



The Socio-Economic Impact of HIV/AIDS in Swaziland

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2006

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Executive Summary

This study seeks to understand the impact of HIV/AIDS on the socio-economic fabric of the Kingdom of Swaziland. With Antenatal Clinic (ANC) prevalence rates among women aged 15-49 recorded at 42.6% in 2004, Swaziland has one of the highest HIV/AIDS prevalence rates in the world and, consequently, also faces one of the biggest challenges in mitigating its effects. The overall level of infection is still increasing, albeit at slower rates than in the earlier stages of the epidemic. In light of the corresponding growing burden of HIV/AIDS and the increasing number of AIDS deaths, this study aims to investigate the multiple and concurrent ways in which HIV/AIDS is affecting Swaziland. To capture a comprehensive picture of the current situation, this study was conducted by collecting and reviewing existing literature (including both published and grey literature) supplemented by interviews with key informants.

In addition to reviewing the current situation in Swaziland, this study is intended to have two primary outcomes: First, identifying knowledge gaps, setting the stage for additional research to be commissioned; and second, coming to grips with the future, and in many ways inevitable, impact of the disease requires new ways of thinking. One such way of thinking is through the examination of future scenarios, and these are touched on in the final chapter. The study should be the basis for planning a scenario exercise.

Chapter 1 explores the HIV prevalence trends and the corresponding demographic impact in Swaziland. According to ANC data, the increase in HIV infection is fairly consistent among the country's four administrative regions and across urban and rural areas. Women aged 20 to 29 continue to be the hardest hit, although there is some recent evidence of stabilization of the level of HIV infection among women aged 15 to 24. The demographic impact of HIV/AIDS is that mortality has risen, and this has led to an increase in the dependency ratio. How this trend proceeds into the future will very much depend on uptake and provision of ART.

Following the socio-political, cultural and economic context presented in chapter 2, chapter 3 explores the impact of HIV/AIDS on the real economy and economic development. At the macro-level, percentage annual loss in GDP growth due to HIV/AIDS ranges from 1% to 2.8%, depending on the model used. Growth rates are affected by the negative impacts of the epidemic on capital accumulation and productivity. Physical capital accumulation is likely to decline with decreasing investment and savings, and higher wage bills for firms. Human capital accumulation will suffer due to AIDS related mortality, with HIV/AIDS related mortality in the Swazi workforce ranging between 4.80 to 16.75 per 1000 people, depending on the firm and sector. The increase in the number of orphans and vulnerable children will

have long-term effects on human capital accumulation. Productivity will be affected by the increase in absenteeism and loss of human capital, and these are discussed in relation both to the public and private sector. Fiscally, tax revenues are declining in real terms and expenditures are rising, resulting in a rising budget deficit. There is the concern that HIV/AIDS is causing a deflection of resources from other sectors due to inadequate planning. While in general large amounts of aid for HIV/AIDS can be fiscally destabilising, this seems not to be a concern for Swaziland. However, aid may compromise fiscal autonomy. HIV/AIDS is contributing to rising poverty levels, estimated at 69% in 2005, and the Human Development Index has been falling primarily due to the 17 year plunge in life expectancy between 1997 and 2003. Income inequality between skilled and unskilled labour appears to be rising.

Chapter 4 examines the impact of HIV/AIDS on social services and welfare, namely the epidemic's impact on education, health, and social welfare for OVCs and the elderly. It shows consistently that all of these services have been deeply impacted by the epidemic. For instance, the increasing demand for AIDS-related health services has increased the burden of the disease on the health care sector. Not only is the quality of health care being compromised, but this increasing burden also threatens to deflect resources from other sectors. In the education sector, teacher deaths and absenteeism are negatively affecting the supply and quality of education, and classroom sizes have been growing. There is also evidence that the demand for education is being affected. Taken together, this is likely to have long run impact on human capital accumulation as well as human development. Moreover, there are an estimated 100,000 OVCs in Swaziland that are placing a tremendous burden on extended families and community networks. The elderly are shouldering the growing burden of HIV/AIDS.

Chapter 5 looks at the impact of HIV/AIDS on rural livelihoods. The household economy is affected through increased medical and funeral expenditure, as well as decreased income from poor health, loss of household labour and loss in efficiency. Funeral expenses are seen to be financially destabilising for the household. In fact, in 2002 the Ministry of Agriculture and Co-operatives (MOAC) found that HIV/AIDS affected households produce considerably less maize, and are more likely to suffer from food insecurity as compared to non-HIV/AIDS affected households. HIV/AIDS is also impacting the country's social fabric and how Swazi communities are organised. To cope with these changes, households turn to taking children out of school, rely on the overburdened extended family structure, lower the area of land cultivated and change cropping patterns, and sell livestock. These risk-coping and management techniques further impoverish households and trap them in a vicious cycle of poverty and HIV/AIDS.

Finally, Chapter 6 provides a summary of the long-term implications of the epidemic for Swaziland as discussed throughout this study and highlights gaps in existing research. It also suggests broad approaches to dealing with HIV/AIDS over the long run and examines the importance of building scenarios which can inform decision-making.

List of Acronyms

ABC	“Abstain, Be Faithful, Condomise”
AIDS	Acquired Immuno-Deficiency Syndrome
AMICAALL	Alliance of Mayors’ Initiative for Community Action on AIDS
ANC	Antenatal Clinic
ART	Antiretroviral Therapy (includes all interventions)
ARV	Antiretroviral
AWEPON	African Women Economic Policy Network
BCHA	Business Coalition against HIV/AIDS
CMTC	Crisis Management and Technical Committee
CBO	Community Based Organisation
CSO	Central Statistical Office
DHS	Demographic and Health Survey
EFA	Education for All
EU	European Union
FAO	Food and Agriculture Organisation
FDI	Foreign Direct Investment
FSE	Federation of Swaziland Employers
GDP	Gross Domestic Product
GFTAM	Global Fund to Fight AIDS, TB and Malaria
GOS	Government of Swaziland
HAART	Highly Active Antiretroviral Therapy
HBC	Home Based Care
HIV	Human Immuno-deficiency Virus
HDI	Human Development Index
IEC	Information, Education and Communication
IFPRI	International Food Policy Research Institute
ILO	International Labour Organisation
IMF	International Monetary Fund
MEPD	Ministry of Economic Planning and Development
MOAC	Ministry of Agriculture and Co-operatives
MOE	Ministry of Education
MOEE	Ministry of Enterprise and Employment

MOF	Ministry of Finance
MOHSW	Ministry of Health and Social Welfare
MTCT	Mother-to-Child Transmission
NERCHA	National Emergency Response Council on HIV/AIDS
NGO	Non-Governmental Organisation
NSP	National Strategic Plan
OVC	Orphans and Vulnerable Children
PEP	Post-Exposure Prophylaxis
PLWHA	People Living with HIV/AIDS
PMTCT	Prevention of Mother-to-Child Transmission
PRSAP	Poverty Reduction Strategy and Action Plan
PSHACC	Public Sector HIV/AIDS Co-ordination Committee
PSPF	Public Service Pensions Fund
RSSC	Royal Swaziland Sugar Corporation
SACU	Swaziland Customs Union
SADC	Southern African Development Community
SNAP	Swaziland National AIDS Programme
SNAT	Swaziland National Association of Teachers
SNL	Swazi National Land
STI	Sexually Transmitted Infection
SWAGAA	Swaziland Action Group Against Abuse
TB	Tuberculosis
TFP	Total Factor Productivity
UN	United Nations
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USD/US\$	US Dollar
VAC	Vulnerability Assessment Committee
VCT	Voluntary Counselling and Testing
WFP	World Food Programme
WHO	World Health Organisation
WLSA	Women and Law in Southern Africa
WTO	World Trade Organisation

Note: At the time of publishing the Emalangeni was 6E to \$1.

Introduction

Twenty years after the first case of HIV was detected in the country, the Kingdom of Swaziland has one of the highest HIV prevalence rates in the world. The first ANC survey in 1992 found an HIV prevalence of approximately 4% among women aged 15-49, while the 9th round serosurveillance survey in 2004 recorded a 42.6% prevalence rate among ANC attendees. This suggests that interventions have had little success in slowing the spread of HIV. Moreover, this sharp escalation in prevalence signals that Swaziland will have to deal with rising illness and deaths as the epidemic unfolds in the future, and AIDS will have a long-term impact on the country.

The numerous HIV infections in Swaziland are being, and will continue to be, followed by a rise in the number of AIDS cases and deaths. In the absence of affordable, effective, and deliverable treatment for all, many will die prematurely and leave behind dependents. The consequences for the Swazi nation are that its economic, social and political development is in danger of being seriously undermined. The scenarios developed by the Federation of Swaziland Employers and Chamber of Commerce (FSE & CC) in *Quo Vadis Swaziland* (2004) suggest that Swaziland is at a political, economic and social crossroads. The influence of democracy and labour, increasing poverty, information technology, and HIV/AIDS were seen as the major drivers of change in the country.

This study seeks to understand what impacts HIV/AIDS is having on Swaziland and its people. It follows the 2003 study carried out by HEARD for NERCHA, entitled "What is driving the HIV/AIDS epidemic in Swaziland and what more can we do about it?" It reviews the sectoral impact studies that have been conducted in recent years and analyses socio-economic trends. In doing so, it provides a 'big picture' assessment of the impact of HIV/AIDS in Swaziland. The study also aims to point out trends that have not been formally documented, but are being observed, in order to identify future research questions.

The research was conducted by collecting and reviewing existing literature (both published and grey literature) and supplementing this with interviews. Key informant interviews were held with individuals from government, academia, the donor community, the private sector, and NGOs. Each interview sought to update published information as well as identify new and planned research. Key informants were asked about the causes and consequences of Swaziland's particularly serious epidemic, impact mitigation plans and current responses, and existing and future research.

In addition to reviewing the current situation, this study is intended to have two primary outcomes: First, identifying knowledge gaps, setting the stage for additional research to be commissioned; Second, coming to grips with the future, and in many

ways inevitable, impact of the disease requires new ways of thinking. One such way of thinking is through the examination of future scenarios, and these are touched on in the final chapter. The study should be the basis for planning a scenario exercise.

The study begins with a description of the epidemic and its demographic effects. Chapter 2 provides the socio-cultural, economic and political context. Chapter 3 discusses the impact of HIV/AIDS on the economy and economic development. Chapter 4 looks at public services and social welfare. Chapter 5 investigates the impact on livelihoods and poverty, and chapter 6 concludes with long-term implications and responses.

I. HIV/AIDS Prevalence: Levels, Patterns and Trends

Before turning to the socio-economic impacts of HIV/AIDS, it is essential to understand the nature of the epidemic – where Swaziland is coming from, where it stands now and where it is going. Sections 1.1, 1.2 and 1.3 of this chapter examine HIV prevalence levels and trends and section 1.4 investigates the long-term demographic implications of these trends as found in the literature and through modelling using SPECTRUM. Section 1.5 concludes the chapter.

I.1 Sources of Data

Information on the state of the AIDS epidemic in Swaziland is based on sentinel surveillance surveys among pregnant women. The country has conducted HIV sentinel surveillance surveys among antenatal clinic (ANC) attendees since 1992. Until 1995, the surveys were conducted annually. The results of the 1993 and 1995 surveys, however, were discarded because of methodological problems. From 1996 until 2004, surveillance has been conducted every two years, and the next survey is scheduled for 2006. The surveillance surveys conducted between 1992 and 2000 also measured sero-prevalence among STI and TB patients.

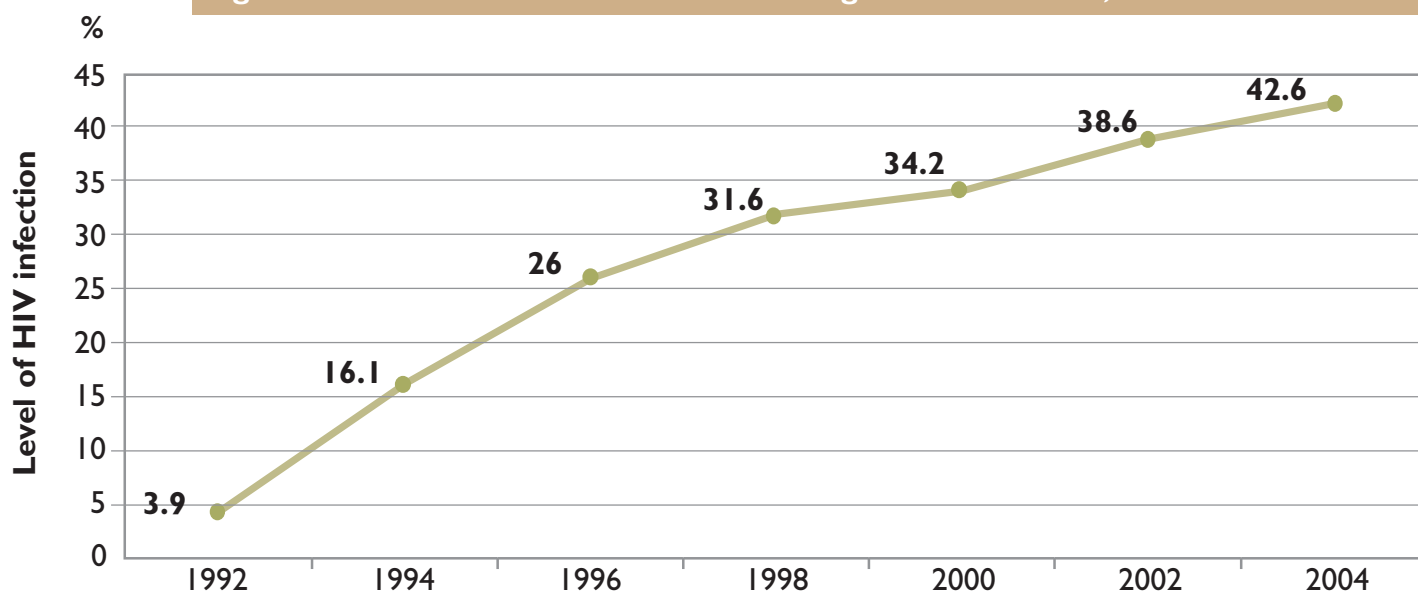
Whilst the sentinel surveillance data collected from pregnant women have limitations in terms of their ability to be generalised to the entire population, they provide a good proxy for HIV prevalence in the sexually active population. They are also a good indicator for trends of HIV infection in the population. In fact, HIV prevalence estimates from sentinel surveillance surveys have been similar to others obtained from smaller scale surveys such as the Royal Swaziland Sugar Corporation (RSSC) HIV Prevalence Survey (Evian, 2002). For example, the 2002 sentinel surveillance survey estimated an HIV prevalence level of 38.6% whilst the RSSC survey obtained a prevalence level of 37.5%. To provide accurate estimates of the national prevalence of HIV, a population-based HIV prevalence survey such as the DHS is necessary and such a survey is in the process of being conducted in 2006.

I.2 HIV Prevalence, Levels and Trends

The first case of HIV infection in the country was identified in 1986 and the first AIDS case was diagnosed in 1987. Since then, the number of persons living with HIV/AIDS in Swaziland has increased rapidly. Data from national HIV sentinel surveys of women

attending ANCs indicate that whilst in 1992 only 3.9% of pregnant women were HIV infected, in 2004 this number had increased ten-fold to 42.6% (MOHSW, 2004). It was estimated that in 2004 about 220,000 people were living with HIV/AIDS in Swaziland (UNAIDS, 2004). This means that roughly 1 in 5 persons is HIV infected in the country, equalling a 20% national prevalence in the entire population. The current HIV prevalence level is considered to be the highest in the world, above Botswana's national HIV prevalence of 17.1% and the 37.9% HIV prevalence among its ANC attendees (UNAIDS, 2004; Government of Botswana, 2005). While HIV prevalence is either stabilising or declining in many Sub-Saharan countries, in Swaziland it is still on the increase, as shown in Figure 1.1.

Figure 1.1: Trends in HIV Prevalence among ANC Attendees, 1992 – 2004



Source: MOHSW (2004)

HIV infection in Swaziland across the population is thought to have passed the first stage of the epidemic curve (the “pre-epidemic stage”), where the incidence is relatively low but the virus is beginning to spread; it is now in the second stage (the “epidemic stage”), where the prevalence level rapidly increases. In the next 15 years the country will experience the third stage (the “endemic stage”), where the infection levels start to level off at the saturation level of the high risk groups, but there is still a high enough incidence of new infections to replace those who died due to AIDS (Whiteside et. al, 2003).

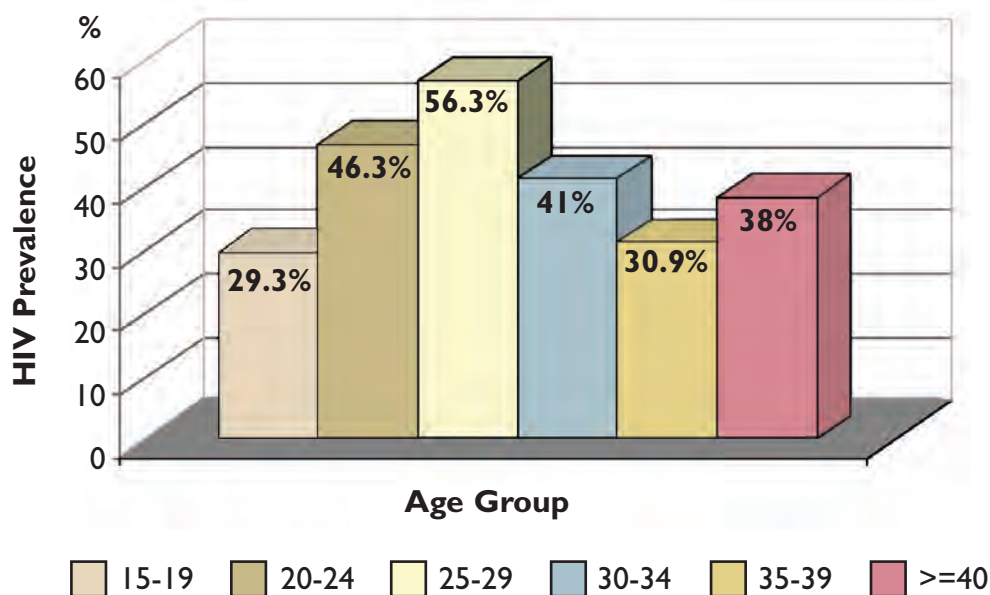
1.3 Patterns and Differentials

Like in other parts of the world, HIV infection is not uniformly distributed across the population in Swaziland. This section explores the patterns of and differences in prevalence by age, administrative region, rural-urban residence, education level and marital status as captured in the latest sentinel survey.

