing the availability of labour skills and time, and the capital available through remittances or savings, which may disappear or be diverted to cover costs related to sickness and death (du Guerny, 1999).

The impact of HIV and AIDS puts agriculture and food security at stake, more especially in Swaziland where agricultural production is characterised by low levels of mechanization and labour intensive cultivation. It will accelerate the process of impoverishment, with poor farmers caring for the sick family members and falling sick themselves and eventually dying resulting to reduced time spent in the fields. In most cases the household members would choose to leave the most remote fields fallow and the area cultivated tends to decline as well. The increasing attendance in funerals tends to complicate the situation. At the same time costs for drugs and treatment care of AIDS patients increase as more persons become ill. Expenses related to funerals are equally increasing. Eventually less food and cash crops are produced and that leads to less available food and less money to buy food and other essential goods and services (Rugalema *et al.*, 1999).

The detrimental impact that HIV and AIDS may have on the rural productive capacity of households has been explored in African studies (Muwanga, 2001; UNAIDS, 1999; du Guerny, 2002; IFPRI, 2003; SADC FANR VAC, 2003). These studies suggest that the effects of HIV and AIDS are felt on two key farm production parameters. First, household labour quality and quantity are reduced, initially in terms of productivity when the HIV-infected person is ill, and later the supply of household labour falls with the death of that person. Moreover, the probability that more than one adult per family is infected is high, given the heterosexual nature of HIV transmission in Africa. A compounding factor is that infection rates are higher among women, who account for 70 percent of the agricultural labour force and 80 percent of food production. In addition, other household members have to devote their productive time to caring for the sick persons and traditional mourning customs, which can last as long as a month for some family members, can adversely affect labour availability.

The second factor of household agricultural production that HIV and AIDS affect the availability of disposable cash income. During episodes of illness, the household financial resources may be diverted to pay for medical treatment and eventually funeral costs. Such resources may otherwise have been used to purchase agricultural inputs, such as occasional extra labour or other complementary inputs (e.g. seeds or

plants, fertilizer, pesticides, etc.). Family assets (e.g. livestock) might be sold off in the process as means to cope with the situation (Jayne *et al.*, 2004).

If a household becomes unable to either supply such labour internally or hire temporary workers, the composition of crops may be gradually altered, shifting from cash to subsistence crops in some cases. The key constraint will be during periods of peak labour demand, usually in planting and harvesting seasons. Given the nature of the rural labour market, these are also times when wages or opportunity costs are highest. Another response to labour shortages may be to reduce the area under cultivation. It is also likely that livestock production may also be less intensive and that the farming quality will be affected with weeding activities curtailed. The shift from high labour-intensive crops to low labour-intensive crops will stop vegetable cultivation resulting in a less varied and less nutritious diet (Drink water, 1994).

Mr. Hlatshwako, a HIV positive farmer at Luve, a rural area north of Manzini, told PlusNews that “If it does not rain, our crops die. There is no money for irrigation and pumps. Fortunately, there are some rains now, and we are planting”. But Hlatshwako added that there would be no one to weed or harvest his fields if he is incapacitated by illness. Harvest yields of maize, the national staple food, and other crops are expected to decline for the fifth year.

The loss of agricultural workers due to AIDS in the commercial sugar and citrus industries has had a negative effect, with small family farms being the hardest hit. "First the father, then the mother, dies of AIDS - we have more child-headed households in the rural lands. The grannies may survive, but they cannot work the fields. The older children drop out of school, but they are not able to farm as well as adults. This is why harvests were smaller, even where there were adequate rains last year," said Albertina Nyatsi of the Swaziland AIDS Support Organisation (Van Rynbach, 2003)

In a number of households, the income earners, typically men work in urban areas, and part of their income is spent on agricultural inputs. Sickness and subsequent death of an income earner leads to loss of input supplies to agriculture, such as fertiliser, improved seed and pesticides. Lack of required inputs will impact negatively on crop

yields. The implication is that families afflicted with HIV and AIDS not only lose labour to support their production, but also the limited financial investment into agriculture, due to reduction and changed priority in the spending of family income (Ncube, 1999).

Agricultural extension agents and veterinary staff provide technical advice for improved crop and animal productivity. Research institutions provide new technology that addresses problems in the agricultural sector. HIV and AIDS are upsetting this support system directly through chronic illness of affected staff, increased absenteeism because of attendance to their afflicted relatives and friends, and indirectly through time lost attending funerals in their work places to which they are obliged by social norms to attend. In Zimbabwe, for instance, it was found that extension staff spent 10 percent of their working time per month attending funerals (Ncube, 1999). In a separate study in Zimbabwe, Munyombwe *et al.* (1999) estimated that farmers spent 25 percent of their working time attending funerals, and given the labour intensive nature of smallholder agriculture, this negatively impacts on productivity.

When parents die, orphans often have to take care of the livestock. It has been observed that extension personnel and veterinary staff tend to ignore minors when providing advice. Moreover, underage orphans do not have access to credit. All this translates into reduced productivity in afflicted households.

2.4 IMPACT OF HIV/AIDS ON AGRICULTURAL LABOUR

From the perspective of this study, labour includes three important components:

- (i) the time available and used for work,
- (ii) the energy available and required for tasks and,
- (iii) the knowledge necessary to work (agricultural practices, use of tools, etc.) as well as the cash for acquisition and implementation of Labour saving technologies (LSTs) .

2.4.1 The time component

Gillespie (1989) focused on the relationship of the farming system and farm-household systems. The objective of the study was to determine the relative sensitivity of farming systems to AIDS related loss of labour. The study considered six features of labour organisation:

- i) Seasonality (including bottlenecks)
- ii) Specialization (by gender and age)
- iii) Interdependence
- iv) Labour economies of scale (and, importantly, the fact that in subsistence farming there is a disproportionate decrease in outputs when there is a decline in labour input and the number of people working is reduced)
- v) Ecological potential for supporting less labour intensive systems and
- vi) The technical possibilities for substituting LSTs for labour. Individual labour data were aggregated for an average household of two adults and three children. Then, the labour requirements for the main crops were estimated which enabled one to estimate labour availability and balance both by season and gender. Retrospectively, what appears to be missing is off-farm labour and sources of income.

Gillespie's study was very original and provided some basic data on the expected different impacts of an AIDS death, by sex, on a particular farming system as well as compensation mechanisms through reallocation of time. However, this reallocation of time results in modifying the farming system and affecting food security, especially if women allocate time previously devoted to food preparation and child care to food production after the death of the male member of the farm-household. It was also clear that the death of both parents led to the destruction of the farm-household (Gillespie, 1989). The study also showed that there is a labour balance, which means the time not used up by agriculture or domestic work. The remaining time can serve as a reserve to face unexpected labour needs and its amount depends on the type of farming system. This time balance enables the farm-household to withstand shocks, such as an AIDS death, but only up to a certain point (e.g. in certain farming systems, women dispose of less time than in others and the possibility for reallocation is limited) and at the cost of certain tradeoffs (e.g. work of youth and of children).

2.4.2 *The energy component*

A farm-household produces crops and juggles simultaneously throughout the agricultural cycles the husbandry of various plants and animals. This complex time management of multiple tasks for the various members of the household, ranges from cash crops to homestead herbs and from cattle to chicken. Energy is required from each member for these production tasks, as well as for domestic tasks such as fetching water and fuel. The human energy from the farm-household members for production and household tasks can be enhanced or substituted to a certain extent by LSTs or by hired outside human labour which implies the availability of cash from market sales or off-farm labour and remittances. Communal work groups can also provide a farm with many hands for certain tasks such as raising a house frame or looking after cattle: however, these groups are based on reciprocity and a farm household with reduced labour and energy due to HIV and AIDS is frequently unable to contribute and therefore to claim assistance when it needs such communal assistance the most. In fact, besides the energy required for the tasks referred to, most human energy of farm households is needed to maintain the body of all the members whether they are productive or not, e.g. the energy for growing children who are not expected to help much because they go to school. In fact, the energy available for work is but a small portion of the total food energy required for the maintenance of the family members (Gillespie, 1989).

2.4.3 The knowledge and cash component

It has often been stressed that the knowledge of the person who died of AIDS is not transmitted to other members of the farm-household: this is a serious issue, but it is not directly related to LSTs as there is no change in technology. The issue of knowledge in our case is of a different nature: in order to survive with less labour, changes have to be introduced into both the production as well as in the domestic work. This has become more important because there are more AIDS widows than widowers and the widows normally have to juggle with the two (Gillespie, 1989).

The first difficulty faced by the members of the farm-household is to explore the options available to them, including introducing LSTs. The members might not be aware of the options and could need assistance in this respect. It would be useful to make a distinction between indigenous knowledge already available, which can be built upon and knowledge which needs to be brought in from outside. Second, once

the options are identified, there is the danger of either rushing head long into a LST or of rejecting it through lack of knowledge and information. Third, if an LST has been chosen, then there is the difficulty of providing the specific knowledge permitting to adopt it successfully. Fourth, knowledge by itself cannot generally be acquired without outside support, ranging from technical aspects to credit.

2.5 HIV/AIDS IMPACT ON COMMERCIAL AGRICULTURE

Commercial agriculture is the largest employer in Swaziland. About 18.8% of the total labour force is employed in this sector (Central Statistics Office, 1999). The prevalence of HIV and AIDS poses a great threat to the commercial agricultural employment and the labour market in general (Dlamini-Kunene, 2003). This is because a person infected with HIV virus would have a window period of 5 years before he/she start showing signs of the illness (Lamptey *et al.*, 2002). The incidence of illness after the first sign will increase in frequency and intensity until the person is hospitalised or dies.

Agro-industries provide their employees with appropriate health care through health insurance or medical aid in order to prolong the employees' lives. The increase in the number of infected employees raises the costs of the health care, thus posing a burden for commercial organizations with a large labour force. Rugalema *et al.* (1999) in a study of HIV and AIDS in commercial agriculture found that the prevalence of HIV and AIDS increased sickness and death in the work place and consequently increased the medical and funeral expenses incurred by the agro estates.

The reduction in the labour supplied to the commercial sector and the increasing costs to the employer tend to result in the estates engaging in cost saving initiatives, such as substituting capital for labour (Dlamini-Kunene, 2003). A study by Muwanga (2001) on private sector response to HIV and AIDS in Swaziland found that 73% of businesses surveyed reported having had an employee living with HIV and AIDS and the larger enterprises had a higher percentage. The group most affected was the medium to large enterprises (250-599 employees) with over 87% of companies in this group having had a case of a worker living with HIV and AIDS. The study found that prolonged morbidity and mortality of the workforce due to AIDS has made companies increase their expenditure on medical care and funerals. Illness and death also means

loss of skilled staff and experienced labour. This results in psychological effects on the workforce and increases costs of production through recruitment and training of new staff. The overall effect on a company is reduced productivity, disruption of business operations and reduced profitability. Muwanga argued that after a person is infected with HIV, progression from HIV infection to AIDS normally takes years. As the immunity drops people start developing HIV related illnesses and later develop AIDS. It is within this protracted morbidity that medical care and treatment is sought. This period is associated with increased absence from work as the employee seeks medical treatment or nurses a sick member of the family. About 58% of the companies reported reduced productivity, 46% reported increase in costs and 44% reported disruption of business operations. The progression of HIV and AIDS in an employee has cost implications on the employer (Table 2.4)

Table 2.3 The progression of cases and related costs

The progression of HIV/AIDS in the workforce	The Economic Impact of Industrial Case	The Economic Impact of all Cases
1. Employee becomes infected with HIV	<ul style="list-style-type: none"> No costs to the Department at this stage 	<ul style="list-style-type: none"> No costs to the Department at this stage
2. HIV and AIDS-related morbidity begins	<ul style="list-style-type: none"> Sick leave and other absenteeism increase Work performance declines due to illness Overtime and contractors' wages increase to compensate for absenteeism Use of health/medical aid benefits increases Employee requires attention of human resource and employee assistance personnel 	<ul style="list-style-type: none"> Overall productivity of workforce declines Overall labour costs increase Additional use of medical aid benefits causes premiums to increase Managers begin to spend time and resources on HIV-related issues HIV and AIDS interventions are designed and implemented
3. Employee leaves workforce due to death, medical boarding, or voluntary resignation	<ul style="list-style-type: none"> Payout from death benefit or life insurance scheme is claimed Pension benefits are claimed by employee or dependents Other employees are absent to attend funeral Funeral loans, e.g. housing, are not repaid Co-workers are demoralised by loss of colleague 	<ul style="list-style-type: none"> Payouts from pension fund cause employer and/or employee contributions to increase Returns to training investments are reduced Morale, discipline, and concentration of other employees are disrupted by frequent deaths of colleagues
4. Department recruits replacement employee	<ul style="list-style-type: none"> Department incurs costs of recruitment Position is vacant until new employee is hired Cost of overtime wages increases to compensate for new positions 	<ul style="list-style-type: none"> Additional recruiting staff and resources must be brought in Wages for skilled (and possibly semi-skilled) employees increase as labour markets respond to the loss of workers
5. Department trains the new employee	<ul style="list-style-type: none"> Department incurs costs of pre-employment training Department incurs costs of in-service training to bring new employee up to level of old one Salary is paid to employee during training 	<ul style="list-style-type: none"> Additional training staff and resources must be brought in
6. New employee joins the workforce	<ul style="list-style-type: none"> Performance is low while new employee comes up to speed Other employees spend time providing on-the-job training 	<ul style="list-style-type: none"> There is an overall reduction in the experience, skill, institutional memory, and performance of the workforce Work unit productivity is disrupted due to increased staff turnover

Source: Whiteside and Sunter, 2000 p 110

2.6 THE IMPACT OF HIV AND AIDS ON THE LABOUR MARKET

The impact of HIV and AIDS on the labour market manifests itself on the reduction in the labour supply and demand for labour. The most significant impact to the labour force is what the epidemic does to the structure of the working force. A working paper by Lisk (2002) focused on the assessment of the economic impact of HIV and AIDS with specific emphasis on the labour market and employment implications of the epidemic. In analysing the effects of the epidemic on the labour markets, the paper was based mainly on the experience of the sub-Saharan Africa, which is considered to be one of the regions most severely affected by the disease. It was observed that in countries with a high prevalence rate, the impact on labour was more severe. This is the case because HIV and AIDS affect adults, the most sexually active age group who also happen to be the most economically active people. Hence the size of the labour force shrinks and the mean age of workers falls due to the shift to younger and less experienced workers. For instance, the study by Lisk discovered that in 1999, 80 percent of newly infected people in Rwanda, Tanzania, Uganda and Zambia were between 20 and 29 years.