1.3.1 HIV Prevalence by Age

HIV prevalence is highest among pregnant women aged 25-29 years (56.3%), followed by those 20-24 years old (46.3%). These figures show that young adults are more vulnerable to HIV infection (see Figure 1.2).

Figure 1.2: HIV Prevalence Rate by Age Group

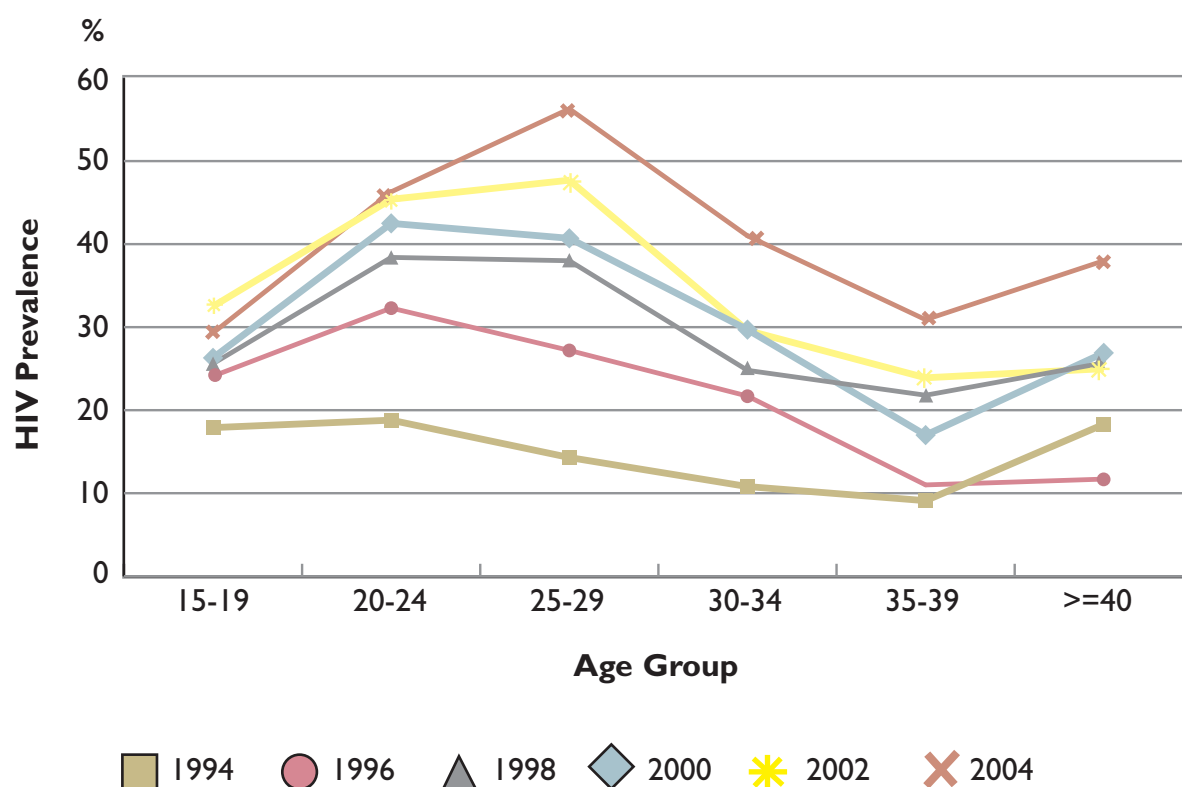


Source: MOHSW (2004)

However, it is important to note that whilst HIV prevalence has been on the rise in most age groups, it seems to be stabilising among the 15 to 24 year olds. This could indicate a decline in the number of new infections. More specifically, in Swaziland the age group 15-19 years is used as a proxy for new cases (incidence), and HIV prevalence in this group declined between 2002 and 2004. Another

possibility is that the actual number of 15-19 year olds captured in the sample declined from 31% of sample in 2001 to 24% of sample in 2004 and that means fewer people of this age group visited the ANCs at the time of the sentinel surveillance (see Figure 1.3). However this would need to be confirmed in future serosurveillance surveys.

Figure 1.3: HIV Prevalence Among ANC Attendees by Year and Age

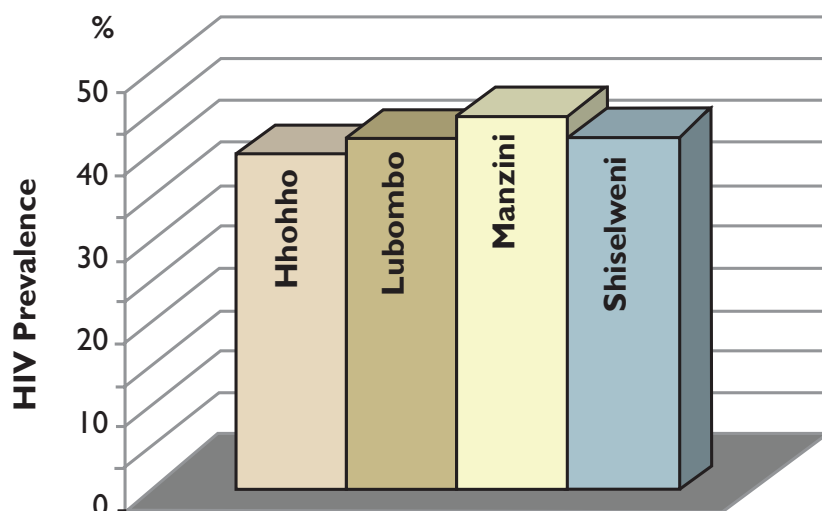


Source: MOHSW (2004)

1.3.2 HIV Prevalence by Administrative Region

Although there are differences in HIV prevalence among the four administrative regions, these are small (see Figure 1.4). Manzini continues to be the region with the highest prevalence (45.1%) among the regions, followed by Shiselweni (42.5%), Lubombo (41.9%) and Hhohho region (40.3%). There has been a sharp increase in HIV prevalence in the Shiselweni region since 2002, which may be related to the recent industrialization in the region, among other things (MOHSW, 2004).

Figure 1.4: HIV Prevalence by Administrative Region



Source: MOHSW (2004)

1.3.3 HIV Prevalence by Rural-Urban Residence

Urban areas continue to have a higher HIV prevalence rate than rural areas. The 2004 Survey showed that HIV prevalence among women who reside in urban areas is higher than among rural-based women (46.4% compared to 41.4%). This finding is consistent with observations elsewhere in Sub-Saharan Africa, though less acute (see, for example, Government of Botswana, 2005). In Swaziland the urban-rural difference is smaller than elsewhere because of the relatively small size of the country and the frequent commuting between rural and urban areas for work.

1.3.4 HIV Prevalence by Educational Level

Sentinel surveillance data in 2004 show that women without any formal education had the highest prevalence rate (58.5%), while women who completed secondary school yet had not completed higher education had the lowest (36.8%). This relationship, however, is not clearly inverse and closer examination reveals nuances in this trend. Contrary to expectations, women with educational attainment beyond secondary school had higher HIV prevalence than women with just a secondary school education (see Table 1.1). It is important to note that the findings in 2004 are inconsistent with those in the 2002 serosurveillance survey; hence further research is warranted to examine these trends.

Table 1.1 HIV Prevalence among ANC Attendees by Educational Level

Education Level	HIV Infected
No formal education	58.5%
Primary, not completed	43.1%
Primary completed	47.5%
Secondary, not completed	40.7%
Secondary, completed	36.8%
Higher completed	41.3%

Source: MOHSW (2004)

1.3.5 HIV Prevalence by Marital Status

There is no clear-cut relationship between HIV prevalence and marital status. The 2002 and 2004 sentinel surveillance data are not consistent, with the former indicating higher prevalence for married women than single women and the latter showing the opposite. This may suggest that marital status is not an important determinant of HIV infection in Swaziland. In the 2004 survey, the women who reported to be cohabiting with a partner without being officially married had the highest prevalence while the officially married women had the lowest (see Table 1.2).

Table 1.2: HIV Prevalence among ANC Attendees by Marital Status

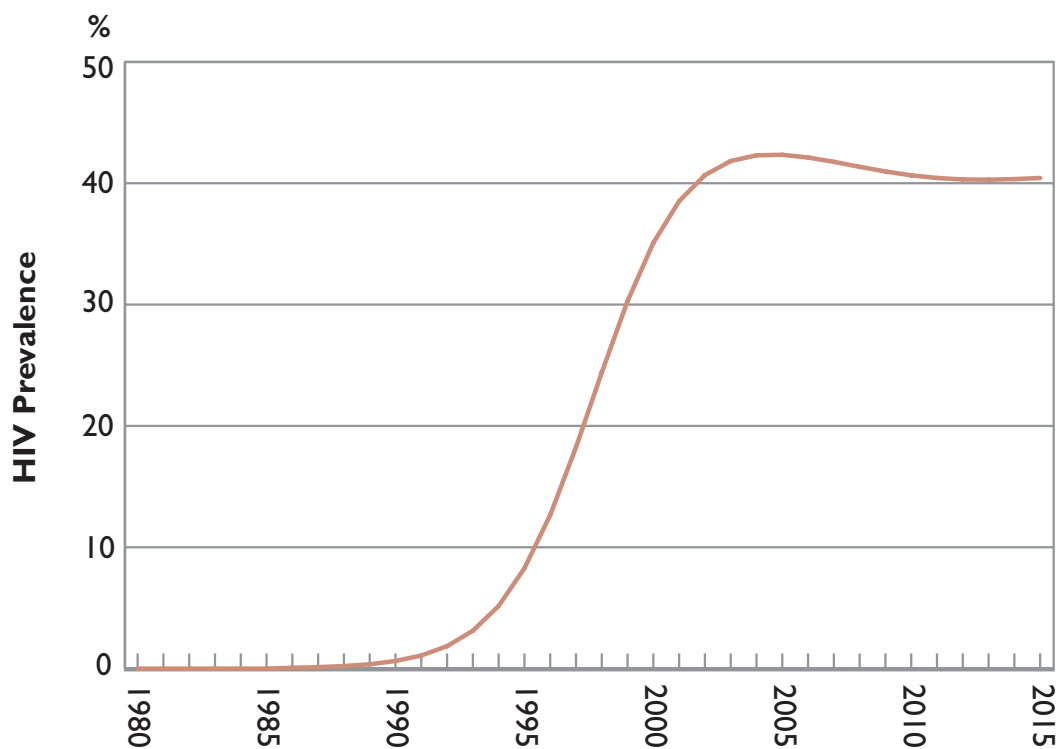
Marital Status	HIV Infected
Married	40.9%
Co-habiting	45.2%
Single	43.3%
Widowed/Divorced	44.1%

Source: MOHSW (2004)

I.4 Demographic Implications of the HIV/AIDS Epidemic

In order to examine the demographic implications of the HIV/AIDS epidemic in Swaziland various impact assessment studies are reviewed. The demographic impact of HIV/AIDS has also been modelled using SPECTRUM (assumptions are detailed in Appendix I). The HIV prevalence statistics were modelled using EPP 2005 (see Figure 1.5). The results show that the epidemic will continue to have serious negative demographic consequences for the population, as prevalence stabilizes around 40% in the future. Consequences include an increase in morbidity and mortality, and the associated decline in life expectancy. It must be noted that the present projections do not assume substantially increased uptake of antiretroviral therapy (ART). Nevertheless, they capture the potentially devastating impact of the epidemic over the years.

Figure 1.5: HIV Prevalence as Modelled using EPP 2005



1.4.1 Sharp Increase in Morbidity and Mortality

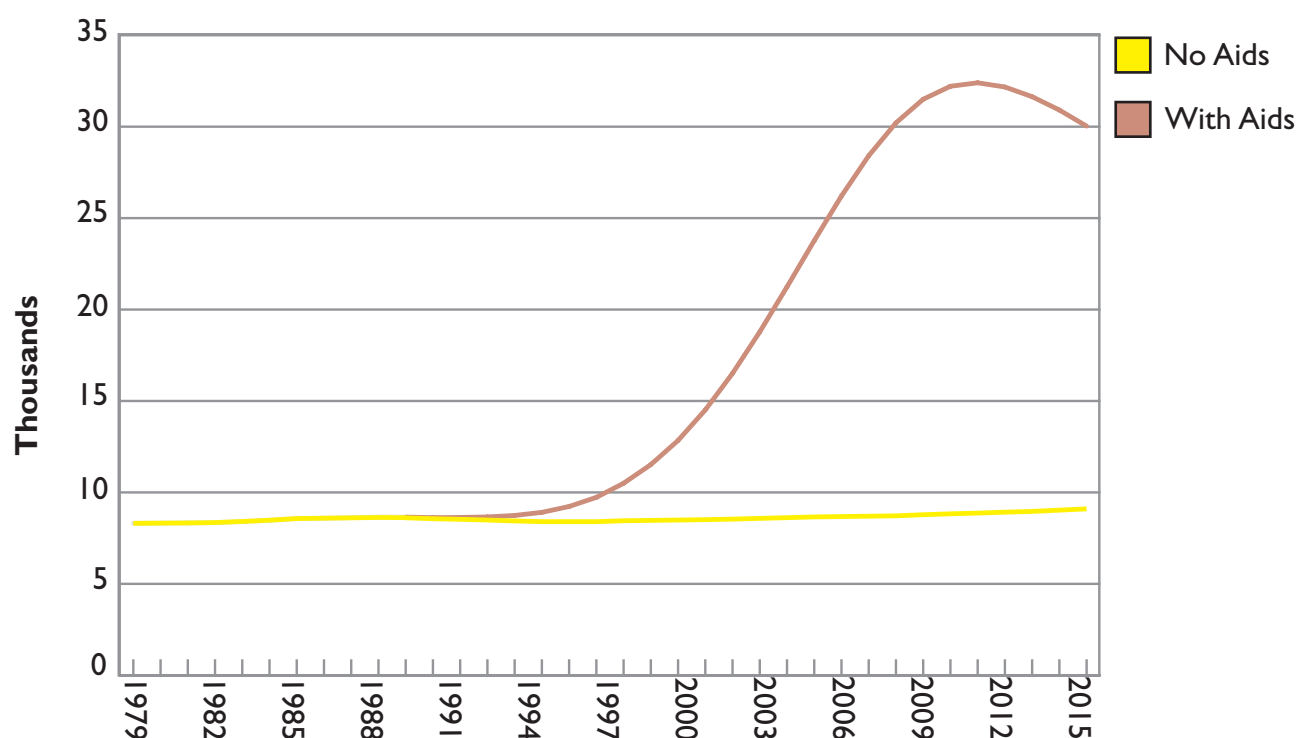
The rapid increase in HIV and AIDS has led to a dramatic increase in morbidity and mortality in the country. Mortality has almost tripled over the past 10 years, from about 8 deaths per thousand in 1994 to about 23 per thousand in 2004 (Haacker, 2005). The SPECTRUM model estimates that life expectancy declined from 65 years in 1991 to 37.4 years in 2005. Table 1.3 shows that it is projected to decline further to 32.5 years in 2015. These estimates are consistent with those reported in Haacker (2005), which estimate – using 2004 mortality rates – that the probability that a young Swazi aged 15 will reach age 50 is 28 percent for males and 22 percent for females, compared to 94 percent and 97 percent in a scenario excluding the impact of HIV/AIDS.

Table 1.3: Projected Life Expectancy (in years) on Average (Males and Females combined), 2004-2015

Year	Without AIDS	With AIDS	Difference (%)
2004	64.2	37.5	41.6
2005	64.5	37.4	42.0
2006	64.9	35.3	45.5
2007	65.2	33.7	48.3
2008	65.6	32.5	50.4
2009	65.9	31.7	51.9
2010	66.2	31.3	52.7
2011	66.5	31.2	53.0
2012	66.8	31.4	53.0
2013	67.1	31.6	52.9
2014	67.3	32.0	52.5
2015	67.6	32.5	51.9

The projected increase in the number of deaths in Swaziland is shown in Figure 1.6. The contribution of HIV/AIDS to the dramatic increase in mortality is clearly evident. The country's crude death rate is projected to increase from 12.6 per 1000 persons in 1991 to 23.4 per 1000 persons in 2015. A contributory factor to the projected increase in the crude death rate is the expected increase in infant and child mortality. Consequently, annual AIDS deaths are projected to increase to around 30,000 by 2015. It is estimated that the number of HIV infected persons in need of antiretroviral therapy will stabilize around 35,000 in 2015.