The loss of experienced and skilled workers can result in significant declines in labour productivity, loss of earnings, and attrition in skills and experience. The workforce actually declines in prime working age categories, and the drastic increase in the share of child labour in the total labour force is consistent with a common understanding of how the HIV and AIDS epidemic affects education, both on the demand and supply sides. Projections made by ILO for 29 African countries show that the number of male and female labour force participants is projected to be 12 and 10 percent smaller respectively by year 2010 as a result of HIV and AIDS. The agricultural sector, both commercial and subsistence being the most labour-intensive, which account for more than two-thirds of employment in most developing countries will therefore be highly affected by the outbreak of the disease. Despite a number of agricultural estates employing more than 70 percent of the labour force in Swaziland, agricultural employment is declining (Dlamini-Kunene, 2003).

A study by Arndt and Wobst (2002) analysed the implications of the HIV and AIDS pandemic in Tanzania for labour markets and human capital accumulation by first examining the 2001/02 labour force survey and compared it with the 1990/91. This

method accorded them an opportunity to make inferences about the impact of HIV and AIDS over that period, a period where accumulated deaths as a result of AIDS increased dramatically. Secondly the study examined the rates of human capital accumulation, proxied by educational attainment. The study concluded that while the occupation structure was relatively static, labour force by age group in 2001/02 as compared to 1990/91 showed a dramatic change. The number of the medium age group employees (20-30 years) declined in relative terms, whilst the younger age groups increased their relative share in the workforce. The growth in the child and juvenile labour force is matched by an increase in primary school dropouts and an overall lower share of children aged 5-14 enrolled in primary school. These, therefore, imply that workforce experience and rates of human capital accumulation are declining with HIV and AIDS being a prime factor underlying these trends.

The impact of the epidemic on the labour market and employment can be best demonstrated as shown by Figure 2.1. The immediate effect of the epidemic is illness, which leads to a reduction in productivity and increase in labour costs. Illness of a household member means less time spent on working by the member through absenteeism, whilst other members devote their time to looking after the sick with less time spent on agricultural production. This will affect the supply of human capital in the long run.

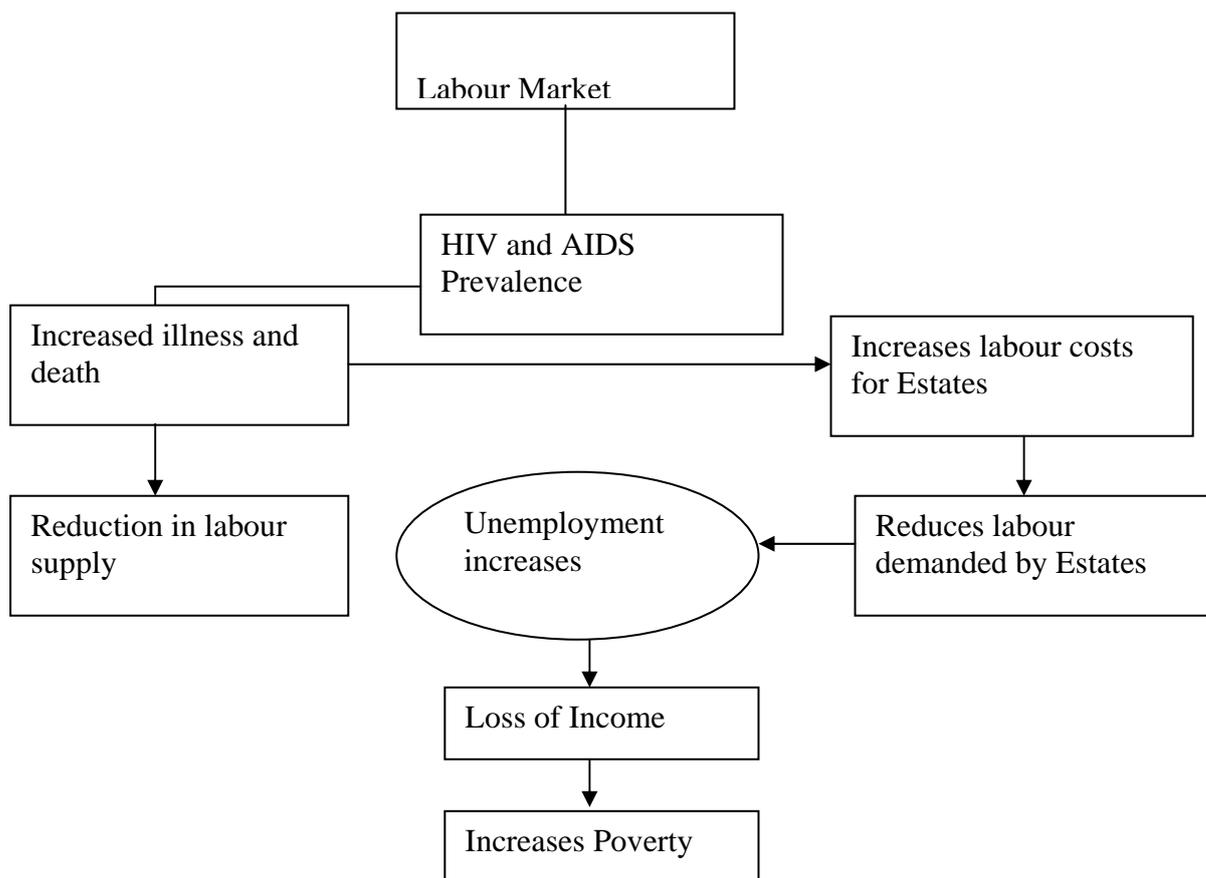


Figure 2.1 HIV and AIDS in the Labour Market

Source: Dlamini (2003)

2.7 THE IMPACT OF HIV AND AIDS ON FOOD SECURITY & NUTRITION

According to Bonnard (2003), food security prevails when all people at all times have both physical and economical access to sufficient food to meet their dietary needs for a productive and healthy life. Food security has three distinct variables namely: *food availability* measured by food production and food supply, *food access* measured by the level of income and *food utilisation* measurable by nutrition, health and care giving. The income definition is not only restricted to salaries but is broadly defined to include home production, self-employment, wages and transfers.

Tumushabe and de Waal (2003) describe household food security as “the capacity of households to procure a stable and sustainable basket of adequate food. It incorporates: means to enhance and stabilise household access to and availability of food across seasons and transitory shortages; activities that would sustain food supply in the long term; and constant attention to the adequacy of food while complying with

nutrient and, safety requirements and cultural preferences. Households are said to be food secure when food availability, equal access to food, stability of food supplies, and quality of food are in balance with each other. For rural households, the equitable availability of stable quantities of nutritious food depends on food production (using mainly family labour, land, and other resources), food purchase (using household income); assets that can be quickly turned into food or cash as necessary; and social claims on others through custom and societal structures such as family and community networks (Tumushabe and de Waal, 2003).

HIV and AIDS can no longer be considered only as a human health phenomenon but also a social, economic and institutional problem. Based on the livelihood analysis of the linkages between HIV and AIDS and food security it has been shown that the impact is systematic and affecting all aspects of rural livelihoods (Gillespie *et al.*, 2001). Whilst drought has been more pronounced as the cause of food insecurity, nutrition and agricultural production in many developing countries, the outbreak of the pandemic has exacerbated the situation through its systematic impact. Gillespie *et al.* (2001) stated that, where the prevalence of HIV and AIDS is high it affects all dimensions of food security such as the availability, stability, access and use of food. The pandemic systematically increase food insecurity by affecting the following:

- The family's ability to produce food as the productive and skilled member becomes ill or dies thus the household is unable to cultivate.
- The ability to buy food because a member can no longer continue working, hence no income or the income is diverted to care for the sick.

As HIV and AIDS strike the household's most productive member and dies before passing on the knowledge of farming to the other members of the family, the potential long-term impact on nutrition and food security is devastating. Hardships often intensify for the remaining members, particularly the women and children who have limited knowledge about farming methods. This will therefore result in the reduction in the area cultivated and poor harvest, which poses a threat to the ability of the household to produce enough food to feed itself. In the event that the member finally passes away the situation is even worse because the women and children left by the husband may lose their access to land and other assets. This may force the members to

migrate to urban areas in search for food or work, a move that will make them more vulnerable to the disease because some get jobs in return for sex whilst others are engaged in commercial sex as a means of survival. Food insecurity may therefore lead to the adoption of livelihood strategies that increase the risk of contracting HIV and AIDS as well as rendering the household increasingly more vulnerable as the disease progresses (IFPRI's 2001 –2002 Annual Report).

When a breadwinner in the household falls sick, he/she stops working and there will be no income to buy food. As the disease progresses, it can become even harder for a family to cope, especially as resources are drained, for instance, valuable assets, such as livestock and tools, may need to be sold in order to pay for food and medical expenses and poverty advances. Lack of financial resources as a result of declining income reduces the productivity of the subsistence sector on food production. This in turn will have a negative implication on food security of the household and will result in an increase in the poverty levels (Dlamini-Kunene, 2003). Without food or income, some members may migrate in search of work, increasing their chances of contracting HIV-and bringing it back home.

SADAC FANR (2003) examined the impact of HIV and AIDS proxy variables on household incomes and expenditure, which directly affect household access to food. The study revealed that in Malawi households with a chronically ill adult received a modest 4 percent less income than households without chronically ill adults. As more than one chronically ill adult is present in the households they received 66 percent less income than households without chronically ill adults. Using different approaches to examine the potential impact of HIV and AIDS on food access, the study looked at the household purchasing power and expenditure patterns. With respect to the expenditure approach it was observed that households with an infected person or that had recently experienced death have increased expenditures on non-food items such as on health care, transportation, and funerals. Finally it was observed that the combined effect of reduced incomes and increased expenditures on non-food items means less economic access to food. In Zambia for instance the study has found that households that had experienced death or illness of an adult member reduced expenditure by 67 percent.

According to FAO (2000) study, the spread of HIV and AIDS to every homestead has the potential to reduce the communities' ability to produce and buy food as neighbours become too overburdened to help each other with food, loans or a hand in the fields. Furthermore, HIV and AIDS are affecting food security at the national level, by reducing countries' ability to import food when needed. It has been estimated that it is currently reducing annual GDP growth per capita by 0.8% in Africa. Many of the worst affected countries are low-income food-deficit countries (LIFDC), and many are also highly indebted poor countries (HIPC). Their difficulties to import food are thus being exacerbated.

HIV and AIDS affect nutrition by decreasing food consumption and impairing nutrient absorption. As a result of the affected member, the household may lack food and the time and the means to prepare some meals. According to findings of a research study completed in Tanzania by FAO (2001), per capita food consumption decreased by 15 percent in the poorest households when an adult died. In Uganda the same case study revealed that food insecurity and malnutrition were foremost among the immediate problems faced by female-headed AIDS-affected households.