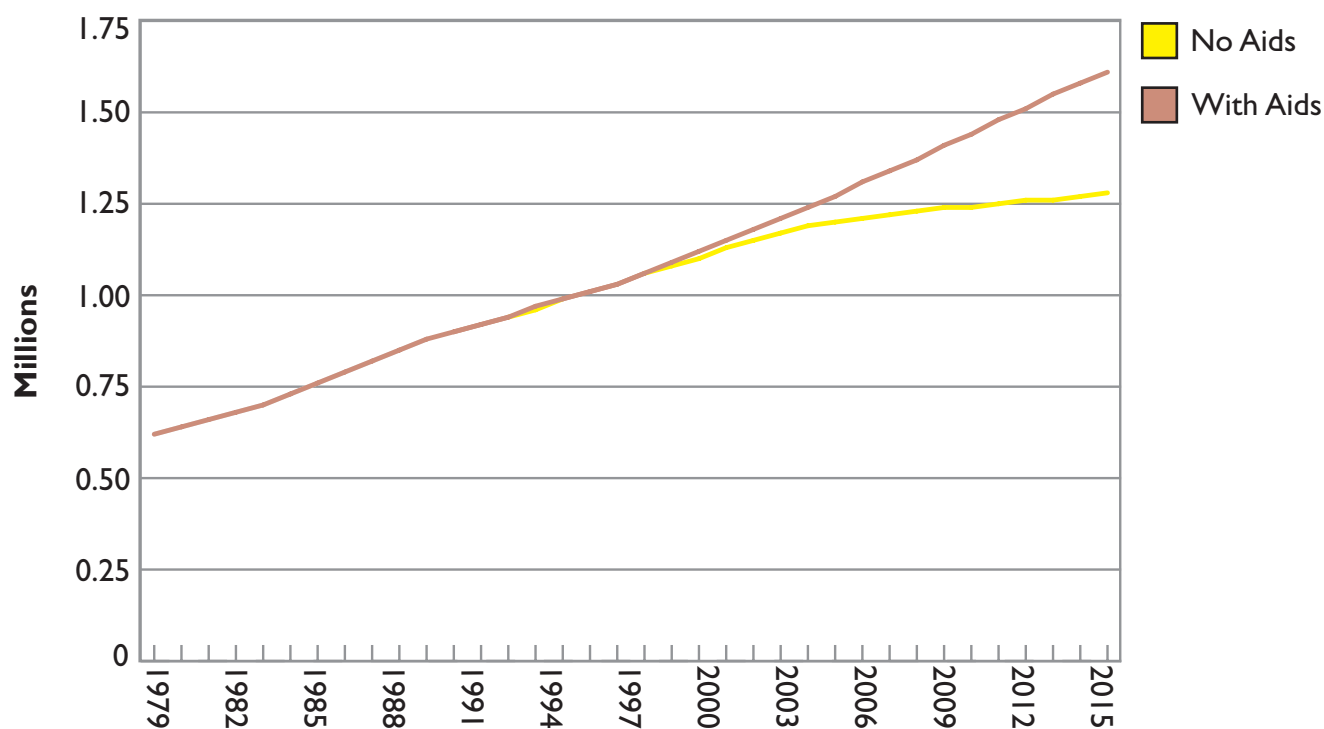
Figure 1.6: Projected Deaths in Swaziland: HIV/AIDS and Non-HIV/AIDS Scenarios



1.4.2 Decline in Population Growth

The rate of population growth is projected to decline in the years to come because of the increase in mortality and reductions in fertility brought about by the AIDS epidemic. The annual population growth rate will decline from the 2.9% estimated in 1997 to about 2.1% by 2015. The projected population size in 2015 is estimated at 1.28 million, about 21% lower than it would have been in the absence of HIV/AIDS.

Figure 1.7: Total Population Projections in With and Without HIV/AIDS Scenarios



1.4.3 Change in the Population Structure

Given that there are differences by age and sex in the prevalence of HIV/AIDS in Swaziland, the epidemic will transform the population structure, leading to a dramatic impact in the long-term. Figures 1.8 and 1.9 illustrate the demographic impact of the AIDS epidemic for the years 2006 and 2015. The population structure in the “without AIDS” scenario exhibits the pyramid shape typical of developing countries, with a wide base because of high birth rates which narrows with rising age due to high death rates. The “with AIDS” scenario, however, shows that the epidemic is causing a “chimney effect” in the population structure: a notable decrease in population in their mid 20s to early 50s, and a reduction in number of children because of MTCT as well as a declining number of women of reproductive age. The impact shown is consistent with other projections for Swaziland, as well as other high prevalence countries.

Figure I.8: Population of Swaziland by Age & Sex Showing With and Without AIDS Scenario, 2006

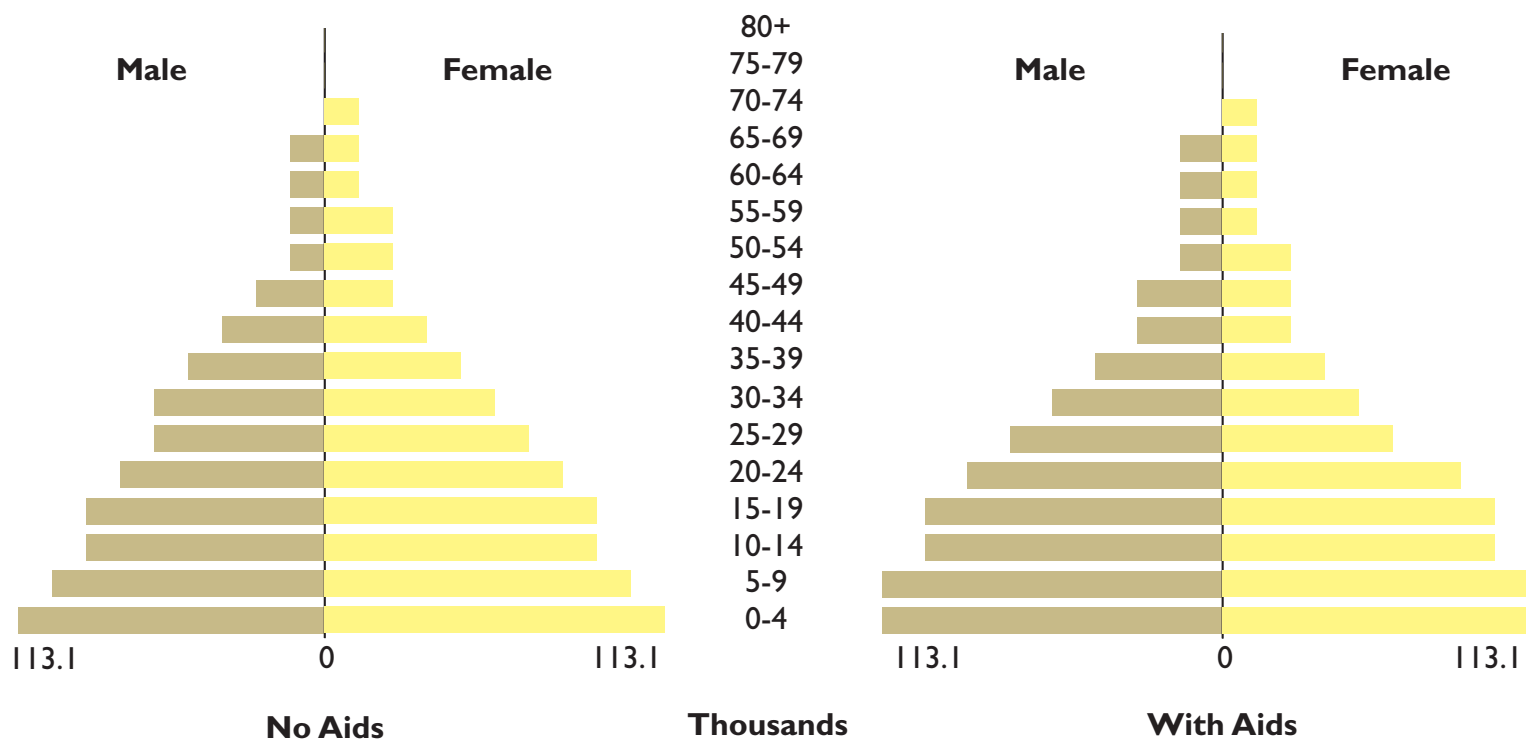
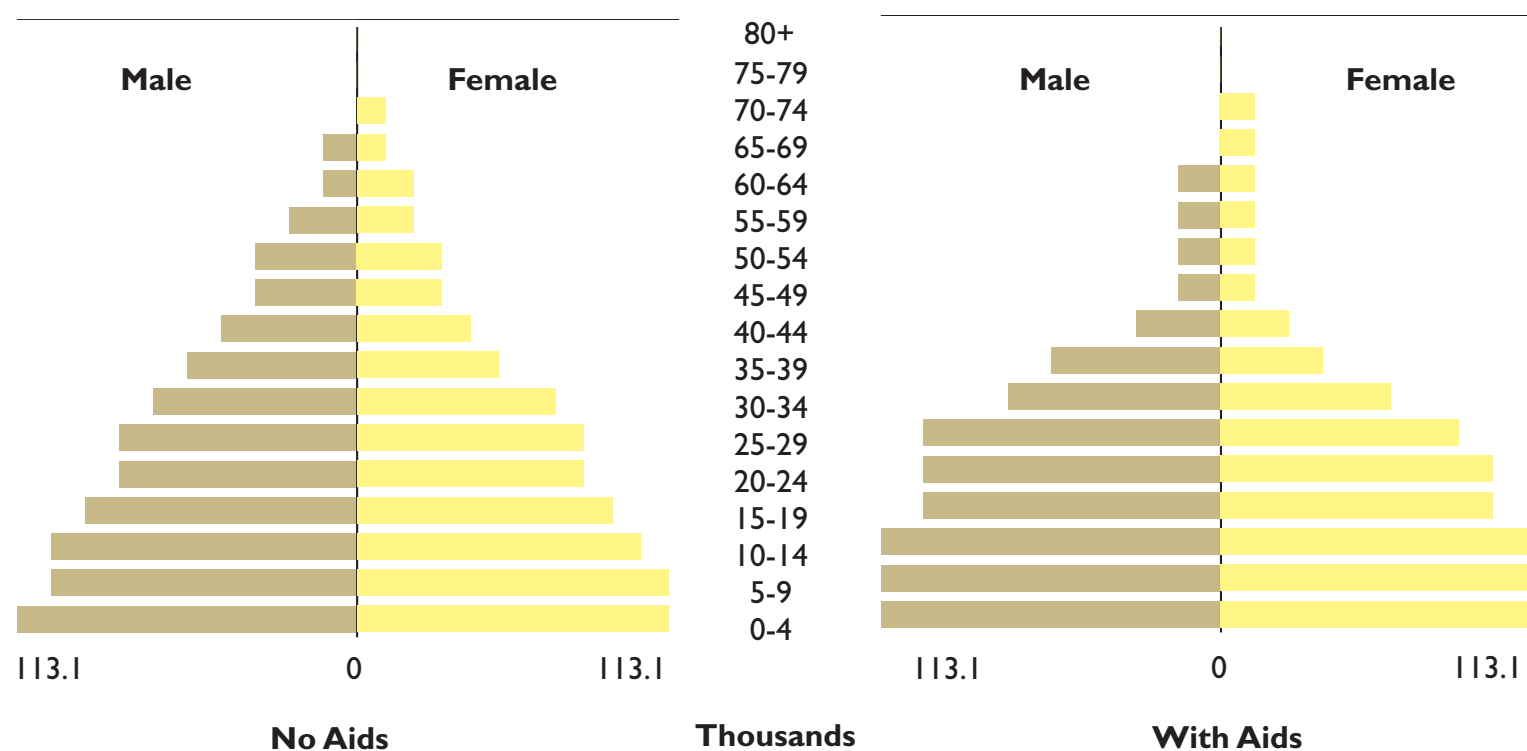


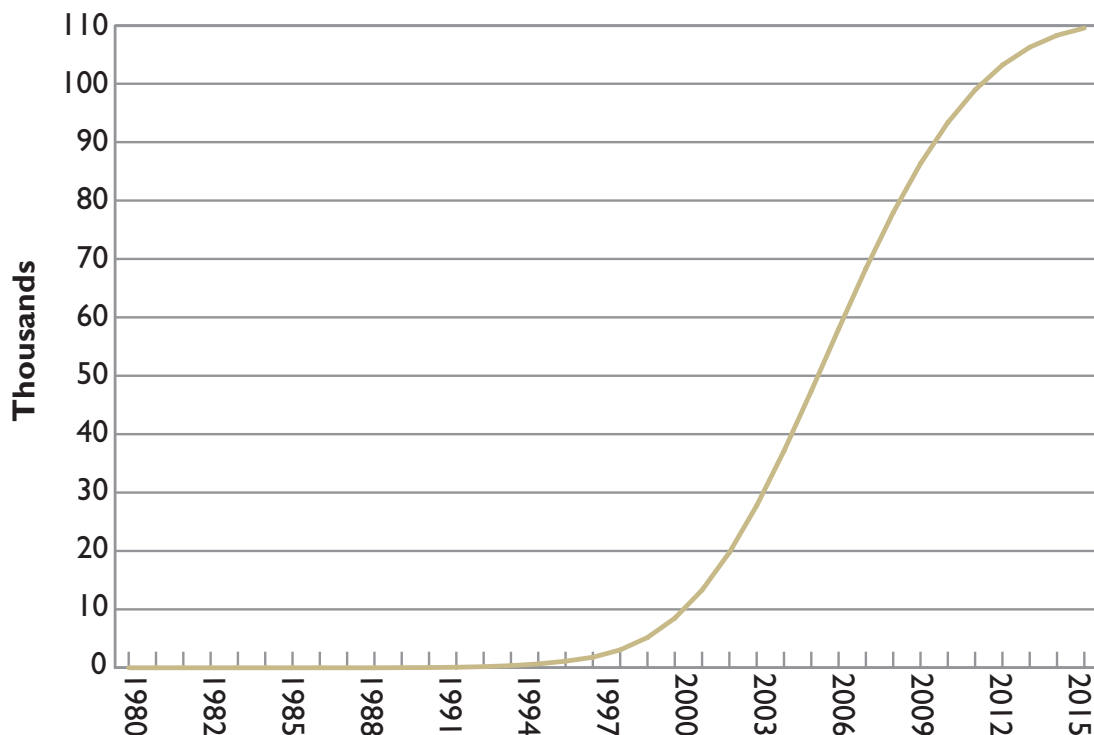
Figure I.9: Population of Swaziland by Age & Sex Showing With and Without AIDS Scenario, 2015



1.4.4 Increase in the Dependency Ratio and the Number of Orphans

The age groups most severely impacted by HIV/AIDS are 25-35 years for females and 30-40 years for males (ILO, 2005). Because these are the most productive years in a person's lifetime, the potential to produce and reproduce declines as the epidemic decimates young adults who would otherwise be key contributors to household and national production. The AIDS epidemic reduces the number of economically productive persons relative to the numbers of young children and the elderly, thus increasing the dependency ratio. Moreover, the economic dependency of 140 in 1997 (meaning that for every 100 economically independent persons there are 140 economically dependent ones estimated) can only be expected to increase. The situation will be worsened by the dramatic increase in the number of orphans. It is estimated that by 2015, there will be about 110,000 orphans, up from 60,000 in 2006.

Figure 1.10: Orphans (both Maternal and Paternal) as a Result of AIDS



I.5 Concluding Remarks

Based on the data from the biennial surveillance surveys among ANC attendees, Swaziland is now considered among the countries worst affected by the AIDS epidemic. The overall level of infection is still increasing, albeit at slower rates than in the earlier stages of the epidemic. The increase in HIV infection is fairly consistent among the country's four administrative regions and across urban and rural areas. Women aged 20-29 continue to be the hardest hit. The most recent serosurveillance survey provides an indication that perhaps there is stabilization in the level of HIV infection among women 15 to 24 years, as a slight decline in HIV prevalence has been noted among teenage girls (15-19 years). This could indicate that the number of new infections has begun to decline. However, this would need to be confirmed in future serosurveillance surveys as this finding in 2004 may be an artefact of the dataset, as opposed to an indication of a declining trend in new infections. There are differences in HIV prevalence by education, with women with the lowest education level having the highest prevalence; however there are inconsistencies in the relationship between female education and prevalence that warrant further research. Women with STIs had higher HIV prevalence than those without. Marriage, however, is not an important factor in HIV infection, with married and non-married women having similar levels of HIV infection. Meanwhile, the demographic impact of HIV/AIDS is that mortality has risen sharply, increasing the dependency ratio. How these trends proceed in the future very much depends on uptake and provision of comprehensive ART, which includes ARVs, pre-ART services, and nutrition, among other interventions. With these basic facts in mind, the following chapters analyse the impact of the epidemic on socio-economic variables.

2. Political, Socio-cultural and Economic context

Before proceeding with assessing the socio-economic impact of HIV/AIDS in Swaziland, it is important to situate the epidemic within the economic, socio-cultural and political context. Section 2.1 lays out the political background, section 2.2 discusses the socio-cultural canvas, and section 2.3 describes the economic environment.

2.1 Political Context and Government Initiatives

The Kingdom of Swaziland regained independence from Britain in 1968. Until 1973 the political system comprised multi-party democratic processes within a monarchical system. In that year a Royal Proclamation repealed the constitution, and King Sobhuza II assumed legislative, judicial and executive powers. Political parties were banned and the *tinkhundla* system of governance where individuals are elected into Parliament through various constituencies, was introduced. The King appoints additional members, including the Prime Minister and Cabinet. The current king, His Majesty King Mswati III, has continued the legacy of his father. Recently, a new Constitution defining the powers of the king was promulgated.

The country maintains a dual system of government, with a modern government led by the Prime Minister on the one hand, and the traditional system of governance run by chiefs who report to the king as *Ingwenyama*, on the other. The country has four administrative regions, under regional administrators, and 55 political constituencies (*tinkhundla*). The *tinkhundla* are made up of chiefdoms of varying numbers. City and town councils and boards also exist to administer the affairs of the cities and towns.