A study by the IFPRI and WFP (2001) on HIV and AIDS, food and nutrition security examined the type of impacts that HIV and AIDS may have on households and communities with regard to their food and nutrition security in the context of their livelihoods, particularly with regard to rural populations dependent on agriculture. The study discovered that with regard to nutrition, HIV and AIDS significantly impact on individuals and households by accelerating the vicious circle of inadequate dietary intake and disease, and through diminishing the capacity to ensure the essential food, health and care preconditions of good nutrition. The impacts on agriculture were related to labour and knowledge losses and institutional weakening.

Figure 2.3 illustrates the vicious circle of malnutrition and HIV and AIDS. At individual level, HIV infection accelerates the vicious circle of inadequate dietary intake and diseases that leads to malnutrition, while malnutrition may worsen the disease. HIV and AIDS and malnutrition therefore often operate in tandem. Poor nutrition increases the risk and progression of disease. In turn, the disease exacerbates malnutrition.

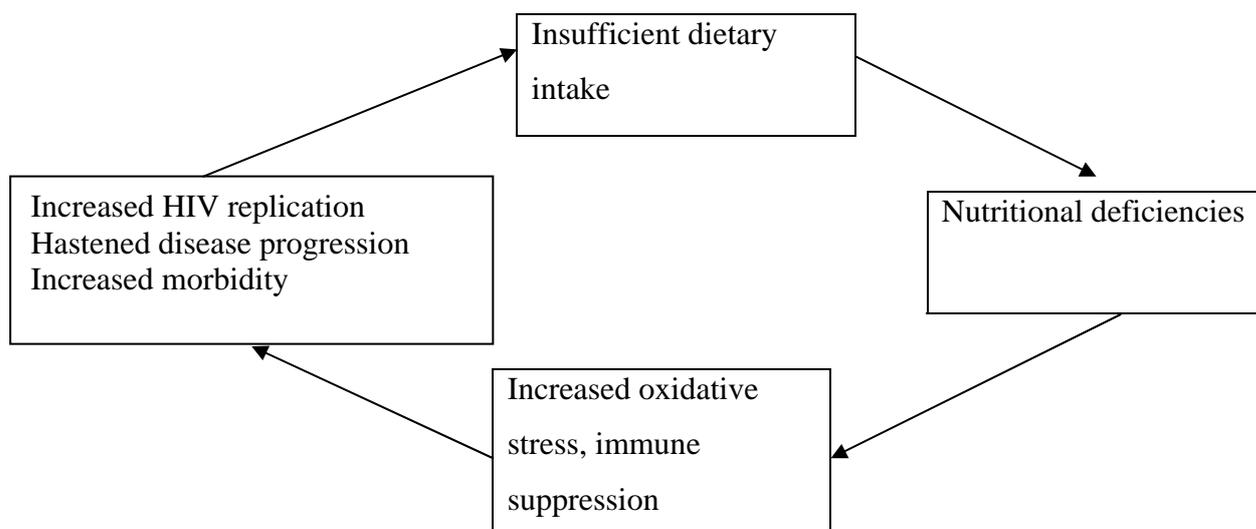


Figure 2.3 The vicious cycle of malnutrition and HIV and AIDS
Source: Semba and Tang (1999)

Good nutrition is important for disease-resistance and may improve the quality of life of AIDS patients. The onset of the AIDS itself, along with secondary diseases and death, might be delayed in individuals with good nutritional status. Nutritional care and support may help to prevent the development of nutritional deficiencies, loss of weight and lean body mass, and maintain the patient's strength, comfort, level of functioning and self-image. In most countries, AIDS medication and special nutritional supplements are neither widely available nor affordable. While nutritional counselling has an important role in assisting HIV and AIDS patients, better access to drugs and medical care is also essential. Improving the nutritional status of HIV and AIDS patients can also help improve the effectiveness of treatment if it is available (FAO, 2001).

There is a clear and critical two-way relationship between HIV and AIDS and food insecurity in Southern Africa. The pandemic is being driven by the very factors that cause malnutrition: poverty and inequality. The hunger currently experienced by millions across the region increases the likelihood of HIV infection, as people are driven to adopt risky coping strategies in order to survive. These include travelling in search of food and additional sources of income, migrating, engaging in hazardous

work, and, most lethally, women exchanging sex for money or food. These actions facilitate the spread of HIV, putting individuals, especially women and children at high risk of infection.

For those already infected with the virus, malnutrition exhausts the immune system, which makes people more susceptible to malaria, tuberculosis, and other opportunistic diseases, and leads to faster progression from HIV to AIDS. People weakened by HIV and AIDS find it harder to access food, because they are often not strong enough to work or to walk long distances to the market (See figure 3).

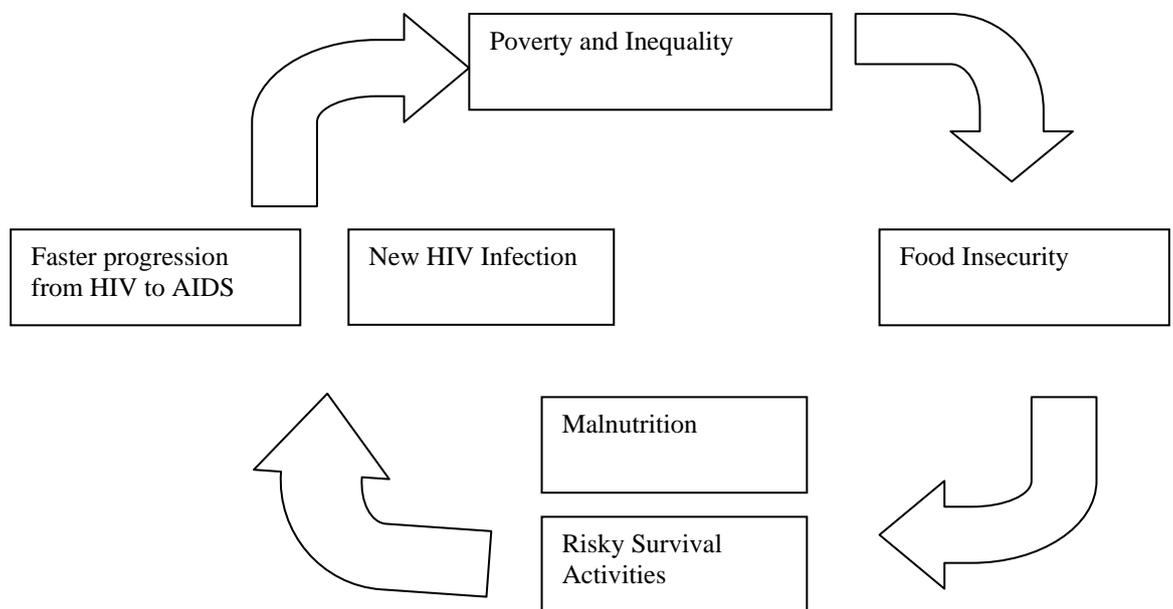


Figure 2.4 HIV and AIDS and food security

Source: Oxfarm international and Save Children UK (2002)

According to Whiteside *et al.* (2003), the WFP press report states, across the six countries visited, healthcare workers universally emphasised the lethal combination of hunger and HIV, and how the convergence of the two calamities sharply increase people’s vulnerability to infection and disease. In every country visited the special envoy’s team was confronted by a devastating mix of extreme hunger and severe shortcomings in agriculture, health, sanitation and institutional capacity’. The WFP

estimated in September 2002 that 144000 people faced food shortages in Swaziland and 15 000 tons of food per month were needed (Whiteside *et al.*, 2003).

2.8 STRATEGIES FOR COPING WITH THE IMPACT OF HIV AND AIDS

2.8.1 Overview

Labour shortage has been cited as one obvious consequence of HIV and AIDS at the farm level. Afflicted households have devised various coping strategies including reduction in area cultivated, increased use of child labour and a shift away from labour intensive crops and organic farming (Munyombwe *et al.*, 1999; Rugalema, 1999; Ncube, 1999; Page and Davies, 1999). Most of these strategies aim at stemming the food insecurity that arises from labour shortage due to illness and death; however, the crop yields are likely to be much lower than before the emergence of HIV and AIDS (University of Namibia, 2001).

In livestock production, management strategies that have been suggested to cope with increased work load due to fewer hands on the farm include padlocking, use of hand spraying to control ticks, and use of fodder crops (Ncube, 1999). In crop production, suggested strategies include intercropping, organic farming, use of disease-resistant varieties, use of drought-tolerant varieties, minimum tillage and the development and use of lighter ploughs.

Other community coping strategies suggested to address the reduced labour due to HIV and AIDS include joint operations for food production, for instance land preparation, planting and weeding (Muchopa and Mutangadura, 1999). Through co-operative schemes, farmers can learn from each other and get support from extension more effectively.

Countries that already have large numbers of infected people are faced with the negative impact that HIV and AIDS has on individuals, households, national economy and the business sector. It is therefore important that these countries implement strategies to cope with the negative impacts of the epidemic. Table 2 presents the coping strategies that HIV and AIDS affected households may adopt. These include

those aimed at improving food security, raising income, and those aimed at alleviating the loss of labour.

Table 2.5 Household coping strategies

Strategies aimed at improving food security	Strategies aimed at raising and supplementing income so as to maintain household expenditure patterns	Strategies aimed at alleviating the loss of labour
<ul style="list-style-type: none"> • Substitute cheaper commodities (e.g. porridge instead of bread) • Reduce consumption of the item • Send children away to live with relatives • Replace food item with indigenous/wild vegetables • Beg 	<ul style="list-style-type: none"> • Income diversification • Migrate in search of new jobs • Loans • Sale of assets • Use of savings or investments 	<ul style="list-style-type: none"> • Intra-household labour reallocation and withdrawing of children from school • Put in extra hours • Hire labour and draught power • Decreasing area cultivated relatives to help • Diversify source of income

Source: Rugalema *et al.*, 1999

2.8.2 Household coping strategies aimed at improving food security

When a breadwinner dies, households are faced with limited food to meet consumption requirements. Several studies have found some households cut back on the number of meals taken when faced with food shortages (Rugalema, 1998; Sauerborn *et al.*, 1996; Barnett *et al.*, 1995). This was also reported to be a common strategy used by households to cope with a shortfall of income from one sector or an individual following an unexpected crisis in Ethiopia (Webb *et al.*, 1992).

SAfAIDS (1998) found that Zambian households were buying less expensive foods as an alternative or were substituting purchased relish (a side dish served with the staple carbohydrates e.g. maize or cassava) with indigenous or wild vegetables. While Saurborn *et al.* (1996) and SAfAIDS (1998) identified begging as a coping strategy in times of need.

2.8.3 Household coping strategies aimed raising income

(a) Income diversification

Sauerborn *et al.* (1996) and SAfAIDS (2000) in their study in Burkino Faso and Zambia respectively found that rural households that cannot meet their food requirements, or obtain cash, through agricultural production, undertake a range of income-generating activities such as selling firewood, brewing millet beer, selling livestock, building fences, handicrafts, tailoring, and petty trade to supplement their income. In Malawi, Munthali (1998) reported that households cope by doing ganyu (casual labour). In rural Zambia, some members of rural households were reported to have migrated to urban areas in search of employment so that they can remit some income to their rural area, while some work in neighbours' fields as casual labour so as to earn some income (SAfAIDS, 2000). There are documented cases of children as young as 10 years old going out to work in an effort to cope with the illness of a parent (UNDP, 1997). Households that do not have the ability to diversify the source of income are particularly vulnerable to the epidemic. Prevailing poverty drives women into sex work as a source of income. In Malawi, 12-year-old girls were driven to have sex to fulfil short-term income needs (Little, 1996).

(b) Sale of agricultural produce and use of savings

A study by Kwaramba (1997) reported that in Zimbabwe, the sale of agricultural produce was a dominant coping strategy to raise income to meet additional health costs. Similarly, Tibaijuka (1997) in Tanzania reported that households sold bananas (their staple food) in desperation to raise money to meet medical costs. The same studies also indicate that households use up savings to raise money to meet health and funeral costs.

(c) Loans

Sauerborn *et al.* (1996) indicated that the informal financial sector is an important source of income used during times of need. Aryeetey and Hyuha (1990) reported that households in Tanzania, Zimbabwe, Ghana, Kenya, Malawi and Uganda resort to borrowing from the informal sector for other disasters such as drought. Sauerborn *et al.* (1996) in Burkina Faso, SAfAIDS (1997) in Zambia, and Rugalema (1998) in Tanzania identified the informal financial sector to include:

1. Relatives, friends and neighbours

2. Rural cooperatives
3. Rotating and savings club associations
4. Rural traders and
5. Rural money lenders.

Loans are given without much bureaucracy and with minimal paperwork. Interest rates are non-existent or very low for sources (1), (2) and (3), but can be substantial for sources (4) and (5) (levels higher than 100% have been reported). When interest rates are high, not all households borrow, as indicated by reports from a socio-economic impact study conducted in Zambia (SAfAIDS, 1997).