Swaziland was one of the first countries to incorporate HIV/AIDS in its national development plan and also the first to commission a socio-economic impact study, in 1994 (Whiteside, et al., 2003). The first case of HIV in Swaziland was identified in 1986, and the government responded by setting up the National AIDS Prevention and Control Programme, that later became the Swaziland National AIDS Programme (SNAP). SNAP was given the responsibility of spearheading awareness raising activities through Information, Education and Communication (IEC) campaigns, mainly centred on prevention using the “Abstain, Be Faithful, Condomise” (ABC) approach. It was also mandated to coordinate all HIV/AIDS activities in the country, with a focus on the health sector.

Other government initiatives have included the following:

- Conducting the biennial HIV sentinel surveillance surveys among pregnant women attending ANC since 1992.
- Developing and approving, in 1998, the first National HIV/AIDS Policy. This important document together with others further consolidated the national effort to address issues of HIV/AIDS in the country.
- Following His Majesty King Mswati III's declaration of HIV/AIDS as a national disaster in 1999, two high level committees were established and launched: the Cabinet Committee on HIV and AIDS, and the Crisis Management and Technical Committee (CMTC). In September 2000, the CMTC developed a National Strategic Plan (NSP) for HIV and AIDS (2000-2005) that was approved by Cabinet for implementation. The NSP outlined sectoral obligations and aligned the national response to three main areas: prevention, care and support, and impact mitigation. Government funding for the national response increased substantially to E13 million in the same year.
- Producing in October 2000 a draft National Action Plan for HIV and AIDS (2000-2005); however it was not implemented for reasons that are not clear.
- As part of the operationalisation of the NSP, the Ministry of Health and Social Welfare also developed a Health Sector Response to HIV and AIDS Plan (2003-2005).
- In December 2001 the CMTC was replaced with the National Emergency Response Committee on HIV and AIDS (NERCHA), with a mandate to coordinate and mobilize resources for an expanded, scaled-up and coordinated response, and to foster the multi-sectoral involvement of all stakeholders. The Committee was elevated to a Council in 2003 by an Act of Parliament (NERCHA Act, No. 8 of 2003) with a Directorate of staff, and placed under the Prime Minister's Office.
- Introducing in 2003 an antiretroviral therapy (ART) programme with funding from Government and the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM).
- Establishing in 2004 an Education Fund for the payment of school fees for orphaned and vulnerable children.
- Conducting in 2005 a Joint Review of the National Response to HIV and AIDS through a collaborative effort involving a many stakeholders.
- Launching in mid-2006 a new National Strategic Plan for HIV and AIDS 2006-2008, a National Action Plan and a new National HIV and AIDS Policy.

Recently, the Government has shown an increasing commitment to respond decisively to the AIDS epidemic. The Government has signed international and regional declarations committing itself to being fully involved in the global response to HIV/AIDS. The most salient of these declarations include the United Nations General Assembly Special Session Declaration of Commitment on HIV and AIDS (UNGASS 2001), the Millennium Development Goals (2000), Abuja Declaration on HIV and AIDS and Plan of Action (2001), the New Partnership for Africa's Development (2001), the United Nations General Assembly Declaration on Children (2001), and the Maseru Declaration on HIV and AIDS by SADC member States (2003). In addition to government, a growing amount of support for the national HIV/AIDS response has been recently mobilized at the community level.

2.2 Socio-Cultural Context

In order to gain a full understanding of the AIDS epidemic in Swaziland, and the factors contributing to the rapid spread of HIV infection, one needs to unravel the complexities of Swazi society, in particular the cultural beliefs and practices. The relatively strong adherence to cultural beliefs and practices is reflected in the system of governance, which places the King and Queen mother as the rulers of the country. The present king, Mswati III, like his predecessor and father, King Sobhuza II, has executive, legislative and judicial powers. He plays dual roles: that of being head of state and the traditional leader (*Ingwenyama*). In his role as the *Ingwenyama*, the King is regarded as the custodian and embodiment of Swazi culture.

2.2.1 Cultural Practices

Various cultural beliefs and practices, identified by interviewed informants, are perceived to contribute to the spread of HIV infection in the country. These include the following:

***Bunganwa* (having multiple female partners)**

The ideal *bunganwa* is having multiple female partners not necessarily engaging in sexual practice with them. However the common practice now is that they are treated as sexual partners, and this increases the risk of exposure to HIV. This situation applies even to married persons, who often maintain sexual relationships with secret partners. The belief that for young males multiple sexual partners provide a pool of choice for a good future spouse is also prevalent. Data from the Behavioural Surveillance Survey 2002 showed that a large proportion of the population engaged in non-regular heterosexual relationships (FHI, MOHSW, FLAS & USAID, 2002).

Sitsembu (polygamy)

The practice of polygamy (one male having more than one wife) is common in Swaziland. Traditionally polygamy has had inherent checks and balances to ensure fidelity within the sexual union. According to van Dyke (quoted in Dlamini, 2005), polygamy should safeguard a man from engaging in casual sex. However, this is not the case in modern-day Swaziland. For example, instead of locating his wives in one homestead many modern-day polygamists maintain several homesteads for each of the wives geographically dispersed across the country.

The current practice of polygamy, and the mobility associated with it, opens up room for additional partners among the spouses and the living arrangements may lead to an increased number of sexual partners, which may increase the risk of exposure to HIV.

Kushenda (having extramarital relationships)

This practice of spouses having extramarital relationships with lovers, who may or may not be married, is a common phenomenon in the country. According to Dlamini (2005), *kushenda* is a version of the traditional practice that allowed a married man to have a young unmarried woman (concubine), usually with the intention to marry her at some later stage.

Kungena (levirate or wife inheritance)

It is customary practice in Swaziland for the widow of a deceased brother or next of kin to be handed over to another male within the family in order ensure that she and her children are provided for. Although the widow is under no obligation to have sexual relations with the male to whom she is attached, it is expected and almost unavoidable.

Kuhlanta (a younger sister having children with her infertile sister's husband)

Often when a married woman is unable to have children, a younger sister (or some other younger female relative) is attached to the husband to have children for the infertile wife. This is usually the practice when the husband has paid *lobola* (bride price). Culturally *lobola* is used as surety for reproduction of offspring.

***Kujuma* (occasional short-term or overnight visits between unmarried lovers)**

In Swazi culture it is expected and even encouraged that boyfriends and girlfriends visit each other's homesteads and spend one or more nights there. During such visits the couple is expected to avoid penetrative sex (Dlamini, 2005). They also meet their prospective in-laws, which may result in the formation of a relationship between the two families as well as between the suitor and the community in question. The practice of *kujuma* is intended to prevent the accumulation of multiple sexual partners and casual sex. However, the current practice is that penetrative sex is usually part of the visit. The visits also tend to take place without the knowledge of the families of the young persons.

***Kulamuta* (having sexual relations with the younger sisters of one's wife)**

Traditionally, it is not taboo for a husband to initiate a relationship with the younger sisters of his wife, sometimes with the wife's knowledge and cooperation. However, the relationship does not involve sexual activities between the partners. It is expected that the sister(s) would at some later stage also be married by the husband. The present practice can involve sexual practice with *Umlamu*, which can increase the risk of HIV.

Over the past 15 years the role played by cultural practices in the spread of HIV has been given increasing attention. Many practices are linked to relationships and sex and in the context of HIV and other sexually transmitted diseases they have become increasingly important to examine.

Although no systematic research has been conducted to determine the role played by sex-related cultural practices in spreading HIV infection in the country, it cannot be overemphasized that current cultural practices may make a significant contribution. It is important to note, however, that there are also cultural practices that may play a role in slowing down HIV transmission. Research on the interface between culture and HIV/AIDS in Swaziland is required to increase the understanding of these factors. This section spells out a number of practices – some of which are deep rooted and if practiced as traditionally intended would not cause increased risk. In the interviews conducted the concern centred on practices that have been altered and on the need to re-examine how they should be evolving. This is also discussed later in section 5.1.5. Swaziland needs to look at how practices are and should be evolving. Furthermore gender relations and the glaring inequality between men and women must be addressed if the epidemic is to be controlled.

2.3 Economic Context

The politics and socio-cultural reality of Swaziland is set against an economic background of increasing poverty and economic stagnation. The epidemic must be seen within this context. Swaziland is classified as a lower middle-income country with per capita GDP at US \$1660 in 2004 (World Development Indicators, World Bank). But with 70% of people employed in agriculture and 69% living below the poverty line of E128.60 per month (US\$ 22), Swaziland's economy still very much resembles that of a developing country (Minister of Finance, 2005).

2.3.1 Growth in Swaziland in the 1980's and 1990's

Swaziland has seen more prosperous days. During the 1980s, growth rates averaged at around 9%, unemployment was low and foreign direct investment (FDI) was high. Much of this was because, with South Africa at the height of the apartheid crisis and Mozambique experiencing civil war, Swaziland was the most stable country in the region and South African firms relocated to Swaziland in order to access world markets. During this period, the export oriented manufacturing sector grew and, together with FDI, spurred growth.

2.3.2 Picture of the Economy in 2006

In the 1990s, however, the Swazi economy saw a downturn. With South Africa becoming democratized, Swaziland lost its regional advantage. In addition, weather conditions deteriorated, lowering agricultural productivity, and world prices of primary commodities fell. Consequently, economic growth rates declined, agriculture suffered, and FDI fell (AWEPON, 2005; IMF 2006). The decline of productivity led to a balance of payments problem, fiscal deficits widened, unemployment increased, inflation rose, and incomes declined in both real and nominal terms.

Today, Swaziland is in an economic slump with GDP growth rates expected to slow down to 1.5% in 2005 (Minister of Finance, 2005). On the macro-level, persistent drought for the last few years has lowered agricultural yield and threatened food security – Swaziland now imports approximately 60% of its consumed food items (Central Bank, 2004). Swaziland's economy has primarily been propelled by FDI-driven manufacturing and the sugar industry. Currently, the EU is providing sugar subsidies that the WTO forbids. If this changes, sugar prices will fall and will affect Swaziland's sugar earnings. Moreover, Swaziland's textile industry is affected by the lifting of quotas which has resulted in the closing of textile companies. In fact, existing firms close down

every year due to changes in the world market and US dollar depreciation, worsening the unemployment situation in the country.

On the micro-level, against the background of poverty and stagnant economic conditions the impacts of HIV are only exacerbated, trapping people in poverty. The 40% unemployment rate, falling incomes and drought, among other factors, have made both the Swazi economy and the Swazi people extremely vulnerable to the impact of HIV/AIDS. The combined negative shocks of drought and HIV/AIDS are enough to trap people in poverty and keep them vulnerable for generations.

These factors – the political response, the cultural framework, the economic decline – have both shaped and been shaped by the spread of HIV/AIDS. With this in mind, the next three chapters deal with the socio-economic impact of HIV/AIDS in Swaziland.

3. The Economy and Economic Development

Swaziland's economy, as briefly noted in the previous chapter, is stagnating. With low growth rates, unfavourable terms of trade, and an increasingly impoverished population, the economic gains of the last few decades have been reversed. HIV/AIDS has also played a part in this downturn. Since it is difficult to ascribe causality when looking at the impact of the epidemic on the economy, this section examines the ways in which HIV/AIDS can affect the drivers of growth and development. Section 3.1 looks at economic growth, section 3.2 summarises the impact on the private sector, section 3.3 examines the effect on the public sector, section 3.4 investigates fiscal effects, section 3.5 looks at income distribution and poverty, and section 3.6 concludes the chapter.

3.1 Impact on Economic Growth

Economic growth is an important driver of economic development. The impact of HIV/AIDS on growth is therefore crucial to understand both in the short- and long-term. There are few studies that specifically look at the impact of HIV on growth in Swaziland. There is a fair amount of literature, however, on the impact in South Africa as well as general cross-country analysis. All these studies predict a negative relationship between HIV/AIDS and growth, with the more recent studies predicting a more significant impact than earlier studies. For instance, Bonnel (2000) estimates a 1.2 percentage point reduction in annual growth for an overall 20% prevalence rate. Recent models like Bell *et al.* (2004) predict that the impact will be enormous – they argue that the South African economy will be crushed due to the loss of human capital and decline in the intergenerational knowledge transfer. Nattrass (2002) and Casale (2005) have gone further by pointing out that these models underestimate the actual impact of HIV/AIDS as they fail to take into consideration the rapid spread of the pandemic and ignore how the economy would adjust over time. Nonetheless, the growing literature makes the same point – long-term economic growth is negatively affected by HIV/AIDS.

In the case of Swaziland, there have been three main studies that model the impact of HIV/AIDS on growth. The predictions are summarized in Table 3.1. They predict that the percentage annual loss in GDP growth due to HIV/AIDS ranges from 1% to 2.8%.

Table 3.1: Impact of HIV/AIDS on Growth in Swaziland

Study	Percentage Annual Loss	
	Loss in GDP Growth	Loss in GDP per Capita Growth
Haacker (2003)	1	2.3
World Bank (2001)	1	1.1
ILO (2005)	2.8	1.8
Average	1.6	1.73

Source: Muwanga (2004)

According to most theories of economic growth, growth is determined by capital accumulation (both physical and human) and total factor productivity. Therefore, the above mentioned models, HIV/AIDS is assumed to affect growth by reducing the size of the labour force, by lowering efficiency, by lowering productivity, and by lower savings and investment. Since modelling the effects on growth is beyond the scope of this assessment, the following sections focus on examining how HIV/AIDS can affect/and is affecting the main drivers of growth – physical capital accumulation, human capital accumulation and total factor productivity.

3.1.1 Physical Capital Accumulation

Capital accumulation is a central tenet of most growth theories, be it physical or human. Physical capital accumulation is driven by savings and investment and is affected by HIV/AIDS both at the individual and firm level. For instance, families affected by HIV/AIDS may have to deplete their savings and assets in order to cope with the expenditure and income shock. Similarly, firm profits (and hence saving and investment) may decrease due to lower labour productivity and increased AIDS related expenditure. Savings and investment are examined in turn.

3.1.1.1 Savings

If HIV/AIDS is treated as a permanent shock to a household, then it is expected that the increased expenditures (e.g. health care and funerals) as well as the lower income (due to morbidity) will result in a depletion of savings. This theory is consistent with the findings of the MOAC et al. (2002) study, discussed in detail in chapter 5. Asset and saving erosion could trap families in poverty for generations and lower physical capital accumulation in the long run.

On the other hand, according to the permanent income hypothesis¹ it is expected that families will anticipate the shock as a permanent one and increase their savings to cope with future expenditure. This, however, can only take place if families have access to credit or enough income to save for the future. Unfortunately, there are no studies that investigate this hypothesis in Swaziland. In addition, lower life expectancy and increased mortality shortens planning horizons and lowers incentives to save and invest. Moreover, a possible change in income distribution due to a potential rise in real wages from labour shortages (discussed in section 3.4) would greatly determine the long-term consequences that HIV/AIDS has on savings.

Firm level savings are also impacted by HIV/AIDS. As is further elaborated on in section 3.2, some private sector firms, such as the Royal Swaziland Sugar Corporation (RSSC), provide workplace programmes for HIV, which is a direct cost. Those firms that do not provide such programmes, or firms at which the uptake of workplace programmes is low, are faced with large labour loss costs around absenteeism and skill loss, which in turn lowers their efficiency and profits, eventually reducing savings. Either way, the outcome is lower savings.

3.1.1.2 Investment

The Swazi economy relies heavily on foreign direct investment. In the 1980s Swaziland was an investors' haven in southern Africa, but with the end of apartheid and the end of the Mozambican civil war, Swaziland lost its regional advantage and FDI fled (AWEAPON, 2005). Still, FDI is a sizeable amount in local economy terms – total FDI between 2001 and 2003 averaged about 37% of GDP (26% of GDP for manufacturing). However, despite putting in place favourable incentives to attract investment, FDI declined by 8.6 percentage points in 2003 alone (Minister of Finance, 2005). The investment climate is deteriorating due to perceptions that governance is poor, corruption is high, the regulatory environment is burdensome, and the costs of transportation and utilities are high (IMF, 2006). HIV/AIDS is another factor that can be contributing to declining investment, although governance is the perhaps the main issue behind investors' reservations (K. Hlatwayo, pers. comm.).

Why should HIV/AIDS affect investment? In theory, in steady state the decline in the growth rate of labour force, as will result from HIV/AIDS, should be accompanied with an increase in the steady-state capital-labour ratio. However, public and private domestic savings may fall as well and the rate of

1. The Permanent Income Hypothesis (Milton Friedman, 1957) states that choices made by consumers regarding their consumption patterns are determined by their longer-term income expectations and by current income. Measured income and consumption contain an anticipated permanent element and an unexpected transitory element. Consumption and savings decisions are based on permanent income and individuals will consume a constant proportion of their permanent income.

return to capital may decline due to lower productivity. A lower rate of return on capital would in turn discourage FDI (Haacker, 2003). Moreover, HIV/AIDS could deter investors because it increases the risk of investing in Swaziland. For instance, Isaksen et al. (2002) discuss how one Taiwanese textile firm decided to start its 5000 worker factory in Lesotho instead of Swaziland due to the latter's high HIV prevalence. The investors were concerned about the costs of training workers who would soon fall ill and die, and therefore decided to move away from Swaziland. In general, there is scant evidence on this issue.

In terms of domestic investment, the impact of HIV will manifest itself by lowering investment as a consequence of smaller profits. Private companies are likely to see a decline in profits due to lower productivity and higher expenditures. Muwanga (2004), in a review of the impact on the private sector, states that HIV/AIDS costs between 1.83 to 3.46% of the wage bill depending on the firm. These lower profits should lower both the incentive and ability to invest in firms although perhaps this magnitude to have a severe impact. However, since profit information remains confidential, and few investors will explicitly state HIV as a reason for pulling out investment, it remains difficult to verify this claim. Section 3.2 deals with the private sector in more detail.