(d) Sale of assets

In Tanzania, it had been reported that households that did not have enough income to buy food or to pay for health care, funeral expenses or education costs sold assets in response to the crises (Tibaijuka, 1997; Rugalema, 1998). The amount and type of assets disposed vary across households. Evidence shows that a wide variety of assets, except land, were disposed of to generate cash for use in seeking treatment. The range of assets most commonly sold included cattle, bicycles, chickens, furniture, carpentry tools, radios and wheelbarrows. Some households report pledging future crops to meet immediate cash needs (Rugalema, 1998, SAfAIDS, 1997).

2.8.4 Coping strategies aimed at alleviating the loss of labour

Sauerborn *et al.* (1996) in Burkina Faso reported that reallocation of tasks among household members was the most frequently used strategy to cope with expected production losses resulting from adult morbidity and mortality. Children may be taken out of school to fill labour and income gaps created when productive adults become ill or are caring for terminally ill patients or are deceased. Rugalema, (1998) in a study conducted in Tanzania found that intensive use of child labour was a major strategy typically used by the afflicted household during care provision. Although children are not directly involved in care provision they are involved indirectly, by fulfilling mothers' and fathers' roles in some domestic and agricultural activities (such as collecting water and firewood and harvesting crops). They also prepare food for the rest of the household, gather food, tend livestock and run errands.

Studies conducted in Zambia, Burkina Faso, Tanzania, Malawi and Zimbabwe, revealed that affected households reported hiring labour and draught power to meet their production requirements (SAfAIDS, in press; Sauerborn *et al.* 1996; Rugalema, 1998; Kwaramba, 1997). Labour was hired to meet the needs of the most labour-constraining activities, namely land preparation, weeding and harvesting. However, hiring labour depends on the availability of income to pay the workers. Only households with a stable income or source of remittance were able to hire labour and draught power. Some households had to pay the labour in kind, e.g. using maize or other commodities. Poor households relied on free labour from relatives and supportive and sympathetic community members.

SECTION THREE: METHODOLOGY OF THE STUDY

3.1 DATA COLLECTION AND PROCEDURES

Two sets of tools were developed in this study. The first consisted of a questionnaire, which was used to collect data from the farming sector. The second tool comprised of focus group discussions, which were meant to complement information obtained from household interviews. These group discussions were guided by a list of questions addressing the main issues of the survey. The composition of the focus group discussions were the same for all the regions. At least 3 group discussions were held in each region surveyed and these included men, women and children respectively.

After the development of the questionnaire, pre-testing was done in the field to determine clarity, validity, correct understanding and translation of the questions. Debriefing sessions with enumerators were held before the interviews as well as after the pre-testing to discuss problems encountered, and improvements were made to the questionnaires. The questionnaires were in English and the enumerators were required to translate the individual questions into Siswati for the interviewee.

3.2 THE SAMPLING PROCEDURE

In this study, the objective was to obtain a sample that was a representative of the Swaziland agricultural sector and to describe how HIV and AIDS have affected agriculture and food security. A stratified method of sampling was adopted in this study, where the four regions (Manzini, Lubombo, Shiselweni and Hhohho) of the country were selected. Regional Development Areas (RDAs) from each of the regions were purposely selected, followed by a systematic sampling of households to capture the following main characteristics:

1. To identify the impact of HIV and AIDS on Agriculture and food security,
2. To examine the changes in decision making as a result of chronic illnesses and diseases like HIV and AIDS within households,
3. To identify the coping strategies adopted by HIV and AIDS affected households.

The selected RDAs representing the four regions were: Motsahne RDA, Ntfontjeni RDA, Mayiwane RDA for the Hhohho region; Ngwempisi RDA, Ludzeludze RDA and Luve RDA for the Manzini region; Tikhuba RDA and Siphofaneni RDA for the

Lubombo region and Mahamba/Zombodze RDA, Mahlalini/Madulini RDA and Southern RDA for the Shiselweni region.

Although the disadvantages of nonprobability sampling like purposive sampling, in terms of statistical precision and generalisation are generally recognised (Parasuraman, 1991, Churchill, 1995), it was the appropriate method in this study. The most important criterion in selecting a sample is to increase the validity of the collected data (Carmines and Zeller, 1979). In this study, the data selection criterion was designed to increase validity, rather than to ensure that the sample was a true representative of the given population. It is for that reason that the study used a purposive sampling, which is most desirable when certain important segments of the target population are intentionally represented in the sample. Purposive sampling is a deliberate non-random method of sampling, which aims to sample a group of people, or settings with a particular characteristic, such as where they live in society, or specific cultural knowledge. The power of purposive sampling lies in selecting cases with rich information for the study, such cases provide a great deal of insight into the issues of central importance to the research study (Patton, 1990). In this study, farmers' households were selected on the basis of having been affected by HIV and AIDS

3.3 THE SAMPLE SIZE

According to the CSO report (1997), Swaziland has 172,416 households¹, of which 113,797 are rural households (Census data 1997). The sample size was 240 households from each region, making a total of 960. However, due to problems with enumerators, only 161 and 206 questionnaires were collected from the Lubombo and Hhohho regions respectively, whilst in the other two regions, 240 questionnaires were collected as targeted. Therefore, the final sample used in the study was 847 households. Table 1 shows the distribution of the households in the sample by region.

¹ A household is defined as a group of individuals who share living quarters and have common cooking utensils (CSO report 1997).

Table 3.1 The sample distribution

Region	Target sample size	Completed questionnaires
Lubombo	240	161
Shiselweni	240	240
Hhohho	240	206
Manzini	240	240
Total	960	847

3.4 DATA COLLECTION

The study employed both quantitative and qualitative techniques. A structured questionnaire was used to collect quantitative data pertaining to the impact of the HIV and AIDS pandemic on households' agriculture and food security. It was assumed that each member of the household is food secure if the household is food secure. Eight enumerators with reasonable competence in both English and Siswati were recruited and were each assigned to eleven Rural Development Areas (RDAs) The enumerators were trained and supervised by the researchers on the sampling procedure, community entry process, interview techniques, interpretation and comprehension of questions, recording of responses, group discussions and other logistics. The survey was carried out between May and September 2004.

3.5 DATA ANALYSIS

Questionnaires were checked by the team of researchers for obvious errors such as omissions and questions not answered correctly and returned to enumerators for rectification when necessary. Trained clerical assistants coded and entered the data in SPSS. Cross-tabulations, frequencies and means were then performed on the data. Data from focus group discussions and other qualitative responses was summarized for each region. Further analysis was conducted to establish the vulnerability index for the households.

3.6 LIMITATIONS OF THE STUDY

As with any study, the present study has its limitations, including those of time, financial considerations, and the nature of the research design. Therefore, several

limitations of this study should be noted as they could provide opportunities for future research.

This study suffers from the weakness of using cross-sectional data. Hence it would shy away from making strong inferences of the impact of HIV and AIDS in agriculture and food security. Therefore, the use of a longitudinal approach could provide strong support for studies dealing with impact like this one.

Due to the nature and sensitivity of HIV and AIDS, indirect questions were asked about the disease from respondents. This involved using questions about symptoms related to HIV infection and AIDS. As a result of that, some important information might have been lost or not obtained in the process.

The use of questionnaires also limits useful information from respondents. However, by using focus group discussions to complement data from questionnaires.

SECTION FOUR: RESULTS AND DISCUSSION

4.1 INTRODUCTION

The data used in this study came from a survey conducted on 847 households drawn from the four regions of the country namely; Hhohho, Manzini, Lubombo and Shiselweni. Due to the nature of the study, which is qualitative, most of the variables will be represented by their closest proxies to make them quantitative. Since the study seeks to determine the impact of HIV and AIDS on the components of agriculture and measures of household food security in Swaziland, it is imperative to identify good proxies for the HIV and AIDS variable and measures of household food security. To establish the relationships between these variables statistical techniques were used such as descriptive statistics, cross tabulation.

In a study by SADC FANR Vulnerability Assessment Committee (2003), they used the following proxies for HIV and AIDS:

- **Morbidity indicators** such as chronically ill household head and or chronically ill adult between 18 and 59 years
- **Mortality indicators** such as recent household member death and or recent death of an adult between 18 and 59 years
- **“Hybrid” morbidity/mortality indicators** such as highly affected households (death and chronically ill) and HIV affected households (death or chronically ill)
- **Demographic load indicators** such as presence of orphans, dependency ratio and number of adults between 18 and 59 years.

These variables, which are treated as independent variables will then be compared with other dependent variables such as agricultural production, agricultural labour, commercial agriculture, the labour market as a whole and food security and nutrition measures to ascertain if any relationships exist. It is worth noting from the beginning that these proxies may under/over estimate the presence of HIV and AIDS in the country given that it is impossible to ascertain from the survey if someone is infected with HIV or died of AIDS due to the sensitivity of that information.

In analysing the impact of HIV and AIDS proxies on agriculture the change in the following dependent variables resulting from HIV and AIDS were examined:

- Crop production,
- Agricultural assets,
- Labour allocation,
- Livestock,
- Expenditure on inputs and
- Land utilisation.

With regard to food security and nutrition the change in the following variables as measures of food security and nutrition will be examined:

- Food production,
- Level of income,
- Expenditure on non-food items,

Lastly we shall examine the impact of HIV and AIDS on household coping strategies.

4.2 A DESCRIPTION OF THE HOUSEHOLDS

In this study respondents were asked if there were any household members with symptoms of HIV and AIDS related diseases. The results in Table 4.1 show that, about 42% of the households in the sample had members with HIV and AIDS related diseases. The households most affected by having a sick member were from Shiselweni (47.5%), Manzini (42.4%) and Lubombo (42.4%) regions, whilst the households from the Hhohho regions were the least affected (Table 4.2).

Table 4.1 Households with members showing symptoms of HIV and AIDS related illnesses (n = 839)

Household category	Frequency	Percent
Affected	346	41.2
Not affected	493	58.8
Total	839	100.0

Table 4.2 Households with members showing symptoms of HIV and AIDS related illnesses by region (n = 346)

Region	Frequency	Percent	Total
Lubombo	66	42.0	157
Shiselweni	112	47.1	238
Hhohho	67	32.5	206
Manzini	101	42.4	238
Total	346	41.2	839

Table 4.3 presents the results of the household respondents that indicated that they lost a family member as a result of HIV and AIDS related illness, whilst Table 4.4 shows the results of affected households by regions. The results in Table 4.3 reveal that 77% of the respondents had lost a family member as a result of HIV and AIDS related illnesses. A comparison of the affected households according to regions indicates that the Hhohho region had the highest number of households (82.5 %) who lost their family members due to HIV and AIDS followed by the Lubombo, Shiselweni and the Manzini regions respectively.

Table 4.3 Households that had lost members due to symptoms of HIV and AIDS related illnesses (n = 845)

Household category	Frequency	Percent
Lost members	654	77.4
Not lost members	191	22.6
Total	845	100.0

Table 4.4 Households that had lost members due to symptoms of HIV and AIDS related illnesses by regions (n = 845)

Region	Frequency	Percent	Total
Lubombo	127	78.9	161
Shiselweni	188	78.6	239
Hhohho	170	82.5	206
Manzini	169	70.7	239
Total	654	77.4	845

4.3 THE IMPACT OF HIV AND AIDS ON AGRICULTURAL PRODUCTION

In agricultural production, which constitutes a large proportion of the population in Swaziland, the loss of adults as a results of HIV and AIDS must be reflected in a reduction in food and crop production, a reduction in land utilisation, loss in agricultural assets and livestock as families are compelled to sell such assets to cover AIDS related expenses, a decline in agricultural inputs and change in labour time allocated to agricultural activities as most time is spend on caring for the sick and non-productive people.

Figure 4.1 gives the percentage of households with chronic illness and recent deaths due to HIV related illnesses in each of the four regions of the country, which are also used as proxies for HIV and AIDS.

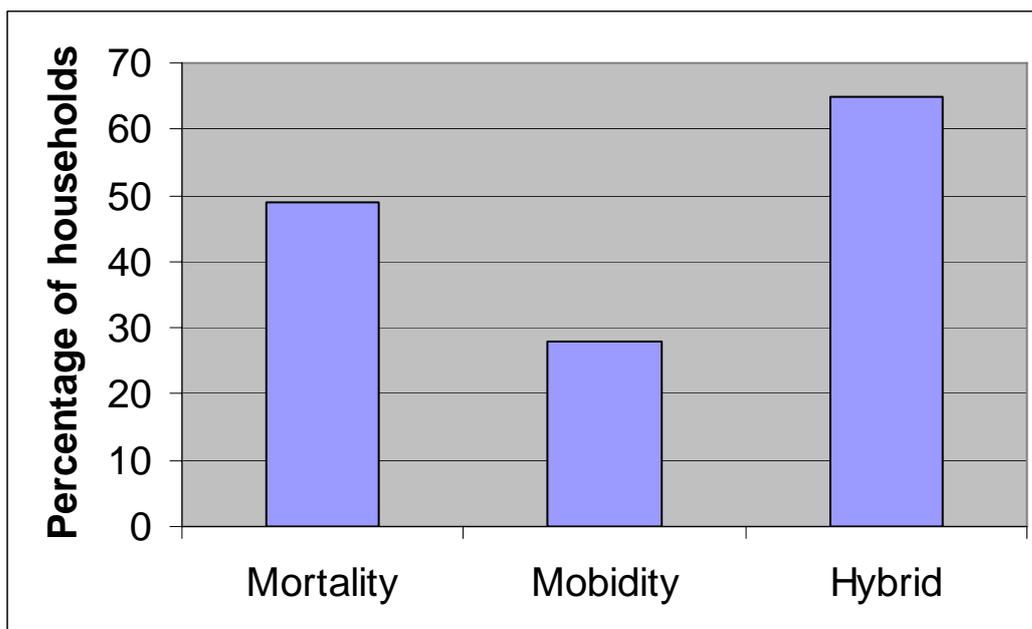


Figure 4.1 Percentage of Households with recent death (mortality), chronically ill (Morbidity) & Hybrid members between 18 and 59 years

In an analysis using the mortality and morbidity indicators for HIV and AIDS, the results indicate that on average, about 49 percent of the sampled households had their members between 18 and 59 years of age in the country's four regions died of HIV and AIDS related sicknesses and about 28 percent were suffering from the same sicknesses². The hybrid indicator for HIV and AIDS shows that about 65 percent of the households had members between 18 and 59 years of age either suffering from or had died of HIV/AIDS related sicknesses. Based on these results, it is obvious that the disease is spreading very rapidly and most of the households in the sample either lost a member through the disease or had a sick member in the household.

Figure 4.2 represents the percentage of households with members directly affected by HIV and AIDS related illness grouped according to the gender of the infected. Like in most developing countries, the HIV and AIDS pandemic in Swaziland mirrors the conditions of gender inequality and poverty. As shown by the study, women in Swaziland are more vulnerable to HIV and AIDS compared to men. The mortality indicators of HIV and AIDS indicate that about 66 percent of the households had lost

² Note that these numbers may not be a true reflection of the HIV and AIDS prevalence in the country due to the sensitivity of ascertaining whether one died /infected or not of HIV and AIDS.

their female members through HIV related illnesses. The morbidity proxy indicates that 67 percent of the households with members suffering from HIV and AIDS related sicknesses were women. This confirms that women are more affected compared to men in Swaziland.

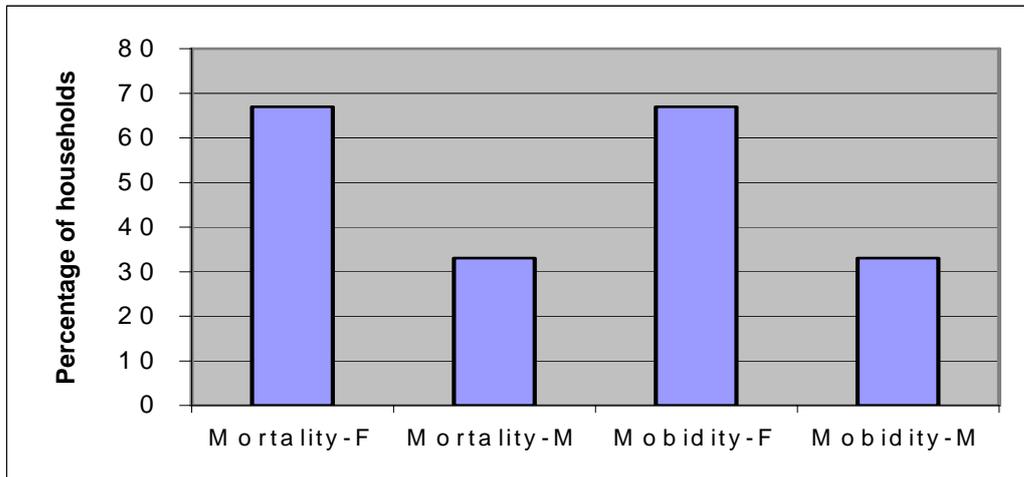


Figure 4.2 Percentage of Households with HIV and AIDS directly affected members between 18 and 59 years by gender

The exposure of women to the risk of contracting HIV and AIDS in Swaziland is somehow related to cultural practices, which are gender biased. The practice by men of having more than one wife increases the risk of women being infected by HIV. Women are also tasked with the responsibility of caring for the HIV and AIDS infected members in the family, which also increases their chances of getting infected because they have limited knowledge of using protective equipment. The study indicates that about 67 percent of the households had lost female members. This could be attributed to the fact that, when a man falls sick it is the responsibility of the wife to provide the necessary care and take on additional duties to support the family. However, when the wife becomes sick, older or young women assume the responsibility of giving care to the sick other than the husband. A gender imbalance in Swaziland also denies women their rights to use protective tools against contracting HIV and AIDS.

From the above results it can be concluded that HIV and AIDS in Swaziland is hitting hard on the economically active population most of which are farmers, self-employed and employed workers. It has been gathered also that the most vulnerable gender to

the pandemic are young women because of their biological, cultural practices and their inability to make a decision on practicing safe sex, which exposes them to the risk of transmission. Given the vital role women play at both household and agricultural levels, the increasing number of infected women poses a threat to the economy. Based on these findings, the following sections seek to explore how far these HIV and AIDS consequences affect agriculture and food security in Swaziland.

4.3.1 The effects of HIV/AIDS on land utilisation and accessibility

In households in which an adult member, particularly a male died of HIV and AIDS related sicknesses there is a reduction in area under cultivation. Moreover, households who lost male members have difficulties in acquiring land in the rural area where farming is important. The impact of HIV and AIDS on the total land utilisation was examined by first looking at how many of the households whose members were sick or had died of AIDS and were living on farms, reported a change in their land utilisation. Secondly by comparing the changes in land used during illness and after a household member had died. The change in land utilisation was measured by the percentage change in land utilised by the affected households.

Table 4.5 shows the impact of HIV and AIDS on land utilisation. The table indicates that about 70% of the respondents stated that land utilisation is affected by the illness and death of a family member. About 50% of the respondents indicated that HIV and AIDS have a large negative impact on land utilisation

Table 4.5 Impact of illness and deaths on the ability to utilise arable land (n =704)

Intensity of impact	Frequency	Percent
Very big	125	17.8
Big	225	32.0
Small	138	19.6
no impact	216	30.7
Total	704	100.0

Figure 4.3 shows the percentage of households who had HIV and AIDS infected members living on the farm that reported a change in land utilisation. The results in Figure 4.3 indicate that, whilst a number of the affected households had the infected member living on farm, few of them reported a decline in land utilisation. About 12% of households indicated that they experienced a change in land utilisation as a result of HIV and AIDS related illnesses. However, it was observed that most households with male members who had HIV and AIDS related symptoms and lived on farms indicated a change in their land utilisation.

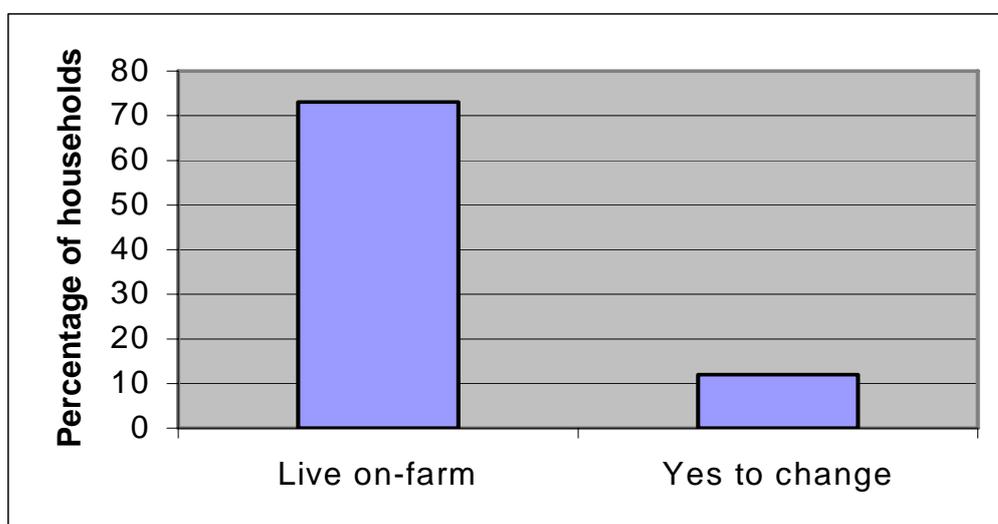


Figure 4.3 Percentage of Households that reported change in land utilisation and had HIV and AIDS affected member living on the farm.

This study confirms that there is a serious impact of HIV and AIDS on a range of land issues in Swaziland as shown by Figure 4.4. The direct impact of HIV and AIDS is not only on productivity of the infected members, but also diverts income that could be used for agricultural activities to medical and funeral expenses. In households with members infected with HIV and AIDS related diseases, agricultural labour is also diverted from agricultural activities to take care of the sick. The combined effects of these factors would be a decline in agricultural land utilisation. Because the disease in Swaziland normally affects young adults, who are at the most economically productive phases of their lives and on whom younger and older generations depend, the epidemic has the potential of destabilizing the household's ability to maintain the

land previously used for cultivation. This has in most cases resulted in land being left fallow or abandoned.

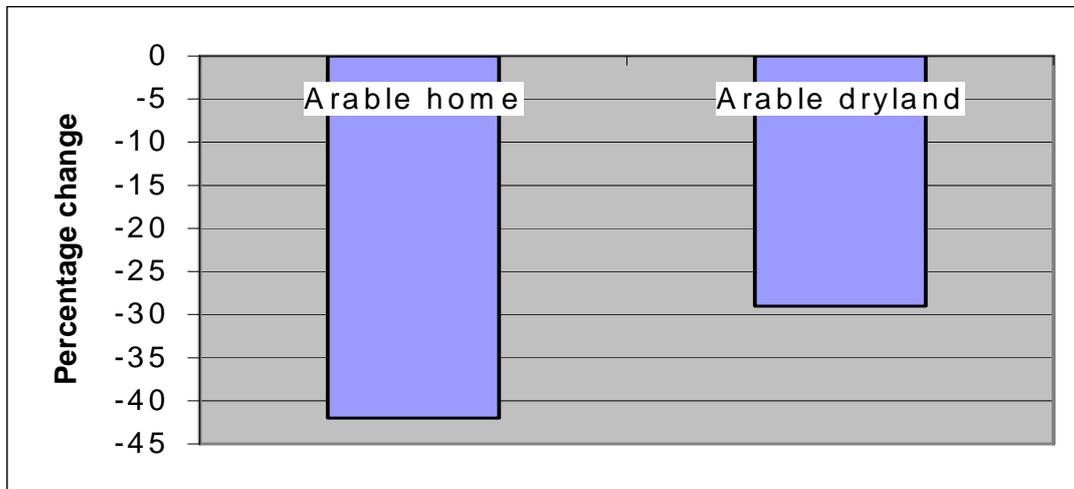


Figure 4.4 Percentage change in land utilised by households with HIV and AIDS infected who lived on the farm

Figure 4.4 shows households that have experienced recent dead or sick members that experienced a decline in land utilised. On average the affected households had about 42 percent less total arable land at homestead utilised and about 29 percent less of total arable land under dry-land cultivation utilised.

There is a gender element to the impact of HIV and AIDS on household's ability to access or use land in Swaziland. The access of land by a household depends on the presence of the male adult in which case if the husband dies and leaves behind the wife, the ability of that household to access and retain land becomes uncertain if there is no male child in the household. In addition land utilisation declines more in households headed by females than men because the former are unable to cope with some of the agricultural activities such as land clearing and ploughing, where hiring of labour and tractors is not affordable. Figure 4.5 compares the total hectares of accessible and arable land in possession by households with male members not sick or who died of HIV and AIDS related sicknesses and total hectares of accessible and arable land in households headed by females when the male is sick or had died.