3.1.2 Human Capital Accumulation and Productivity

HIV/AIDS changes the overall size of the labour force, as well as the age and skill composition of both the present and future labour force. In doing so, HIV/AIDS affects the accumulation of human capital as well as productivity.

3.1.2.1 Loss of Labour

One of the reasons that HIV/AIDS is unlike any other disease is that it primarily affects the 'productive' population, i.e. the labour force. The relative effect of HIV on labour is greater than the effect on the whole population because the sexually active group is the same group that is in the work force (World Bank, 2001). As Figure 1.6 shows, the projected number of deaths in the HIV/AIDS scenario far surpasses the number of deaths in the non-HIV/AIDS scenario. Moreover, a loss of labour will be accompanied by a loss of skill within the economy. Human capital accumulation will suffer as a direct consequence. Chapter 1, section 1.4 discussed this in more detail.

There are several studies that look at the impact of HIV/AIDS on mortality within firms and institutions. Muwanga (2004) summarises the results from these studies (Table 3.2) and finds that the pooled (average) estimate for AIDS deaths is 10.54 deaths per thousand people. Higher mortality rates are

seen in agriculture than manufacturing, with the highest rate being 16.75 persons per thousand people in the Ministry of Agriculture and Co-operatives. The RSSC had the lowest mortality of 4.80 deaths per thousand people, but this is on account of the voluntary retirement packages that it offers its employees, who then pass away post retirement (Muwanga, 2004). It is important to note that some of these studies may underestimate the impact of AIDS on mortality for reasons of stigma.

Table 3.2: AIDS Mortality in the Swazi Workforce

	Mortality Rate per Thousand Employees				
Study	Lower	Average	Upper	Total Obs	PValue
Coutinho RSSC	4.70	4.80	4.90	3419	0.006
Muwanga Swaziland Railway	10.84	11.20	11.56	639	0.003
Coutinho Sugar Estate	8.40	12.00	15.20	3750	-
Whiteside Sugar Estate	4.80	9.60	14.4	3750	-
Muwanga Prvt. Small Farms	12.64	14.01	15.38	216	0.03
Muwanga Manufacturing	8.39	8.48	8.57	1800	<0.001
Fridge Master Ltd Manufacturing	6.50	7.50	8.50	800	0.002
Muwanga Min.of Agric.	16.06	16.75	17.44	2202	0.0031
Pooled Estimate	9.04	10.54	12.12		0.001

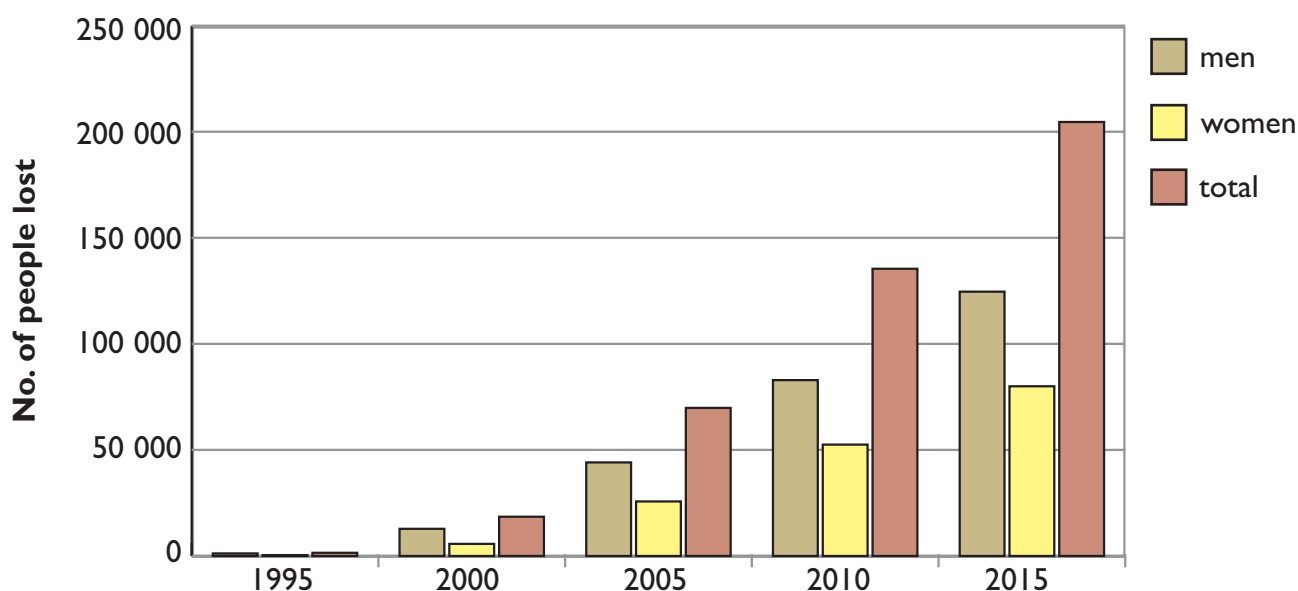
Source: Muwanga (2004)

3.1.2.2 Long Term Impact on Human Capital Accumulation

Human capital accumulation for the future depends greatly on the educational attainment of children. With the increasing number of orphans and vulnerable children (OVCs) and child-headed households it is likely that the accumulation of human capital in the long run will greatly be compromised. For instance, enrolment rates for education have been declining (as is discussed in detail in section 4.2) and teacher mortality is increasing. There is also evidence that repetition rates are increasing (MOE, 2002). All of these have negative consequences for long-term accumulation of human capital. Both chapters 4 and 5 discuss this further.

Analysis of long-term impacts of HIV/AIDS on the economy should also take into consideration the “cumulative loss of productive capacity as sales, distribution, and information networks unravel, and the knowledge, experience, and as capacities to learn and adapt disappear” (McPherson, 2003). An ILO study (2004) that examines the cumulative effects of HIV on labour calculates and projects the cumulative loss of labour in the formal sector assuming a 38% prevalence level and predicts that by 2015 Swaziland would have lost 34.3% of the total labour force to AIDS (see Figure 3.1).

Figure 3.1: Cumulative HIV/AIDS Mortality Losses to Male, Female and Total Labour Force



Source: ILO (2004)

3.1.2.3 Productivity

In addition to losses due to mortality, the productivity of the private and public sector will suffer from the indirect cost of increased absenteeism and the direct cost of health care associated with HIV/AIDS. Compiling information from the various studies on HIV/AIDS absenteeism, Muwanga (2004) finds that, on average, the private sector loses 2.97 days per employee per year due to HIV/AIDS related sick-leave, and this is prior to the epidemic peaking. Organisations like RSSC, that provided workplace programmes were least affected by absenteeism, but they had to bear the cost of providing workplace programmes. Table 3.3 provides the average absenteeism for various firms.

Table 3.3: Absenteeism in the Swazi Workforce

	Absenteeism – Sick Leave Utilisation – Number of Days/Employee/Year				
Study	Lower	Average	Upper	Total Obs	PValue
Coutinho Sugar Estate	1.40	1.43	1.46	3419	0.003
Muwanga Transport Sector	2.28	2.36	2.44	638	0.000
Muwanga Prvt. Small Farms	3.27	3.66	4.10	214	0.010
Muwanga Manufacturing	4.24	4.93	5.79	133	0.002
Muwanga Service Industry	1.99	2.46	2.93	30	0.001
Pooled Estimate	2.88	2.97	3.06		0.004

Source: Muwanga (2004)

Moreover, in sectors where skill levels are high, such as banking, the per-person productivity losses from mortality are likely to be higher than for unskilled employees (World Bank, 2001). Loss of a person in high-level

management affects the productivity of the entire system (ILO, 2005). If highly skilled persons are lost in a skill scarce economy then there could also be a potential worsening of the wage differential between skilled and unskilled workers.

3.1.3 Long Term Consequences for Growth

Mortality from HIV/AIDS has lowered life expectancy in Swaziland by 17 years, in the period 1997 to 2003 (PR SAP, 2003). This loss of life expectancy will prevent individuals from contributing fully to economic development, and will have long lasting implications for social fabric and the structure of families. It will affect the survival of whole communities and the social capital within them, and erode the saving capacity of both households and firms. In fact, Bloom *et al.* (2004) show that increasing life expectancy by one year raises output by 4 percentage points, hardly a trivial increase. In light of this, increased public spending on and uptake of antiretroviral treatment will, among other things, increase life expectancy, decrease absenteeism, free the care-takers in the family, and reduce the number of orphans. It will also lower the firms' turnover costs and reduce the skill drain. Hence, the positive impact of this expenditure on growth cannot be understated².

McPherson (2003) points out that most current labour and growth impact studies underestimate the impact of HIV/AIDS on economic actors because the epidemic has yet to peak. The cumulative impact of the erosion of human capital, institutions and networks will deter investment (both domestic and foreign) and trap Swaziland in an economic decline. In the long run, the extent of the impact of HIV/AIDS on growth will very much depend on the level of skill depletion and labour scarcity; the level of unemployment; the provision and uptake of ART; the investment incentives provided; the creation of savings mechanisms for the rural population (e.g. providing consumption credit), and the health of the economy at large. Hypothetically, under a scenario of high unemployment and surplus labour (for a given skill level) – as there is in Swaziland at the moment – the impact of HIV/AIDS on the sector hiring that labour will be lower than if the economy was operating at full capacity with no surplus labour to draw from. These scenarios have not been developed and understood fully, and further research in this area is warranted. Following this general discussion around growth, the next section looks at the impact of HIV/AIDS on the private sector in particular.

² The cost effectiveness of ART has not been studied in the context of Swaziland, but evidence from the world over suggests that ART is cost-effective (see Badri *et al.*, 2006).

3.2 Impact on the Private Sector

High morbidity and mortality due to HIV/AIDS have large implications for agriculture, manufacturing and the private sector as a whole. This is a consequence of the productivity, labour, and human capital effects discussed above which lead to rising costs per unit of output produced, and in the case of subsistence agriculture, undermine the household ability to produce outputs in general. The impact of the epidemic can be felt in costs of production, employment, profits, investment and savings, both at the household and firm level. The private sector in Swaziland is dominated by agriculture, which will be examined in section 3.2.1. Section 3.2.2 considers the impacts of HIV/AIDS on manufacturing and section 3.2.3 looks at the impact of the epidemic on firms.

3.2.1 Impact on Agriculture

Agriculture and agro-industry comprise the core of the Swazi economy and the main products are sugar, wood pulp and citrus. Agriculture has a dualistic structure, with over half of the land vested in the King in trust of the Swazi nation (Swazi nation land) with parts of it allocated to families by chiefs and mostly used for subsistence farming. The rest of the land is comprised of individual tenure farms owned on freehold or concessionary title by individuals, farms and estates (CSO, 2000). Title deed land is mostly dominated by sugar cane production and forestland. Around 60% of the population is engaged in subsistence agriculture, with maize being the staple food, and in 2004 accounting for 86% of cropped communal Swazi nation land (Swazi VAC, 2004; FAO/WFP, 2004).

Assessing the impact of HIV/AIDS on agriculture is difficult. The statistics available at the Ministry of Agriculture and Co-operatives (MOAC) are not very reliable and there is no statistics or monitoring and evaluation unit. Also, the existing statistics are based on estimates – for example taking into consideration rainfall against the type of soil to project yields. Finally, some of the definitions have changed for data collected, which might influence the variation that is observed in cropping patterns.

Keeping these limitations in mind, it is worth noting that a fall in production and yields has been observed over the past few years in crops such as maize and other food staples (IMF, 2006). Maize production has been below average for several consecutive years since 2000 (Swazi VAC, 2004; FAO/WFP, 2004). It cannot be inferred that this is a result of HIV/AIDS as it is nearly impossible to disentangle the impact of the epidemic from a variety of other factors such as poor rainfall, declining access to markets (notably maize and

cotton markets), rising staple food prices and the general economic slowdown described at the beginning of this chapter. However, a study conducted on the impact of HIV/AIDS on agriculture and the private sector in 2002 found an average 54.2 percent reduction in maize production in households with an AIDS-related death (MOAC et al., 2002).

In addition to crop production, anecdotal evidence suggests that HIV/AIDS is negatively impacting the cattle economy and livestock production (D. von Wissell, pers.comm.). The quality of husbandry is compromised as prolonged illness and death of household heads means that skills for looking after livestock are lost, and resources available to tend animals, (such as medicines) decline. Livestock, particularly cattle, serve as a centre of wealth for households, and animals are sold or slaughtered in response to expenditure shocks. As will be further discussed in chapter 5, HIV/AIDS leads to a decline in household income and rise in household expenditure, leading to an inevitable depletion of wealth. Evidence of impacts on the cattle economy which focuses on household coping strategies is presented in section 5.2.6. Again, it is hard to isolate the impact of HIV/AIDS on the livestock production from other factors such as drought, but it is still worth noting that the epidemic is a contributory factor to the decline in the quality and quantity of the national herd and other livestock.

Although it is hard to pinpoint the impact that HIV/AIDS is having on the sector, it is fair to assume – keeping in mind the productivity and labour effects from increased morbidity and mortality discussed above – that the epidemic is serving to exacerbate the negative impact of these other factors on agriculture. This assumption is in accordance with the new variant famine (NVF) hypothesis that states that the generalised HIV/AIDS epidemic in Southern Africa helps to explain why many households are facing food shortage, and second, explains the grim trajectory of limited recovery. Recently, evidence from Swaziland and Malawi has allowed for a refinement and elaboration of the NVF hypothesis. This analysis of results of household studies in both countries during the 2002–2003 food crisis, clearly showed that HIV/AIDS was one cause of declining agricultural production (Arrehag *et al.* 2006).

3.2.1.1 Subsistence Agriculture

HIV/AIDS has large implications for subsistence agriculture in Swaziland, and these are discussed in detail in chapter 5.

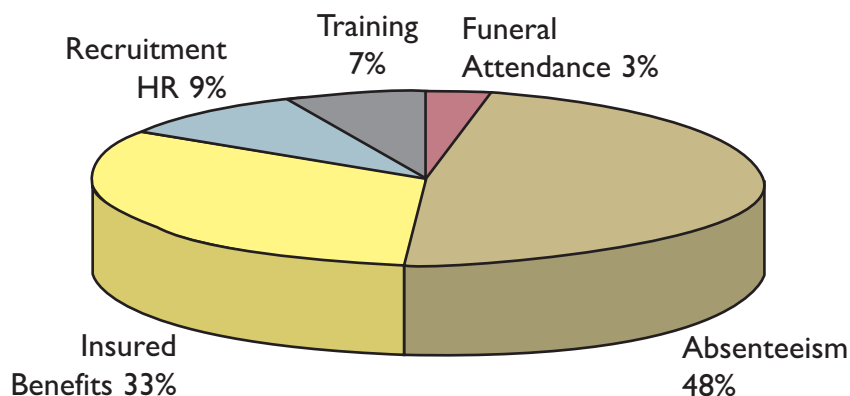
3.2.1.2 Commercial Agriculture

A survey completed for the 2002 MOAC et al. impact study found that most commercial farms do not provide medical benefits for their workers. Only 25.8 %

of the farms included in the survey providing their employees with health care, either through the provision of medical insurance or by financing the treatment of employees at private healthcare providers (MOAC et al., 2002). This means that many commercial farms are able to avoid rising costs associated with medical benefits as increasing numbers of employees fall ill. Also, this sector relies heavily on casual and seasonal labour, more so than permanent labour, so the impact is felt to a smaller degree. The absenteeism and high turnover-related costs that are in fact incurred, however, are very hard to approximate as many small farms fail to maintain detailed records of costs and the larger agro-estates are reluctant to reveal confidential information about their operations.

An HIV/AIDS risk impact analysis completed in 2003 for the Royal Swaziland Sugar Corporation, however, provides a good example of the potential magnitude of such costs over the long-term. This study estimated that, without any medical intervention, the total cumulative financial impact of HIV/AIDS on RSSC for the period 2003-2008 would exceed 20 million Rand (Lifeworks, 2003). The breakdown of these costs is depicted in figure 3.2 below.

Figure 3.2: RSSC HIV/AIDS Cost Impact (2003-2008)



Source: Lifeworks (2003)

This is in line with the sharp rise in operational costs due to absenteeism, funerals, healthcare, and training needs reported in three other agro-estates in the MOAC et al. (2002) study.

3.2.2 Impact on Manufacturing

Data on the impact of HIV/AIDS on the manufacturing sector suffers from many of the same limitations as the agricultural sector; industries are equally reluctant to share information on the impacts being felt due to HIV/AIDS. However, there is a consensus that HIV/AIDS is having an impact on this sector in Swaziland. One study found that, of the sectors examined, the manufacturing industry was the most affected sector in terms of absenteeism (Muwanga, 2004). The manufacturing industry was found to be losing 4.93 working days per employee per year due to HIV/AIDS absenteeism, whereas the transport sector, service industry, and private small farms were losing 2.36, 2.46, and 3.66 working days, respectively (see Table 3.3).

One informant noted that the labour intensive garment and textile sector has been facing challenges meeting production targets and deadlines because of absenteeism. Several informants pointed to the textile industry as being the most affected in the country due to the high HIV prevalence rates among employees, who are predominantly female. Rates are to a large degree being fuelled by the poor pay and living conditions which render the employees vulnerable to HIV/AIDS. Empirical evidence for this claim is lacking. If this is true, HIV/AIDS is compounding the already large threat facing textile industries, as a result of trade conditions and overall increases in production costs for labour intensive export industries (occurring as a result of factors such as the appreciation of the Rand) (IMF, 2006). Research is needed in order to determine to what degree this is indeed the case.

3.2.3 Impact on Private Sector Firms

According to MOAC et al. (2002), there is no evidence that the epidemic is influencing the productivity and profitability of business in Swaziland. However, there is some evidence that HIV/AIDS has led to increased absenteeism and raised costs to company, such as funerals and benefits. Within members of the Swazi Federation of Employers, impacts are being felt on productivity through absenteeism and high turnover rates. Such evidence remains anecdotal, however, and highlights the need to embark on a study to systematically capture these effects (T. Maphanga, pers. comm.). Although the Business Coalition against HIV/AIDS (BCHA) is well placed to complete such a study, there is a lack of available resources conduct this research.

Most firms in Swaziland do not keep very accurate records of absenteeism, and even when they do, they do not record if sick-leave is AIDS-related. There is, however, some evidence of AIDS-related morbidity impacts on absenteeism, as already seen in section 3.1.2.3. In 1999, average annual sick leave at RSSC for illnesses that were not AIDS-related was 0.9 days per employee whereas employees with HIV/AIDS utilized 18 days. At Swaziland Railway the average sick leave taken in 2001 was 0.6 days per employee versus 11.82 for HIV positive employees (Muwanga, 2004). This translates into a twenty-fold increase in both of these companies in sick leave usage as a result of the epidemic.

HIV/AIDS is also adding an increased dimension of tension to existing challenges in industrial relations between employers and employees. Employees in several firms have shown reluctance with regard to engaging with workplace responses to HIV/AIDS. This is because there is little pre-existing trust between employees and employers, and employees are reluctant to get involved because they fear that management is using HIV/AIDS as criteria for retrenchment (T. Maphanga, K. Hlatshwayo, and S. Dlamini, pers. comm.).

3.2.3.1 Workplace Programmes

Although it is hard to approximate the strength of the link between HIV/AIDS and falling agricultural yields and manufacturing production, one impact that can be more closely measured is the additional cost incurred by businesses to put into place workplace programmes. This cost is presumably one that is compensated for by the degree to which it mitigates other costs (absenteeism, medical benefits, and the like) that would otherwise be larger over the medium to long-term.

In one of the strongest business responses to HIV/AIDS in the country, the management of Royal Swaziland Sugar Corporation came together with the staff association and the Swaziland Agricultural and Plantation Workers Union to form a tripartite committee to put into place a workplace programme for employees. In 2003, a financial impact analysis study revealed that, unless effective action was taken, HIV prevalence rates would continue to rise and there would be an increasingly large impact felt on annual payroll costs. RSSC, in view of the recognition that the epidemic posed a threat to the viability of the company, took action in a number of ways to provide ART to employees. They undertook to institute education and awareness campaigns, improve monitoring of HIV/AIDS-related morbidity and mortality, and in 2004 adopted an internationally recognized AIDS Management System (S. Dlamini, Presentation Nov. 30, 2005).³ The costs borne by RSSC to implement this workplace programme were large, but they were incurred under the expectation that they

³ Provision of ART by RSSC to employees began before they became available free of cost in Swaziland

would be compensated for by mitigating the costs presented above in Figure 3.2. Medical interventions for disease management alone were projected to lead to a cumulative saving of about 12.6 million Rand for the period 2003-8 (Lifeworks, 2003).

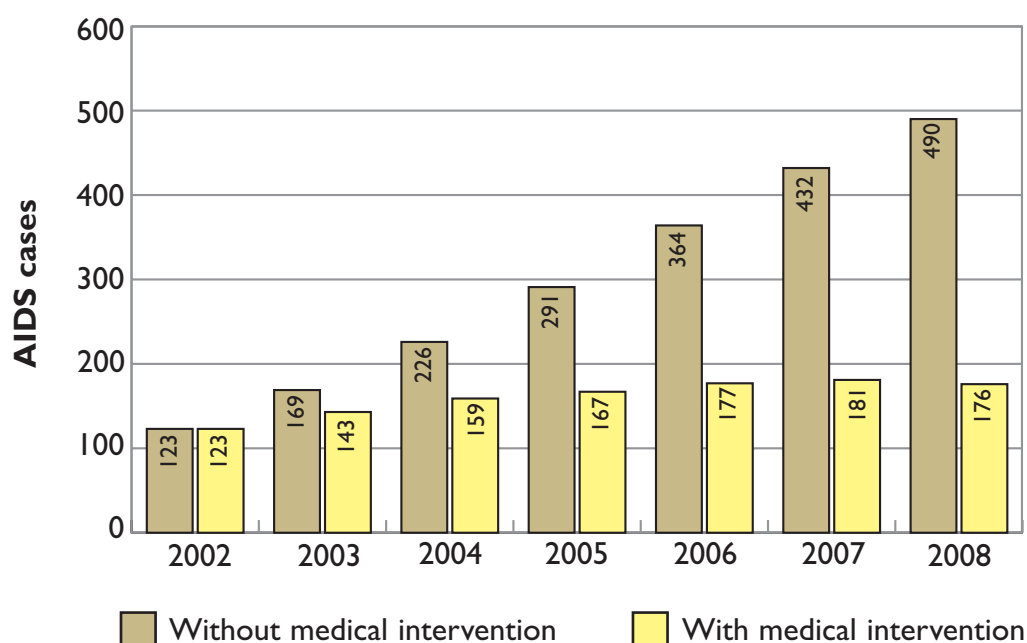
A workplace HIV/AIDS programmes assessment report commissioned by BCHA and completed in 2004, however, found that few business organizations in Swaziland have formal workplace programmes in place, although a number of organizations are involved in efforts to curb the prevention of HIV transmission such as the distribution of IEC materials and condoms to staff (Jele, 2004). Of the industries with workplace programmes in place, a majority were large businesses. Of these, around 70 % reported that they had HIV/AIDS training programmes in place for staff, just over 50 % had care and support programmes, and only about 2 % reported conducting M&E assessments of programmes. More recently, of 64 workplaces surveyed in the 2005 Workplace Survey, only 15 had a written HIV/AIDS policy (Mathunjwa and Mkhonta, 2006)

Many costs have been transferred to households as businesses continue to respond to the epidemic by focusing on cost-avoidance strategies instead of investing in mitigating the impact of the epidemic on their workforce. Whereas companies that produce for local markets, such as banks, are moving towards responding to the epidemic's impacts on employees (as well as the erosion of their customer base), many businesses that are export-oriented are failing to respond to HIV/AIDS in the workplace as they have little incentive to invest in the local population (T. Maphanga, pers. comm.). In fact, as briefly mentioned in Section 3.1.1.2, some businesses are not investing in Swaziland at all.

Workplace programmes, however, can play a critical role in mitigating the impact of the epidemic on the private sector. Consider, for example, the projections of estimated AIDS cases in the workforce of a private sector company (name withheld). Figure 3.3 below shows two scenarios of worker attrition due to AIDS – one with medical intervention and one without medical intervention.⁴

⁴ Projection calculations and assumptions are based on the Lifeworks model. It was assumed that total number of workforce employees would remain stable over the projection period. Modeling of projected progression of HIV infection rates to AIDS cases took into account the various disease stages of HIV/AIDS. This projection only considers medical interventions – ART provision – and not other interventions such as preventive programmes.

Figure 3.3: AIDS Cases Private Sector Company



Source: Confidential Report (2003)

Based on a projection, Figure 3.3 indicates that worker attrition due to AIDS would be dramatically reduced through a workplace programme that provides disease management services for HIV positive employees. In a population such as Swaziland where HIV prevalence levels in the working age population are high and the epidemic is generalised, every business is in a position where it needs to consider these two possible scenarios and act accordingly to mitigate the impact of HIV/AIDS in their workplace environment.

Where businesses have responded to HIV/AIDS in the workplace, challenges have included the limited ability to track and provide referral services to seasonal employees on ART so that they may continue to have their medical needs met in the months when they are unemployed.

3.3 Impact on the Public Sector

With around 22,000 employees, the public sector is the largest employer of people in Swaziland. An examination of impacts on the public sector is thus not only important because of the burden posed by HIV/AIDS on the budget, but also because the impact of HIV/AIDS on the public sector staff multiplies throughout

society. Government employees are individuals at the top income level of society. They are generally responsible for multiple dependents, not just their immediate families. Investment in government individuals is therefore important because the investment trickles down to several individuals within the extended family. Section 3.3.1 looks at the impact on the Ministry of Agriculture and Co-operatives and section 3.3.2 explores the impact on the Central Agencies.

3.3.1 Impact on the Ministry of Agriculture and Co-operatives (MOAC)

MOAC has among the highest recorded rates of HIV/AIDS mortality in the Swazi workforce (Muwanga, 2004). One informant confirmed that indeed a large proportion of MOAC staff is sick, leading to increasingly large inefficiencies, and a large number of vacancies (C. Tshabalala, pers. comm.). Of an establishment workforce of 3000 workers, there are currently around 500 vacancies, and there is a notably large shortage of extension officers. Because these extension officers work directly with households and communities to support subsistence agriculture, this impact is also felt at the micro-level. This shortage of extension officers is also occurring in other high prevalence countries, for example in Malawi (Bryceson *et al*, 2004). The MOAC *et al.* (2002) impact study reports that there has also been a large increase in retirements, healthcare expenditure and pension pay-outs.

There is a lack of current policy within the ministry on agriculture and HIV/AIDS. The MOAC is in the process of completing a draft strategic plan for HIV/AIDS in the workplace; however this process has been undermined by the current lack of funding as no change has been made to the allocated budget to allow for increased spending to address issues related to the epidemic (MOAC HIV/AIDS Committee, 2005).

3.3.2 Impact on Central Agencies

In 2002 JTK Associates conducted a study on the impact of HIV/AIDS on the Ministry of Finance, the Ministry of Public Service and Information (MOPSI), and the Ministry of Economic Planning and Development (MEPD). The study gauged that the total mortality would be 32% of staff over a twenty-year period. It then developed a costing model for an eight-year period using two public sector growth scenarios – one of zero growth and the other of 2% growth. Under these two scenarios the study estimated the present value of costs to be E 10,535,994 over period 2002-10, and the base cost for 2002 is E 1,313,448 or 1.5% of annual salaries for the ministries studied.

Analysis of the pension fund revealed that the cost of increased death claims due to HIV/AIDS over a ten-year period would range between 8 to 16% of annual personnel expenditure for the three ministries⁵. The decrease in life expectancy, which is being driven by AIDS, means that the financial position of the pension fund is lowered as the average employee works for a very short time.

Despite these threats, the public sector response to the HIV/AIDS has been very haphazard. The Public Sector HIV/AIDS Coordination Committee (PSHACC), created solely in response to the growing crises in the public sector, is aiming to put together a strategic plan to coordinate this response. PSHACC has developed a costed action plan to outline money needed from Public Budgeting Committee, which had been hesitant to allocate money to address HIV/AIDS issues. PSHACC is also trying to finalise a workplace policy which is currently waiting for government approval (P. Muir, pers. comm.)

In the absence of a coordinated public sector strategy, ministries have appointed “HIV/AIDS wellness coordinators” on a voluntary basis. However, due to capacity constraints the individuals assigned to these posts are often inappropriately skilled or do not exert influence when reporting on HIV/AIDS needs (P. Muir, pers. comm.). The absence of a HIV/AIDS budget within each sector is partly to blame, and HIV/AIDS needs to be mainstreamed into the budgets of all ministries. This is further discussed in section 3.4.3.

3.4 Fiscal Effects and the Budget

While there are no studies that explicitly look at the fiscal impact of HIV/AIDS in Swaziland, there are some obvious budgetary implications. Lower tax revenue is predicted. Expenditure is likely to increase in response to HIV/AIDS – be it for financing workplace programmes or increased recruitment costs; and in the absence of additional funding, financing HIV/AIDS programmes may result in a deflection of resources away from other programmes. Finally, the enormous inflow of aid to tackle HIV/AIDS could have destabilising macro-economic effects. The following four sections investigate the extent to which the impacts mentioned above are manifest.

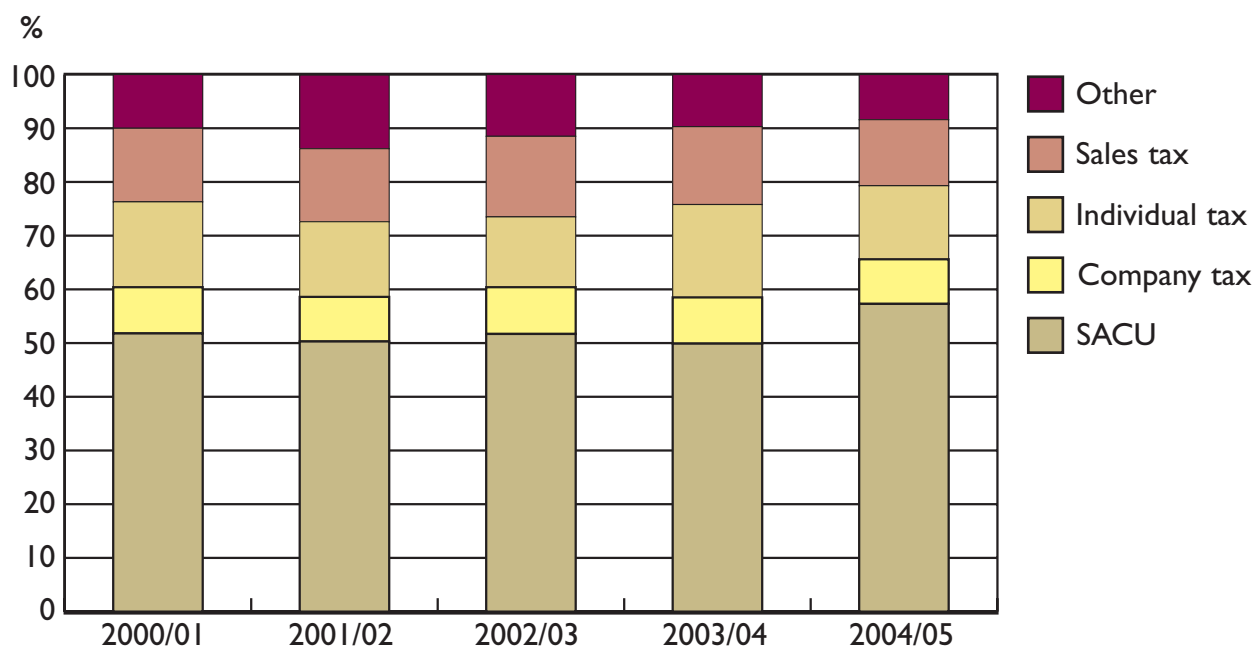
3.4.1 Revenue

HIV/AIDS could result in a decline in revenue for three reasons: first, increased HIV/AIDS related mortality will result in a smaller tax base; second, morbidity and the consequent decline in personal income and consumption of imports will affect tax revenue negatively; and third, reduced firm profits will lower corporate tax revenue (Haacker, 2003).

⁵ Pension fund analysis assumes that contributions would have to increase by between 1 and 4% of pensionable income to cover the cost of AIDS deaths

Whether a change in the tax base will have a sizeable impact on revenue depends on the tax revenue's share in total revenue. Figure 3.4 shows that the share of income and company tax in total revenue has been steady over time and is responsible for 21.8 to 25.9% of total revenue.

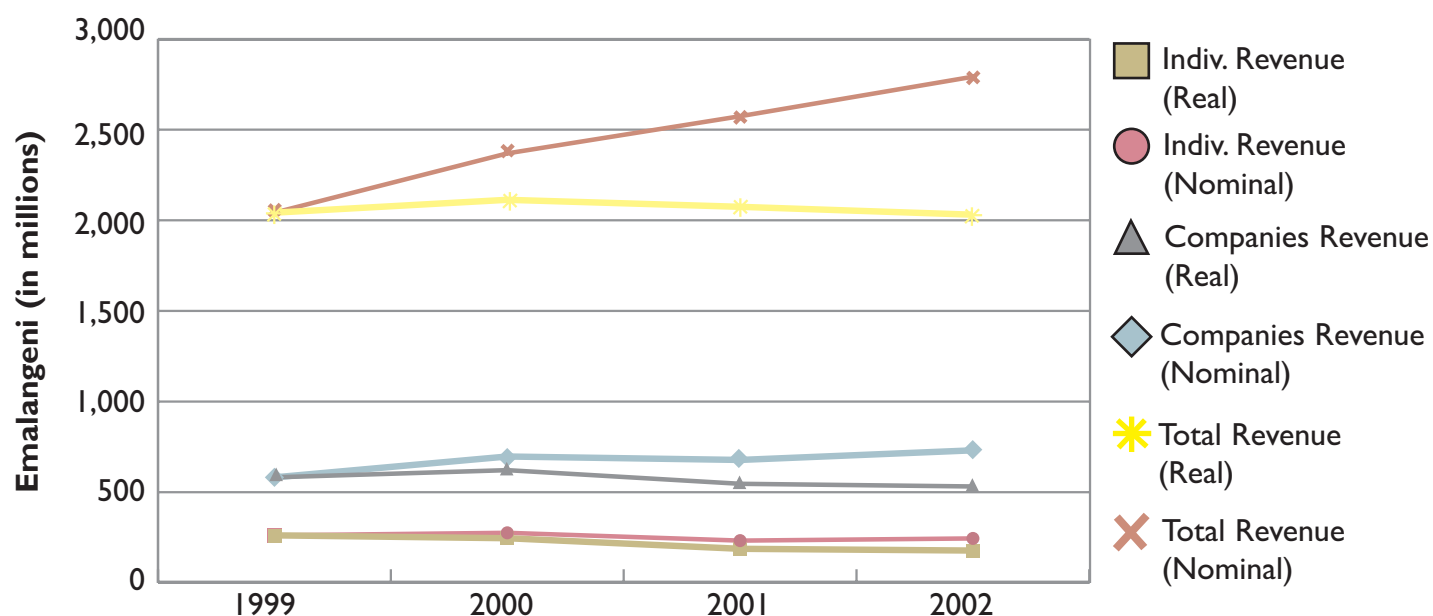
Figure 3.4: Major Components of Revenue, 2000-2004



Source: Central Statistical Office (2000-2005)

However, although total tax revenues have been increasing in nominal terms, they have been decreasing in real terms, as shown in Figure 3.5. Poor economic performance due to drought and unfavourable world commodity prices may be the reasons for this trend. At this stage there is no obvious causal relationship with HIV/AIDS – but this needs to be noted and further investigated in the future as the epidemic matures.