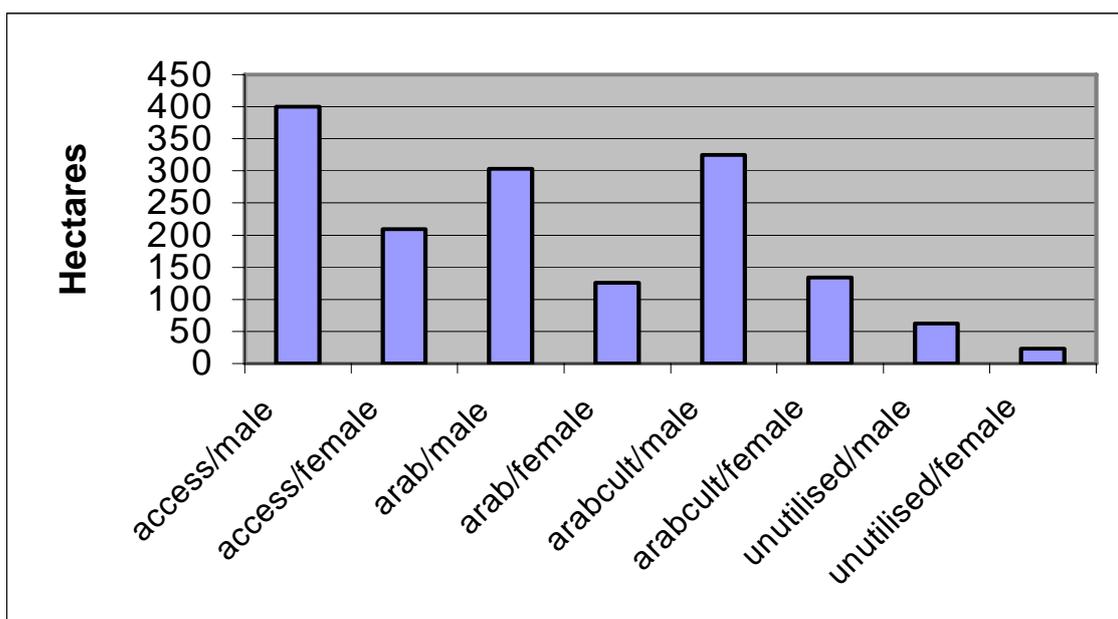


Figure 4.5 Amount of total land in households with members infected with HIV and AIDS illness grouped according to the gender of infected member.

The results in Figure 4.5 illustrates that households with a sick or dead adult male, hence headed by the wife had less hectares of accessible and arable land compared to households headed by adult male. Acquiring additional land not previously utilised proved to be an easy task for households headed by men than those headed by women. Women-headed households in Swaziland risk having their husbands' land confiscated by the husband's family, as women do not have the right to inherit land in the rural areas. Sometimes they also lose rights to land use. Forced removal of widows from land and property grabbing by her in-laws, which is common in Swaziland, is also an aggravating factor to poverty, which further increases the exposure to the risk of HIV and AIDS.

Gender differences also prevail in decision making regarding land utilisation in Swaziland. Decision making on land use are the prerogative of the household male members. Although the woman is consulted for her opinion, the final decision lies with the man. Decision making on land issues is only transferred to the woman after her husband die. The result of women playing a secondary role in decision making regarding land while the husband is still alive has far reaching implications regarding the change in land utilisation when the man has died. When the woman assumes the

responsibility of being the head with all decision making bestowed on her, she may find it difficult to cope because of interference from relatives on land issues after the husband dies. This could have a negative impact on land utilisation, as the relatives could make decisions against usage of some of the land. Figure 4.6 depicts the number of households living on farms with active adults affected by HIV and AIDS related illnesses who have reported a change in decision making on land access during and after being affected by illness.

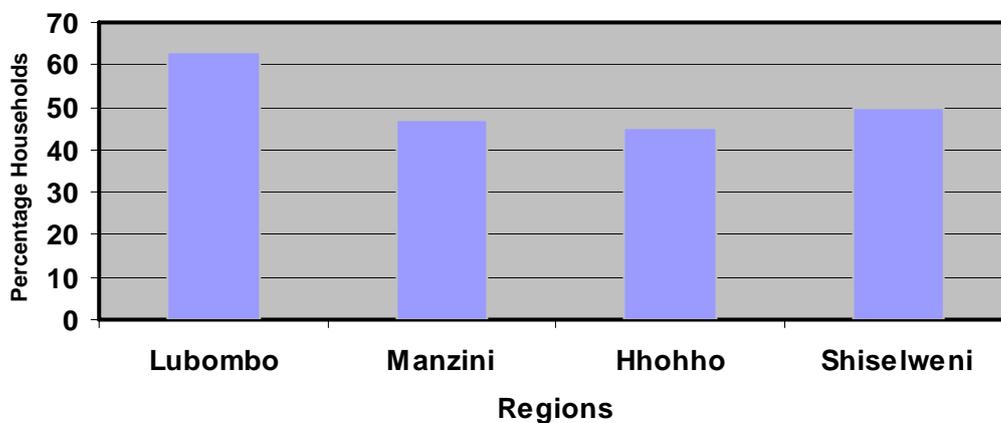


Figure 4.6 Percentage of Households living on farm with death/chronically ill members that reported change in land access decision making.

As indicated, the study shows that 63 percent households with active adults living on farms who are sick or had died of HIV and AIDS related sickness in the Lubombo region reported a change in land access decision-making. The Shiselweni region is the second region with about 50 percent, while the Manzini and Hhohho regions had 47 percent and 45 percent of the affected households who reported a change in land access decision-making respectively. It can be ascertained from the study that land access decision-making in the country has a tendency to shift from husband to wife then to son or from father to mother then to son.

The study also shows that once the head of the household, who in this study is the husband or father (male) dies, land access decision-making becomes the responsibility of the wife or mother (female), who often lacks knowledge on how to deal with some

land issues. Given that land preparation for cultivation is a heavy task, which falls entirely on men, it is within expectation that land utilisation will decline as the head falls sick or dies of HIV and AIDS related illness. This clearly illustrates the gender aspects of a household that has lost an adult household member. The situation is even worse if the mother or the wife who had assumed the responsibility of being the head becomes sick or dies since the son might still be lacking knowledge on farming or may not be interested in farming at all. The decline in land utilised manifests in a reduction in agricultural production in the country.

4.3.2 The effects of HIV and AIDS on Agricultural Assets and Livestock

Livestock in Swaziland account for a considerable percentage of agriculture and also contribute tremendously to agricultural development in the rural areas. Farming in the rural areas is done through draught animal power. Besides being used in farming, livestock also serve as food security by providing milk and meat products for the households. Livestock also produce dung, which serves as manure to be used in the fields. This section intends to examine if there is any change in the number of livestock and agricultural assets amongst households with infected and/or dead members, before and after illness/death. The study further captures the change in marketing of agricultural products, including livestock that bring cash income and their by-products, during and after illness.

The effects of HIV and AIDS on agricultural assets and livestock is indirect in the sense that households with infected or death members normally find themselves with less money to pay hospital or funeral bills, which might force them to sell agricultural assets and livestock and their by-products to meet such costs. The results of the study however, do not find any relationship between HIV and AIDS and the agricultural assets. The observation was that in the affected households some have not experienced any change in agricultural assets, whilst others have increased their agricultural assets, which is contrary to the expectation of a negative relationship between HIV and AIDS and agricultural assets. With regard to livestock, some of the affected households have indicated a change in livestock numbers which corresponds with the illness or death of members.

Table 4.6 reveals that the majority (39%) of respondents in the study experienced a reduction in livestock as a result of HIV and AIDS. The livestock numbers were reduced as households were forced to sell some in order to get money to pay medical bills for the sick and cater for funerals for those members who pass away. Figure 4.7 shows the percentage of households with active adults with HIV and AIDS related sickness who experienced a change in livestock numbers.

Table 4.6 Households with changes in livestock numbers as a result of HIV and AIDS related illnesses (n = 847)

Household category	Frequency	Percent
Households with change	331	39.1
Households with no change	263	31.1
Missing	253	29.9
Total	847	100.0

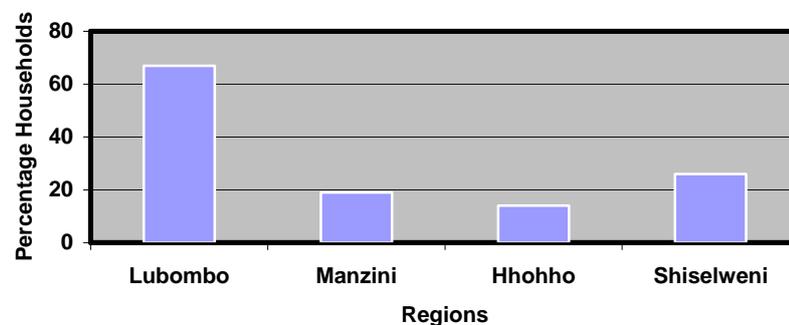


Figure 4.7 Percentage of Households that reported a change in livestock numbers as a result of HIV and AIDS related illness and deaths grouped according to region

Based on Figure 4.7, about 67 percent of the households in the Lubombo region had a reduction in livestock numbers due to sales to get money for caring for sick members as a result of HIV and AIDS illnesses. In the Shiselweni region about 26 percent reported a reduction in livestock numbers. Whilst this may appear to be true, there is a high possibility that the reduction is also attributable to the constant drought that prevails in the Lubombo region. To substantiate these finding, the study went on to

examine the exact change in the livestock and the number of livestock sold during and after illness. Table 4.7 presents the percentage change in livestock within the affected households. The table shows that there was generally a reduction in the numbers of livestock in all the regions. The reduction was substantial especially for cows/heifers (24%) and poultry (24%) in the Lubombo region, where cows/heifers (52%), poultry (67%) and oxen (30%) in the Manzini region, bulls (48%), cows/heifers (37%), oxen (26%) and goats (28%) in the Hhohho region, and all the livestock that were available in the Shiselweni region, except pigs. Overall, the most affected type of livestock are the cows (40%), bulls (34%), oxen and poultry.

Table 4.7 Percentage change in Livestock numbers for Households experiencing HIV and AIDS related illnesses or deaths of adult members

Region	Bulls	Cows/ Heifers	Donkeys	Sheep	Poultry	Oxen	Young calves	Goats	Pigs
Lubombo	-14%	-24%	-1%	-	-24%	-10%	-2%	-5%	-2%
Manzini	-14%	-52%	-3%	-3%	-67%	-30%	-13%	-17%	-4%
Hhohho	-48%	-37%	-	-	-17%	-26%	-16%	-28%	-10%
Shiselweni	-56%	-40%	-	-	-43%	-21%	-32%	-32%	-4%
Overall	-34%	-40%	-1%	-0.8%	-40%	-23%	-17%	-22%	-5%

- No Statistically Valid Cases

Whilst the results seem to confirm the decline in livestock in the affected households, this may not be sufficient to conclude that the fall is related to sales of livestock to cater for the sick or funeral costs. Therefore further analysis was necessary to look at how many livestock were sold during and after sickness to establish the expected negative effects of the epidemic on the number of livestock. Figure 4.8 presents the number of livestock sold during and after illness among the affected households. The results suggest that more livestock were sold during illness than before illness and after death. However, the numbers of livestock sold after death were higher than before illness, indicating that money was still needed after death to cover post-death expenses, such as costs for funerals and cleansing. This trend was observed in all the regions except Hhohho where the numbers remained constant before and during illness, and dropped slightly after death. This peculiarity of the Hhohho region needs further investigation, which can be done in a later study. Therefore, this explains the

decline in number of livestock during illnesses among HIV and AIDS affected households.

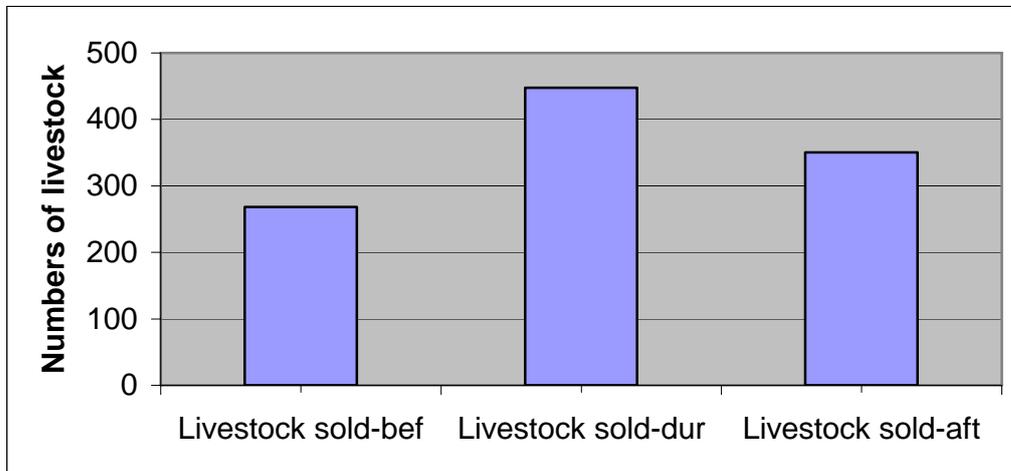


Figure 4.8 Numbers of Livestock sold before, during illness and after death in households experiencing HIV and AIDS related illnesses and deaths

It could be ascertained from the study's results that cattle are the most affected livestock, as they constitute a large number of livestock in Swaziland. Poultry is also severely affected, possibly because of fewer complications to sell. These results are in line with the observation that the majority of the affected household members have/had distinct contribution in the upkeep of livestock either financially, in terms of knowledge, and experience or through work. When the male dies, the remaining household members may lack skills, physical strength and financial backing to maintain livestock management and production. Again it has been observed that decision making with respect to the type, variety, number and selling of livestock shift from the head (husband or father) to wife or mother and then son or sometimes brother to husband. The decline in livestock is therefore expected in women or child-headed households because of lacking knowledge on decision-making because in most households they are sidelined in decision-making when the male is still alive.