Figure 3.5: Tax Revenue in Real and Nominal Terms



Note: Real values calculated using GDP deflator provided by CSO.

Source: Central Statistical Office (2000-05)

Various macro-economic indicators suggest that the tax base is changing. Informal employment is increasing while formal employment has been stagnating in recent years (ILO, 2005). For instance, formal sector employment only grew by 356 jobs between 2001 and 2002, and unemployment is estimated at around 40% (MOEE, 2002). The Swazi people are becoming poorer and real wages are declining across all skill levels (see section 3.5).

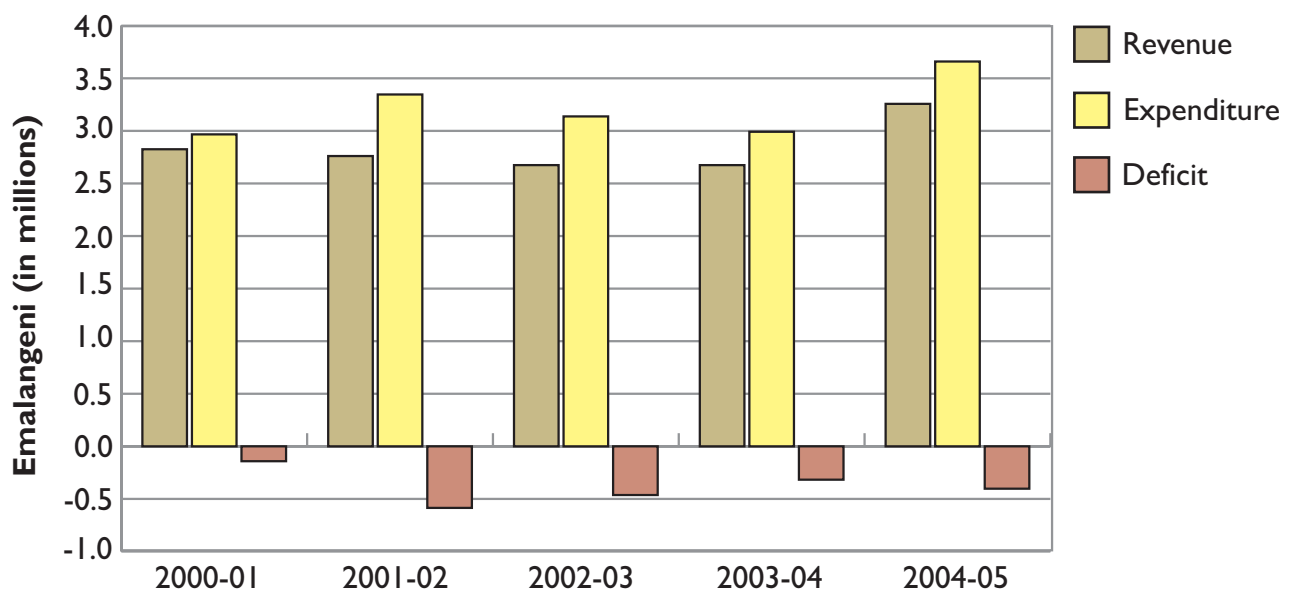
Looking back at Figure 3.4, it is clear that the Swaziland Customs Union (SACU) is the largest contributor to revenue. One of the informants interviewed for this study revealed that revenue from the SACU was lower than it should be because members of staff were often ill and on leave, and therefore unable to collect the revenue on the receipts. There is no empirical evidence to assess this claim; and further research is warranted.

Although the hypotheses around the declining tax revenue in this chapter are yet to be empirically tested, it is important to acknowledge that HIV/AIDS can be a contributing factor to this decline. If this trend continues, the long run consequences for the sustainability of the budget and fiscal balance will be disastrous.

3.4.2 Expenditure

While revenue is expected to decrease due to HIV/AIDS, expenditure is expected to increase. Expenditure will have to increase in order to cope with increased demand for health and social programmes, to provide pensions, to fund workplace programmes, and to replace lost skills and capacity through training or recruitment (Haacker, 2003). This is providing, of course, that increased demand for these services is met with increased expenditure. The budget deficit is now 4.5 % of GDP, up from 3.6 % in 2004/5 (excluding supplementary budget), and the deficit has been largely contributed to by the increase in personnel expenditure. Figure 3.6 shows the clear recent increase in expenditure as well as the growing budget deficit.

Fig 3.6: Comparative Budget: Real Revenue, Expenditure and Fiscal Deficit, 2000-2004



Source: Central Statistical Office (2000-05).

There is no research on the impact of HIV on revenue, expenditure and investment and it should be encouraged in order to facilitate evidence-based planning around these issues.

3.4.3 Budgeting for HIV/AIDS

There is a concern that increased attention to HIV/AIDS is resulting in resources being deflected from other sectors. This is certainly not the case in the overall budget, as expenditure on health as a percentage of current expenditure has been decreasing and is far from meeting the Abuja target of 15%. In fact, the health budget does not “reflect the extent of the crisis” (Central Bank of Swaziland, 2005 p47). Only 8.4% is marked for recurrent health expenditure as compared to 19.3% set aside for public order, safety and defence (Central Bank of Swaziland, 2005). When looking at government expenditure on health, however, Swaziland’s financial commitment of resources ranks lowest in Southern Africa (WHO, 2005). In 2001, this was estimated to equal 7.5% of total government expenditure, or 3.3% of GDP.⁶ As a result of fiscal pressure and the constraint of zero growth in the public sector, this value had been on the decline in real terms until the 2005/6 budget. This budget made a provision for a 41% increase of resources dedicated in the previous year, mostly to go towards increasing nurses’ salaries. In large part this lack of increase may be due to the large influx of foreign funds to address the epidemic which are not included in the accounts. For example, the budget excludes GFATM grants from its health expenditure. Nonetheless, as emphasized by several informants, the trend raises concerns over the sustainability of the response and the long-term robustness of Swaziland’s health care system in the face of one of the severest HIV/AIDS epidemics in the world.

HIV/AIDS however, is not simply a health ministry issue but pressing problem that every sector must address. Yet, despite the generalised epidemic, no additional funding has been made available to non-health ministries to date for tackling HIV/AIDS and mainstreaming has yet to happen across ministries (Z. Yakubu, pers. comm). Hence, funding for the much needed programmes and workshops being held comes from the reallocation of existing funds. In other words, ministries are expected to finance additional expenditure without the additional budget. For instance, the Ministry of Finance spent E141,869 on HIV/AIDS-related matters in 2005 without an additional budget (L.N. Ntshangase, pers comm.). HIV/AIDS thus impacts other policies and programmes by deflecting resources from various other sectors. This highlights the importance of mainstreaming HIV/AIDS into the planning and budgeting processes of all ministries, so that necessary HIV/AIDS-related expenditures can be accommodated without upsetting the day to day funding and management of ministry activities.

⁶ Health expenditure data does not reflect Swazis seeking medical services in South Africa

3.4.4 Aid Effects

An issue that has received little or no attention in impact analyses is that of the impact of foreign aid for HIV/AIDS on the economy⁷. Swaziland saw a 951% increase in funds for HIV/AIDS between 2002 and 2004, with the GFATM dedicating US \$54 million for the cause over 5 years (Lewis, 2005). Such large flows can destabilise and affect the macro-economy in several adverse ways. The short-term monetary concerns revolve around the appreciated real exchange rate and inflation. Fiscal concerns are related to budgetary processes resulting from aid volatility and dependence. In light of the fact that Swaziland is seeing a surge of HIV/AIDS related aid flows, it is imperative that the impact of aid for HIV/AIDS on the economy be examined.

The main concern around increased aid flows is that of the appreciation of the exchange rate and the resultant contraction of the tradable sector and negative impact of this on growth⁸. However, since the Lilangeni is pegged to the Rand there is little concern about exchange rate appreciation through nominal rate appreciation from aid inflows. The real exchange rate could still appreciate via inflation but inflation has remained low and stable in Swaziland.

A related concern, particularly for the IMF and the Central Bank, is the toll that increased public spending for HIV/AIDS will take on inflation. However, the chances of increased public spending resulting in inflation may be small in lower income countries⁹. This is because they suffer from unemployment, and operate far below full capacity. Public spending will not, therefore, unequivocally result in rising wages and prices (Rowden, 2004). That being said, if the demand for skilled workers (e.g. health practitioners) who are in short supply rises, then one could expect inflation if the magnitude of public spending is large enough. Since higher spending is required in the medium term due to the nature of the epidemic, inflation no longer remains just a short-term concern. However, as mentioned earlier, inflation in Swaziland has remained fairly low over the years (ranging between 3.4 and 11.7%) and perhaps this worry is overstated.

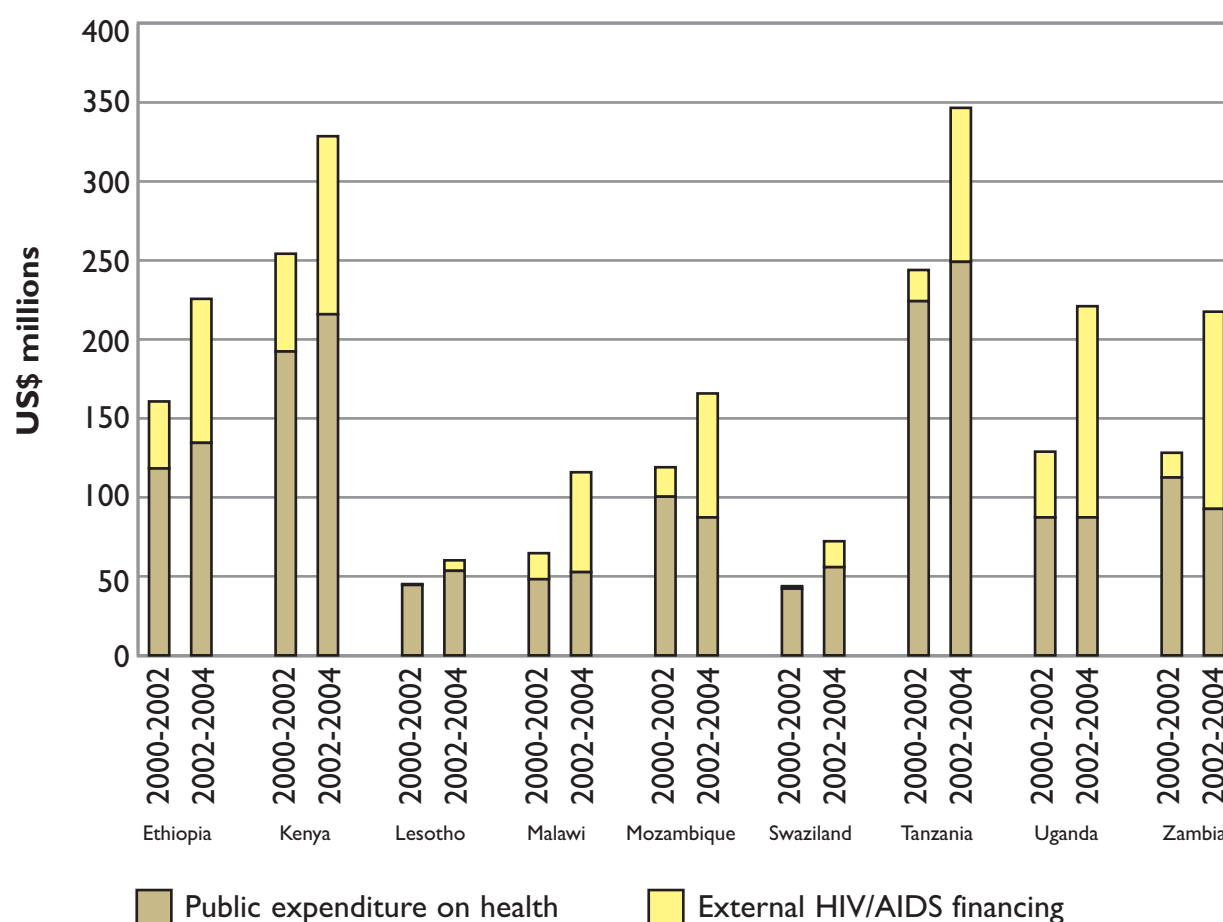
7 Surprisingly, there is very little information on actual aid flows over time. Resource tracking within Swaziland is lacking and systems to monitor the inflows need to be put in place.

8 Theory predicts that with an influx of foreign aid (not solely spent on imports), the real exchange rate will appreciate. Increased spending on domestic goods and services requires that domestic production shift from export oriented tradables/import substitutes to non-tradables. To induce this shift, the price of non-tradables will rise relative to the price of tradables causing appreciation (*the spending effect*). Moreover, both labour and capital will shift to non-tradables due to increased demand (*resource movement effect*). These effects will cause the export sector to shrink. Consequently growth will be stifled since exports are believed to be the drivers of growth. This phenomenon is known as “Dutch Disease”

9 Although Swaziland is classified as a lower middle income country based on GDP, poverty and unemployment is such that, for this purpose, it is seen as exhibiting characteristics of a lower income country

The final issue around aid flows is that of fiscal autonomy. Even though aid for HIV/AIDS may not be a large portion of GDP, it is often an enormous fraction of national health budgets. For instance, in both Uganda and Zambia, aid for HIV exceeded public health spending (Lewis, 2005). In some cases this inflow of aid has been accompanied by declining overall health budgets. However, while aid is an increasingly large portion of total health expenditure in Swaziland it is still a small proportion compared to other countries within the region (see Figure 3.7). In other countries in Sub Saharan Africa, a large proportion of health budgets also financed by aid (e.g. 70% in Uganda). Consequently, several possible fiscal and budgetary problems may arise: aid can distort incentives to raise domestic revenue, planning processes are affected, and donors may have greater power over health policy. In addition programmes may become aid dependent, vulnerable and unsustainable.

Figure 3.7: Trends in Domestic Public Health Funding and External Financing for HIV/AIDS, 2000-2004



Source: Lewis (2005)

As a counterpoint, aid could result in an increase in GDP as AIDS-related expenditure will stimulate aggregate demand and raise GDP. Once again, there is insufficient data to substantiate and investigate this claim.

In sum, while there are possible deleterious effects of increased aid on the real economy, to some degree Swaziland seems not to be in danger by virtue of its pegged currency and low inflation. Moreover, the gains in productivity and improved human capital from the increased expenditure will in the long run outweigh the possible costs. A close eye must be kept, however, on the health budget vis à vis aid flows for HIV/AIDS.

3.5 Impact on Income Inequality, Human Development and Poverty

Looking at the macro-level, this section discusses the impact of HIV/AIDS on income inequality, human development and poverty.

3.5.1 Poverty

Poverty and HIV/AIDS exacerbate each other – poverty is both considered a driver and result of the epidemic. In the 2005-2006 budget speech, the Minister of Finance stated that high unemployment, food insecurity and HIV/AIDS have together resulted in a 3% increase in poverty in the last year, with 69% of the population below the poverty line.

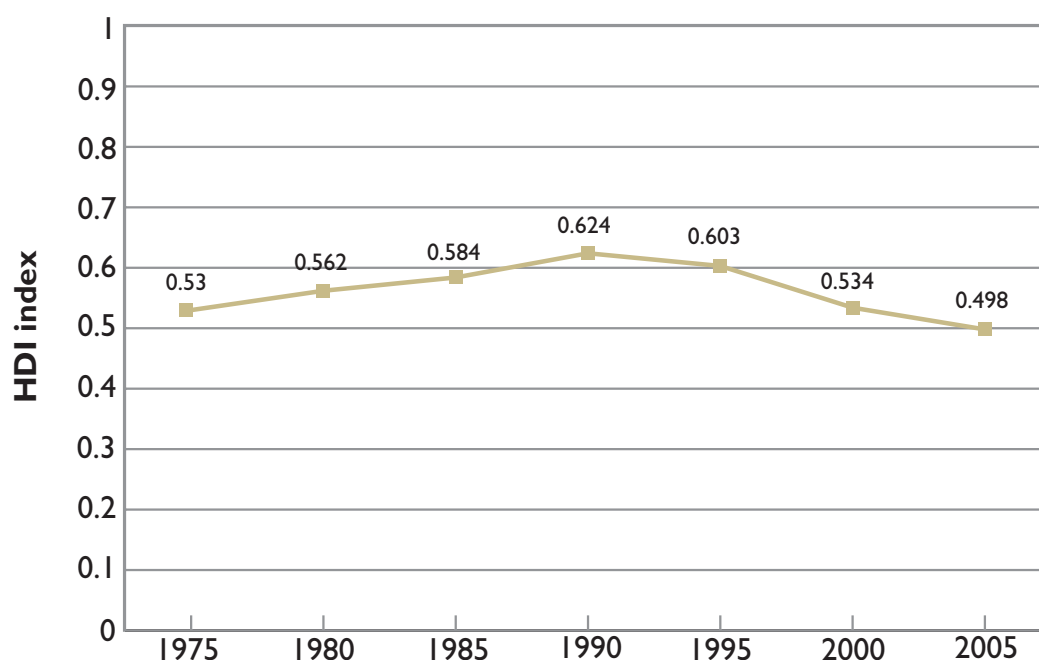
HIV/AIDS can trap individuals in poverty, and it can do so in several ways. First, the poor deplete savings and sell assets in order to cope with the expenditures associated with HIV/AIDS. The depletion of assets not only makes the poor more vulnerable to shocks, but also deters productive and efficient economic activity. Second, HIV/AIDS affects the ability of children to escape from poverty in the future by affecting their human capital accumulation through formal and non-formal education. Third, the main asset that most poor have is their labour. HIV/AIDS impairs this asset. Rural households lose agricultural expertise and income when a family member falls sick. Also, the need to care for sick members impairs the healthy household member's ability to generate income. The link between poverty and HIV/AIDS is dealt with in detail in chapter 5.