4.3.3 The effects of HIV and AIDS on Household Food and Crop Production

Households with adults suffering from or who died of HIV and AIDS related diseases generally experience a reduction in food and crop production. Yields on food and crop production decline because of a decrease in land allocated to crop production, decrease in application of agricultural inputs, less time allocated to agricultural activities and lack of knowledge on how to manage crops. In analysing the impact of HIV and AIDS on crop production the study also examined how land allocated to the production of different crops changes in households living on farms with adults sick or who died of HIV and AIDS related illnesses. The study further explored if as a result of households having a member suffering or dead as a result of the epidemic there is any change in expenditure on agricultural inputs. A direct negative impact on crop production is anticipated given that a majority of the country's population relies on crop production. This impact was determined by the change in crop harvested before and after an adult of the households fell sick or died of HIV and AIDS related sicknesses.

4.3.4 The effects of HIV and AIDS on Production of Maize and other crops

If households become unable to supply agricultural labour because much time is spent attending to the sick or unable to purchase agricultural inputs because income is diverted to pay for medical treatment and eventually to meet funeral costs, crop production falls and the composition of crops may be gradually altered. The affected households shift from high labour intensive crops to less labour intensive crop production. This section seeks to examine the impact of HIV and AIDS on the household's ability to produce crops. Given that maize is the staple food in Swaziland the study analysed the impact of HIV and AIDS on its production separately. Table 4.8 presents average change in maize production in each region. The results indicate that generally there is a decrease in maize production after the death of a family member, who was the main source of income. There is a reduction of about 424 bags (70kg) normal production as a result of loss of labour and money for inputs due to HIV and AIDS. The most affected region with respect to maize production was the Lubombo region followed by the Manzini region. It is worth noting that the Lubombo region is also the most hit by drought, and hence the decrease in maize production could be the combined effect of HIV and AIDS and drought.

Table 4.8 The amount of maize reduced in each region as a result of HIV and AIDS related illness and death (n = 527)

Region	N	Mean decrease	Std Deviation
Lubombo	85	939.9	2375.9
Shiselweni	162	63.4	292.5
Hhohho	140	315.5	685.4
Manzini	140	379.5	1013.0
Overall	527	424.6	1091.7

Table 4.9 reveals a 21% decline in maize production from the household sample, 4% decline in groundnut production, 3% decline in sweet potato, 0.8% decline in Irish potato, 0.5 decline in cotton and 3% increase in beans. Impact within the regions indicated a 44% decline in maize production in the Lubombo region and 22% in the Shiselweni region. However, the reduction in crop production amongst the affected households may not necessarily be linked to the impact of HIV and AIDS given the persistent drought over the past years in the country, particularly in the Lubombo region. Given the dualistic agricultural practices in the rural areas, with subsistence farming being stronger than commercial, once households are affected they may switch from commercial to subsistence farming. This result in fewer crops sold to generate income for the households, hence less food security. The effect of HIV and AIDS on affected households making a living from commercial farming would be a reduction in cash crop production as they switch from more demanding commercial farming to less demanding subsistence farming.

It is noted that, although there was a decline in the production of other crops, there was an increase in the production of beans, especially in the Lubombo and Manzini regions. This could be attributed to the intervention programmes, which encourage the consumption of legumes for their protein nutritional value, in coping with HIV and AIDS related illnesses.

Table 4.9 The percentage change in crop production for a Household with a sick or dead adult due to HIV and AIDS related sicknesses.

Region	Maize	Groundnuts	Sweet potatoes	Potatoes	Cotton	Beans
Lubombo	-44%	-5%	-7%	-	-2%	+7%
Manzini	-9%	-2%	-2%	-3%	-	+4%
Hhohho	-8%	-3%	-	-	-	-1%
Shiselweni	-22%	-4%	-2%	-	-	-
Overall	-21%	-4%	-3%	-0.8%	-0.5%	+3%

- No Statistically Valid Cases

4.3.5 The effects of HIV and AIDS on Agricultural Inputs Use

Crop production and subsequent harvest for many households in Swaziland is directly related to agricultural inputs such as seeds and fertilizer. To buy these agricultural inputs most households in Swaziland depend on income from household members in gainful employment. In as far as HIV and AIDS affect these members who are mostly young and economical active people, households begin to experience shortages of money to buy agricultural inputs and consequently this leads to poor harvest. In this section the study seeks to examine the impact of HIV and AIDS on the affected households' ability to use agricultural inputs. Table 4.10 below shows the percentage change in agricultural inputs in households whose members are dead or chronically sick from HIV and AIDS related sicknesses.

Table 4.10 The percentage change in Expenditure on Agricultural Inputs for Households experiencing HIV and AIDS related illnesses and deaths of adult members.

Region	Seeds	Fertilizer	Chemicals for crops	Veterinary Medicine	Hired Labour
Lubombo	-4%	-3%	-2%	-5%	-
Manzini	-7%	-8%	-5%	-2%	-
Hhohho	-3%	-3%	-1%	-	-
Shiselweni	-11%	-4%	-1%	-1%	-1%
Overall	-6.3%	-4.5%	-2.3%	-2%	-0.3%

- No Statistically Valid Cases

The results indicate that, affected households experienced a 6.3% decline in the use of seeds and 4.5% reduction in the use of fertiliser. It is observed that there was a negative impact of HIV and AIDS on the use of inputs. This means that expenditure on agricultural inputs decreased in all the regions. This implies that there is less use of agricultural inputs, and hence there is food insecurity. The negative impact of HIV and AIDS on the use of inputs is highly realised in the Shiselweni and Manzini regions.

4.3.6 The effects of HIV and AIDS on land allocation to crop production

Households with infected members, particularly males, utilise a change in land allocation among crops. Table 4.11 below presents the percentage change in land allocation to different crops in the affected households. The results show that land allocated to maize production and to all other crops declined except for beans in households with members affected by HIV and AIDS related diseases. The results therefore explain why there is a decline in the production of crops such as maize, groundnuts etc. and an increase in soybean production as previously noted. The most affected crop was maize (-9.5%), followed by sweet potatoes.

Table 4.11 The percentage change in land allocation to crop production for Households experiencing HIV and AIDS related illnesses and deaths of adult members.

Region	Maize	Groundnuts	Sweet potatoes	Potatoes	Cotton	Beans
Lubombo	-24%	-4%	-5%	-	-2%	+8%
Manzini	-3%	-1%	-2%	-1%	-	-
Hhohho	-4%	-	-	-	-	-
Shiselweni	-7%	-1%	-5%	-	-	-
Overall	-9.5%	-1.5%	-3%	-0.3%	-0.5%	+2%

- No Statistically Valid Cases

4.4 HIV/AIDS IMPACT ON HOUSEHOLD FOOD SECURITY

While natural disaster was the reason for food insecurity during the past years, the HIV and AIDS epidemic has since emerged as the most significant aspect of and reason for the crisis in the country. One way to examine the impact of HIV and AIDS on the households' ability to have access to food is to look at household income from both agricultural and non-agricultural activities. The expenditure pattern of an infected household member also has a bearing on its ability to have access to food. This section seeks to examine the changes in income sources and expenditure patterns as a result of household members falling sick or dying of HIV and AIDS related sicknesses, which has a direct impact on households' access to food. The following Table 4.12 represents the change in income in affected households. The table shows that generally there has been an increase in income from crops and livestock. This could be a result of households selling to get income for taking care of the sick and to pay medical bills. The results reveal that most income (19.5%) came from livestock sales, followed by income from crop sales (4.6%).

Table 4.12 The percentage change in income of Households experiencing HIV and AIDS related illnesses and deaths of adult members.

Region	Crops	Livestock	On-farm Agric Product	Off-farm Products	On-farm non agric products	Off-farm non agric products
Lubombo	9%	11%	4%	-4%	-5%	-
Manzini	15%	59%	1%	-	1%	-2%
Hhohho	-1%	-	9%	7%	-	2%
Shiselweni	-5%	8%	-	-	-	-
Overall	4.6%	19.5%	3.5%	0.8%	-1%	-

No Statistically Valid Cases

Whilst on average there has been an increase in income from the different sources as outlined in the results in Table 4.12, this increase is very insignificant except for the Manzini region, which recorded a 59 percent increase in income from livestock production. This implies that a large number of livestock was sold in this region to gain income. Such income becomes useful in taking care of the sick person in the household. In the Shiselweni region a 5 percent decline in income from crop production was utilised. The Lubombo region registered a decline in income of 4 percent and 5 percent fall in income from other off-farm agricultural and other on-farm non-agricultural practices respectively.

Households with an infected or dead member change their expenditure pattern by channelling income to non-food items such as health care, transportation and funerals. This will compromise agricultural production, as less income is used to purchase agricultural inputs and other agricultural equipments. Table 4.13 shows the percentage change in expenditure of affected households. The results indicate that expenditure on crops inputs was reduced by 12.3%, followed by livestock with a reduction of 1.5%. The results further show that there was an increase in expenditure towards non-agricultural products. This could imply that affected households spend more on medication and compromise agricultural production. In the Lubombo region, expenditure on crop inputs was reduced by 35 percent.

Table 4.13 The percentage change in Expenditure of Households experiencing HIV and AIDS related illnesses and deaths of adult members.

Region	Crops inputs	Prod Assets	Livestock	On-farm Agric Product	Off-farm Products	On-farm non agric products	Off-farm non agric products
Lubombo	-35%	-	-8%	-	-1%	1%	-15%
Manzini	-3%	-	4%	-2%	-	-	-1%
Hhohho	2%	-	-	-	-	1%	18%
Shiselweni	-13%	-	-2%	-1%	-	-	-
Overall	-12.3%	-	-1.5%	-0.8%	-0.3%	0.5%	0.5%

No Statistically Valid Case

The results shown in the above table are in line with expectations as reduced expenditure on agricultural items was observed in all the regions except for Hhohho. Further analysis of household expenditure reveals that the highest expenditure goes to funerals (Figure 4.9). Funeral expenditure has increased by E1541 on the average, while medical bills have increased by E1010. The Lubombo region observed an average increase of E1765.18 and E2095.44 in medical bill and funeral costs respectively. The Shiselweni region incurred an average increase of E1109.12 in medical bills and E1767.17 in funeral expenses. The reduced incomes coupled with an increase in expenditure on non-food and non-agricultural items result in less economic access to food.

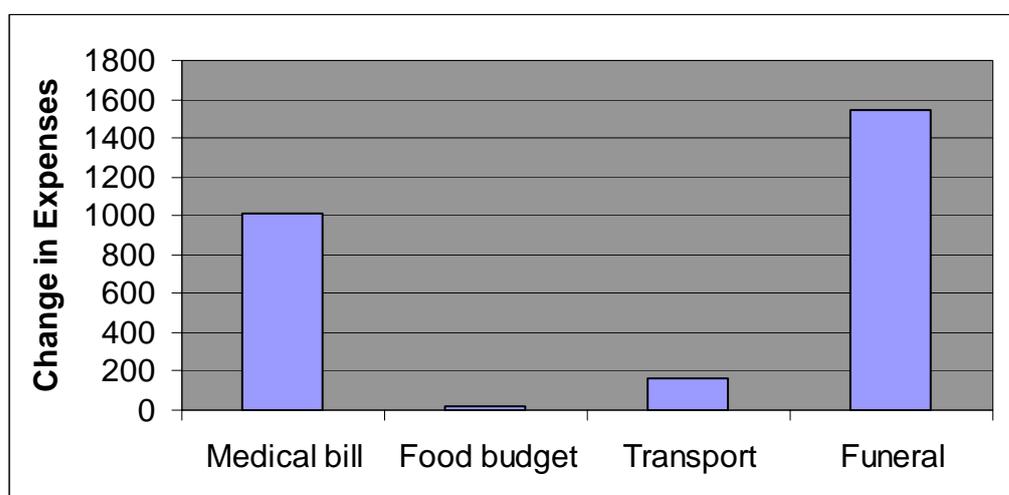


Figure 4.9 The change in Expenditure by Households with a recent death or chronically ill members

4.5 THE IMPACT OF HIV AND AIDS ON AGRICULTURAL LABOUR

As a result of households having an active adult male infected with or who died of HIV and AIDS related diseases the responsibilities of performing agricultural activities fall entirely on the female adult or children and on inexperienced male children. The death of a male head of household may mean the loss of the worker responsible for more demanding agricultural activities and farm management. The consequence will be a reduction in agricultural production including food production. In this section the study seeks to examine the number of households with women and children performing agricultural activities when an adult male member falls sick or dies of HIV and AIDS related illnesses (Table 4.14). The results show that the Lubombo region has the highest number of households who involve female and children in land clearing, planting, weeding, shelling and purchasing of inputs when the male household head is sick or dead. The study does not ascertain if the infected member had a distinct knowledge on agriculture and whether this knowledge has been transferred to surviving members who are expected to make use of this knowledge during production. Overallly the main agricultural activities done by women and children are shelling (44%), harvesting and weeding (42%).

Table 4.14 The percentage of HIV and AIDS affected Households with agricultural activities performed by women and children

Regions	Land clearing	Planting	Weeding	Harvesting	Shelling	Purchasing inputs
Lubombo	43%	56%	68%	66%	67%	35%
Manzini	32%	35%	47%	49%	54%	14%
Hhohho	21%	25%	27%	26%	27%	20%
Shiselweni	27%	31%	38%	37%	37%	9%
Overall	29%	35%	42%	42%	44%	17%

The study shows that women and children in Swaziland become involved in agricultural activities previously done by males, like land clearing, planting and purchasing of inputs when male members fall sick or die of HIV and AIDS. The study

also indicates that about 33 percent of the households with infected members had distinct knowledge of agriculture. Out of these 67 percent were able to transfer the knowledge to the surviving members, and about 63 percent were able to make use this knowledge.

4.6 STRATEGIES FOR MITIGATING AND COPING WITH THE IMPACT OF HIV AND AIDS

Household affected with HIV and AIDS adopt a means of survival in the presence of the epidemic. In this study an attempt was made to identify coping strategies practised by HIV and AIDS affected households. Hence, this section discusses coping strategies practiced by affected households.

One of the objectives of this study was to collect and analyse data on coping strategies being used by households affected by chronic illnesses and deaths associated with HIV and AIDS pandemic. For this purpose, the survey collected data about the common and present coping strategies. HIV and AIDS's main effect at the household and community levels is reduced labour availability, loss of skills and knowledge, low productivity, low income and food insufficiency. In response to the impact of HIV and AIDS, households have adopted different coping strategies to keep life going (Table 4.15). As a results of labour shortage, affected communities and households adopted coping strategies that included: increasing children's involvement in agricultural activities; exchanging labour with neighbours and relatives; shifting to less labour-intensive mono-cropping; reducing the areas under crop production; using in-kind payments for labour; and working longer hours, Traditional mourning periods have been reduced, from between five and seven days to about three. During funerals, some households resorted to preparing the grave for burial a day before the funeral because of shortage of labour. In response to reduced per capita income, many families resorted to distress sales of household assets and livestock and dependency on forest resources increased. More women's and youth groups were established for group income-generating activities.

Table 4.16 Household coping and mitigation strategies for HIV and AIDS

Issues	Present coping strategies among farmers?	Present mitigation strategies for farmers?
<p>1. Labour shortages Household labour shortages results into;</p> <ul style="list-style-type: none"> • few people available for work in the household, • Little time spent on agric. activities, (in many instances when a household has a chronically ill members, considerable amount of time is spent caring for the patient) • untimely agricultural activities, 	<ul style="list-style-type: none"> • Most households in the Hhohho and Manzini region hired labour to assist with farming, whilst family members take care for the sick. • Children are forced to leave school and join the working force. • Use of reciprocal community labour (lilima) • Growing of less labour-intensive crops • Relying on elderly, children and extended family • Reduction in land utilisation • Formation of community labour groups (common among female headed households) 	<ul style="list-style-type: none"> • Home-based care centres to take care of the sick whilst enabling survivors to go to work • Provision of antiretroviral drugs and food to boost the sick in order to continue working • Training by agricultural extension staff on the introduction of less labour-intensive crops. • Use of community counsellors and educators in an effort to decrease the transmission rate of HIV and AIDS
<p>2. Decrease in agricultural inputs</p>	<ul style="list-style-type: none"> • Introduction of low purchased input technologies and practices • Growing of crops requiring less purchased inputs 	<ul style="list-style-type: none"> • Availability of small loan facility to help affected households to purchase inputs
<p>3. Loss of knowledge and skills</p>	<ul style="list-style-type: none"> • Farmers keep local seeds • Sharing of practical experience with other survivors 	<ul style="list-style-type: none"> • Provide training on agriculture to survivors by Agricultural extension officers
<p>4. Increasing household food insecurity</p>	<ul style="list-style-type: none"> • Eating less than three times a day • Introduction of miniature gardens • Consumption reducing and switching by reducing and switching to less preferred food or to forego meals completely to be able to feed the sick. • Migration in search of food • Switching expenditure by changing patterns and reducing expenditure on other items to increase expenditure on health care. 	<ul style="list-style-type: none"> • Provision of food by the disaster relief fund • Provision of agricultural inputs by National Emergency Response Committee on HIV/AIDS (NERCHA) (Indlunkhulu fields) • Provide food-aid to the sick and orphaned by NGOs.
<p>5. Increasing medical & school fees, & other expenses</p>	<ul style="list-style-type: none"> • Sell assets and livestock • Children are forced to leave school • Livestock and household assets are sold • Expenditure switching - reducing expenditure on other items to increase expenditure on health care 	<ul style="list-style-type: none"> • Introduction of Government sponsorship to orphans by the Ministry of education • Provision of free ARVs to the sick

SECTION FIVE: CONCLUSION AND POLICY IMPLICATIONS

5.1 CONCLUSION

The conclusions that can be drawn from the results of this study are much in line with other studies conducted in other African countries. The most evident findings of the study are that HIV and AIDS are increasingly wiping out the young and most productive people of the country. When classified according to gender, the study concludes that women are more vulnerable to HIV and AIDS than men in Swaziland because of their economic and social status, which compromises their ability to negotiate safe sex. This, in turn, has contributed to deterioration of agriculture and food security in the country given the major task women perform in household and agricultural activities. In addition to household work, many rural women in Swaziland play a significant role in agricultural activities, which provide food to the household's table. The extra task of caring for the sick, which is mostly a burden for women, further poses strain on women in agricultural communities. Chronic illness and death of a household member reduces the household's available labour for both household work and agricultural production. Another aspect of human capital that is affected by illnesses and death is that of skills and knowledge that is possessed by certain members of the household and community. Illnesses and death result in the loss of knowledge that individuals possess on cropping systems, prices and marketing and livestock upkeep.

The study has indicated that, although the HIV pandemic has a severe negative impact of agriculture and food security, the majority of the respondents have shown to be able to cope with the impact. However, there are a substantial number of the households who require attention.

Whilst it remains extremely difficult to ascertain the exact impact of HIV and AIDS, the study has provided strong evidence of a devastating effect on agriculture and food security in Swaziland. The study concludes that the most affected component of agriculture in Swaziland is livestock, which, as a result of the pandemic, households have

resorted to selling their livestock as a means of sustenance and to pay for medical bills and post death expenses. Crop production has diminished due to a fall in land utilisation, as inputs become unaffordable when the sick or dead member was the one providing finance for inputs, household labour is diverted to caring for the sick, and skilled people die or fall sick; living behind people with little or no skill on production management. This situation has seen more households falling below the poverty line, as are evidenced in more than 70 percent of the affected households, where the sick members or the dead had been living on-farm. This undermines government's endeavour to alleviate poverty in the country, which, in turn makes people and households even more vulnerable to the epidemic. The study has also shown that, as a result of the death of a household member, there are losses in finances that the households would normally get from wages of household head and remittances from employed members of the household. In order to get the required financial resources, households sell their physical assets such as household assets and livestock. In most cases this money is spent on paying medical bills and catering for post death activities like funerals and cleansing ceremonies.

The study has further indicated that as a result of the epidemic affecting the head of the households, referred to as husband or father, there are serious implications on a range of land issues and livelihoods strategies. In female-headed households, land accessibility becomes difficult and land under utilisation diminishes because of gender inequality and inability to cope with some agricultural activities such as land clearing and ploughing. Gender inequality in Swaziland has not only resulted in women contracting the disease but they also risk having their late husbands' land confiscated especially by the husband's relatives.

5.2 IMPLICATIONS

In response to the pandemic and its consequences there is urgent need for government and non-governmental organizations to combine their efforts to come out with a comprehensive set of policy measures. These policy measures should include direct policy such as health policy targeted on improving the health of those already affected, whilst providing preventive health services to those not affected. Whilst Swaziland has

adopted the Primary Health Care (PHC) strategy to provide preventive and promotional health services particularly in rural areas, fewer resources are channelled towards provision of antiretroviral drugs and food, which will help to prolong the life and enhance productivity of the affected. It is also crucial to ease women's disproportionate care burden in HIV and AIDS affected households by supporting the home-based care centres and therefore allowing them more time to concentrate on income-generating projects.

Forming part of the policy measures should be policy interventions that will assist the affected households to maintain their agricultural production and food security such as agricultural policy, food-aid policy and rural development policy. These policy interventions should be aimed at mitigating the negative effects of HIV and AIDS on agricultural output. Where labour resources are affected as a result of the pandemic, training by agricultural extension staff on the introduction of less labour-intensive crops should be encouraged, such as growing cassava instead of maize because it also has the same nutritive value,

Government should also, through its community-based programmes, revive and support labour-saving cultural practices such as communal labour to assist labour-constrained households by introducing incentive systems at the community level. Small loan facilities should be readily available to the affected households to help them purchase agricultural inputs or even start some agrarian based businesses to sustain themselves and these can be monitored by agricultural extension officers. To bridge the farming knowledge gap between the affected household members and the survivors, mainly women and children, there is need for both formal and informal training to assist them cope with the situation.

To complement the above policies there is need to develop policy interventions derived from food security and rural development programmes. In pursuing these policies government in collaboration with NGOs should intensify its programme of distributing food aid by ensuring that HIV and AIDS affected households receive their quota. The study has clearly indicated that land rights are biased against women who as a result of the death of their husbands are not allowed to own or acquire land for agricultural

production. It is therefore important for policy makers and development practitioners to support the land rights of the vulnerable people and further assist them to maintain usage of the land. Also in line with empowering women, cultural practices that expose women to the vulnerability of contracting HIV and AIDS need to be reconsidered, especially that of having women given to a brother in law without her consent when the husband passes away. The mourning period for women also needs to be reviewed to allow them to engage in productive work soon after the death of the husband.

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APPENDIX A.

Variables Used in the Calculation of the Household Vulnerability Index (HVI)

Variable tracked in study	Variable Name	Description of Variable	Weight given to variable	Transformation used
Dependency ratio	Dependency	Number of household members less than 15 years of age and 65 years and above; divided by the number of members between 15 and 64 years of age	3	A value of 1 was set for all households with dependency ratio greater than 1, and zero otherwise
Number of dependants	Dependents	Number of household members less than 15 years of age and 65 years and above	3	For this variable, 1 was set for households with 3 or more dependents, and 0 for those with less
Age of head of household	Age of Head of HH	This was calculated exactly as described under the transformation	2	The following transformation was used: 0 for households headed by people aged in the 20-60 range, 1 otherwise.
Have household members suffered from any AIDS related illnesses	AidsRelatedness	The household was assessed on each disease. The answer to the question in the variable was “yes” if a member suffered from at least one of the AIDS related illnesses.	3	For this variable, 1=yes, and 0=no
Total household size	TotalHouseholdSize	All members of the household were counted using the SUM function in EXCEL on the	1	Set 1 for those above 10, and 0 otherwise.

		variables on members in different age categories described in the first variable, which in turn, had been generate using the COUNTIF function		
Highest education level for the Head of Household	EducationLevelHH H	This was calculated exactly as described under the transformation	2	Set 1 for “no formal education” and “primary education”, 0 otherwise.
Who is the head of the household?	FamilyHead	This was calculated exactly as described under the transformation	4	Set Widowed orphans = 1, and 0 elsewhere.
AIDS takes children’s time to be at school looking after the sick	SchoolTimeLost	The household was considered as being in this situation if the age of the person looking after the sick was less than 18.	2	For this variable, 1=yes, and 0=no
AIDS takes farming time, as people will be looking after sick people	FarmingTimeLost	The household was considered as being in this situation if the age of the person looking after the sick was between 18 and 64, as these were considered productive on the farm.	2	For this variable, 1=yes, and 0=no
Livestock is sold to finance medication of the sick	Livestockls	The household was considered as being in this situation if it sold more of any of the livestock during illness of a member than before.	3	For this variable, 1=yes, and 0=no