3.5.2 Human Development

Since income is an insufficient measure of deprivation and well-being, it is important to look at human development for a more holistic understanding of

poverty. HIV/AIDS very obviously affects human development by compromising health, education and mortality. In fact it is now widely believed that the HIV/AIDS epidemic has single-handedly undone the human development gains of the last few decades in Swaziland. The Human Development Index is lower today than it was in 1975, as illustrated in Figure 3.8. life expectancy has dropped from 57 years in 1997 to 40 years in 2003, as already discussed in chapter 2 (PRSAP, 2003). The impact on education and health is further discussed in Chapter 4.

Fig 3.8: Human Development Index Trend, 1975-2003



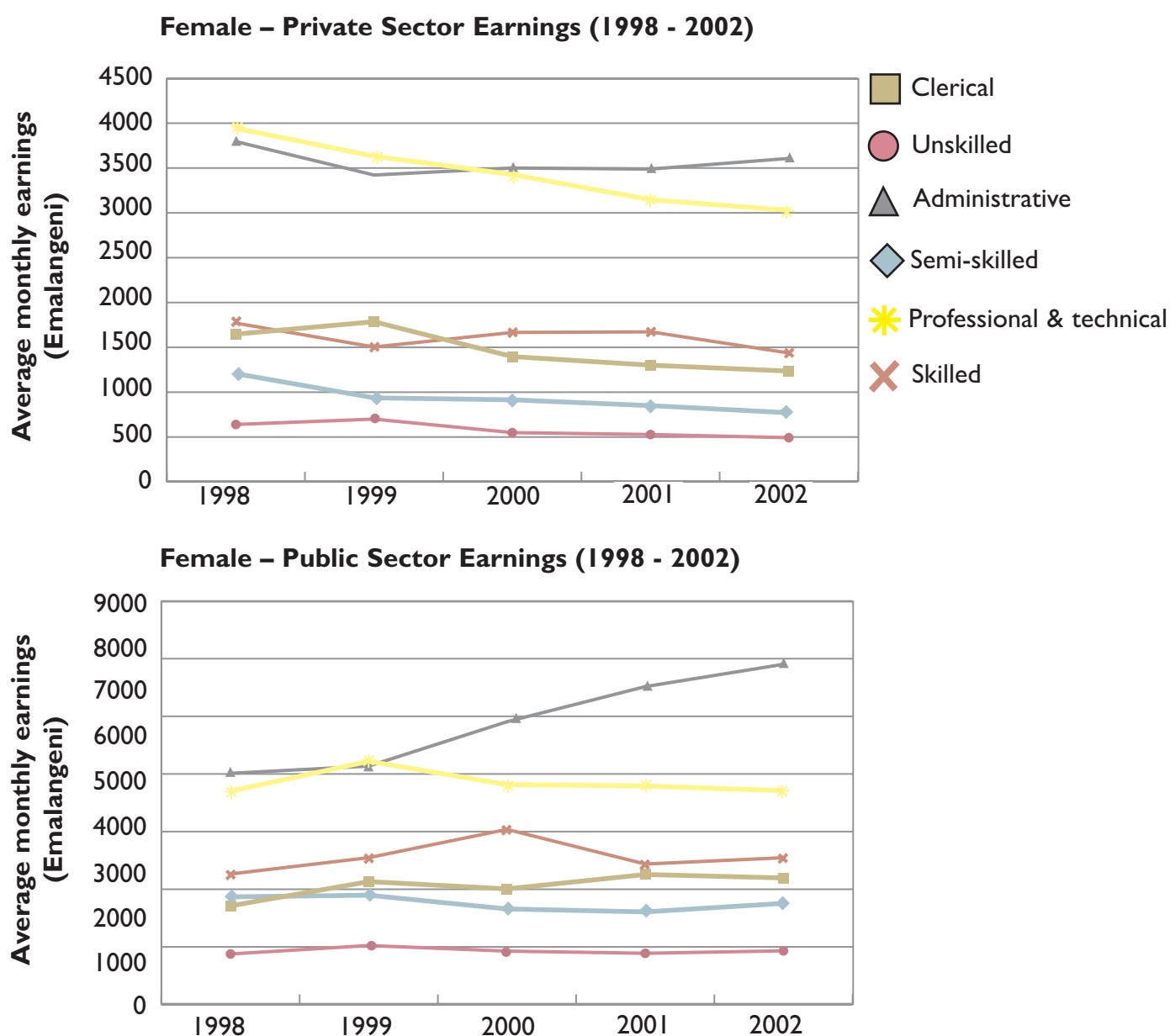
Source: UNDP (2005)

3.5.3 Income Inequality

The impact of HIV/AIDS on income inequality depends on how the labour market and wages respond to the epidemic. If HIV/AIDS raises the real wages of the skilled due to labour shortages, or results in a decline in labour use through movement to capital-intensive production, then one could foresee an increase in income inequality. The extent of the impact on wages also depends on whether prevalence rates differ by skill level. It is therefore difficult to predict which way

income inequality will go. The real wage trends shown in Figure 3.8 depict the wage gap between the skilled and the relatively unskilled in the public sector as widening (and there is no clear trend for the private sector). There is no way of ascribing these trends to HIV/AIDS in particular, but it is a possibility that HIV/AIDS exacerbates this divide.

Figure 3.9: Average Monthly Earnings by Skill Level (1998-2002)



Source: MOEE (2002)

Note: Trends are similar for Males

3.6 Concluding Remarks

While the impact of HIV/AIDS on the economy is difficult to pinpoint without rigorous statistical analysis, the economic trends observed give reason to believe that there is an impact being felt. HIV/AIDS, alongside with an unfavourable economic climate, has reversed the developmental gains of the 1980s and 90s. Swaziland's stagnant economy is suffering from increased mortality, increased absenteeism, lower investment, increased fiscal deficits and increased poverty. Moreover, human development has unequivocally been compromised.

This developmental downturn can be mitigated through the roll out of ART. In light of this, the scaling up of the free provision of ART and the increase in workplace programmes within both the private and public sector are encouraging developments. However, according to the Joint Review conducted in 2005, funding for a fully-fledged ART programme was found to be insufficient and delivery systems needed to be strengthened. The private sector has an important role to play in providing treatment, and the creation of workplace programmes must be encouraged. Moreover, the public sector response requires a coherent policy as well as additional resource allocation from the national budget. Without these basic responses, Swaziland's economy is likely to deteriorate further and may fall into crisis in the long-term.

4. Social Services and Welfare

Whereas the macro-level impact of HIV/AIDS on Swaziland's economy and society is hard to isolate, the impacts of the epidemic are increasingly manifesting themselves in the ability of individuals to access health, education, and social welfare services. HIV/AIDS is a cross-cutting issue that has the potential to impact both the Swazi population's demand for such services as well as the degree to which these services can be provided publicly. Access to such services, in turn, will shape economic growth, human development, and poverty levels in Swaziland.

This chapter begins by exploring the impact of HIV/AIDS on the demand and supply of health services in Section 4.1. Section 4.2 examines impacts on the supply, quality, and demand for education. Section 4.3 considers the impacts on social welfare, and section 4.4 presents concluding remarks.

4.1 Impact of HIV/AIDS on Health Care

Health services are tied to the preservation of human capital. The previous chapter has already highlighted the adverse impact that HIV/AIDS is having on human capital. In addition to taking a toll on human capital, HIV/AIDS is compromising human development in Swaziland, as is evidenced in the drop in life expectancy.

This section will take a closer look at the impact of HIV/AIDS on the demand and supply of health services, drawing heavily from a recent health sector impact study commissioned by the MOHSW (HDA & JTK Associates, 2005).

4.1.1 The Swaziland Health Care System

The infrastructure of the health care system in Swaziland is relatively strong in comparison to that of other countries in the region. The system includes public, mission and private facilities that operate at three delivery levels: 162 health clinics; 12 health centres and 8 public health units; and 7 hospitals (HDA & JTK Associates, 2005). Primary care is also provided through outreach services and Rural Health Motivators in communities. Access to care is good, with 80% of the population living within 8km of a health facility, but transport and financial obstacles remain a challenge particularly for the chronically ill living in rural areas (HDA & JTK Associates, 2005).

Mission and private health care providers comprise a substantial part of the health system, and together they employ almost twice as many doctors as the

public sector (WHO & MOHSW, 2004). Mission facilities provide the core hospital services in two regions and these, as well as other non-governmental health care services, are supported by government subsidies.

As mentioned in section 4.4.3, the health budget as a share of the total budget has been static and stands far below the Abuja target of 15%. As emphasized by several informants, this raises concerns over the long-term robustness of Swaziland's health care system in the face of one of the severest HIV/AIDS epidemics in the world. This financial constraint to strengthening the capacity of the health sector is particularly worrying as it is compounded by other challenges that the sector has been faced with over the past years. These are to a large degree independent of the impact of HIV/AIDS. Most serious among these is the growing shortage of skilled health workers, particularly experienced nurses. Many nurses are permanently drawn into the private sector or health care systems in other countries because of higher salaries and better working conditions, thus contributing to a depletion of the nursing workforce, which will be further discussed in section 4.1.3 (WHO & MOHSW, 2004).

4.1.2 Impact on the Demand for Health Services

The impact of HIV/AIDS on the health care system is most evident in the sharp rise in demand for care for AIDS-related conditions, and the health care burden has increased heavily over the past few years (HDA & JTK Associates, 2005). A survey conducted by SNAP in the four regional hospitals revealed that in 1998 already an average of 45.9% of inpatients was infected with HIV (SNAP, 1998). In the qualitative fieldwork carried out for the 2005 health impact study, health workers reported that morbidity due to HIV/AIDS has undeniably led to significant increases in patient loads at all levels of the health system. This has been accompanied by an increase in overcrowding in wards, lengths of stay, and mortality rates, which together have put an increasing strain on the health care system (HDA & JTK Associates, 2005).

Unfortunately, the poor quality of available health statistics from facilities precludes an in-depth analysis of trends in inpatient admission and bed occupancy rates. However, signs of the expanding burden are evident elsewhere, particularly when looking at admissions for opportunistic infections that are strongly associated with HIV/AIDS such as TB. While rates of TB patients had been falling prior to 1990, rates have risen substantially with an almost fourfold increase between 1990 and 2004, from 210 to 820 per 100,000 population (HDA & JTK Associates, 2005). This is indicative of the rising health care burden due to AIDS as the incidence of TB is driven by HIV. In 2004 it was estimated by the WHO that 80% of adults in Swaziland with TB were HIV positive. Rising TB admissions in hospitals present a particular challenge because of the length stay, in comparison with other major conditions.

Escalating needs of HIV/AIDS patients and the diversion of staff to deal with these also threatens to “crowd out” care for other patients, and health statistics and reports from health workers suggest that this is indeed already happening (HDA & JTK Associates, 2005). For example, WHO and MOHSW (2004) report that there have been several cases where staff have been deployed away from fulfilling the duties of their post to work in a different (HIV/AIDS-related) post, such as the deployment from general care provision to roles delivering ART.

Other aspects of the increasing burden of health care due to HIV/AIDS are harder to capture. To date, little information exists on the degree to which individuals, families, and communities are shouldering the burden of care, or the extent to which people living with HIV/AIDS are turning to traditional healers (HDA & JTK Associates, 2005). It is believed that 80% of Swazis seek services from traditional or alternative health practitioners prior to turning to the western health care system, so it is likely that demand for such services is rising with the increasing numbers of individuals suffering from AIDS-related illnesses (GOS, 2005)

4.1.2.1 Antiretroviral Therapy

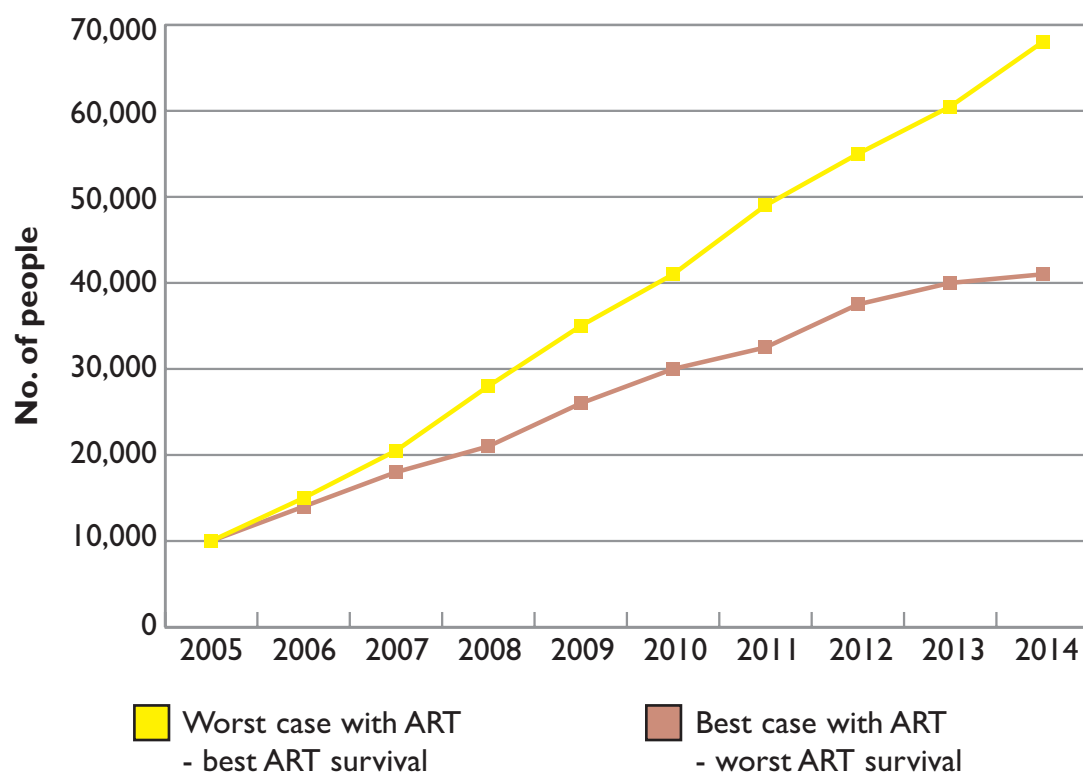
The number of individuals receiving antiretroviral therapy (ART) in Swaziland has risen dramatically in the past two years due to the provision of free ARVs initiated by the government in December 2003, and the launch of the GFATM programme in 2004 in support of ART. At the beginning of 2004 about 600 people had access to ART, and by the end of 2005 this number stood at 13,006 people, thus meeting the national “3 By 5” targets of reaching over 13,000 people by end of 2005 (MOHSW, 2005).¹⁰ These statistics remain weak as they are drawn from a new patient information data collection system that has recently been put into place, however they give an idea of the large scale-up that is occurring (V. Okello, pers comm.).

The 2005 health impact study provides projections of adults receiving ART, taking into account the Global Fund proposal estimates until 2010 and recent ART enrolment levels (see Figure 4.1). These include scenarios for the “best”/“worst” cases of the HIV/AIDS epidemic and “best”/“worst” case assumptions about the duration of patient survival time once having begun ART.¹¹ Both scenarios indicate that numbers will increase dramatically because of new and ongoing ART adherents.

10 This number is in agreement with targets for Swaziland under the WHO’s “3 by 5” Initiative

11 Demographic modeling of the HIV epidemic as a basis for health care projections was done using the Spectrum model (Versions 2.35 and 2.36), calibrated in accordance with the standard assumptions used by the CSO. SPECTRUM outputs were used as inputs for a disease staging model to explore the effect of different “best” and “worst” case survival patterns of individuals on ART. The “best” and “worst” case survival curves are derived from a range of Southern African and developed country situations, including estimates by ART practitioners and published survival data in Swaziland. It is assumed that the percentage of patients lost by the end of year one of ART is 15% (best) and 20% (worst) and by the end of year three is 30% (best) and 50% (worst) (HDA & JTK Associates, 2005).

Figure 4.1 Projected Numbers of People on ART, by Scenario



Source: HDA & JTK Associates (2005)

Several informants voiced strong concerns about the ability to sustainably finance ART over the long-term without compromising resources for the provision of other non-AIDS related health care services. It is projected that if all ART needs are fully met, the costs in 2010 could equal 70-85% of the Ministry of Health and Social Welfare's current budget (HDA & JTK Associates, 2005). Such costs would have to be incurred, however, to ensure that efficient and cost-effective service delivery systems are put in place and to minimise existing risks of drug shortages.

4.1.2.2 Projected Needs for Health Care

In addition to raising concerns about the financing of ART over the long-term, these numbers have major implications for the impact of HIV/AIDS on needs for health care. On the one hand, the management of such a large ART programme presents new challenges for an already overburdened health system, including handling an increasingly large number of routine ART service visits. It is estimated that ART provision to even half the amount of individuals requiring

ART each year would require an increase in outpatient service capacity of about 20-30% (HDA & JTK Associates, 2005). The large queues observed at the VCT centre and ART lab at Mbabane Government Hospital on high volume days reveal that these challenges are already very real.

It is important to keep in mind that although current targets are met at over 13,000 accessing ART, this number represents only about one third of individuals who are estimated to be in need of ART. The medical needs of the remaining two thirds will continue to put a strain on the health system.

On the other hand, ART has the potential to ease hospital inpatient loads and some of the associated challenges identified above. However, the need for inpatient services, TB care services, and home based care needs are not projected to drop below current levels in Swaziland despite ART (HDA & JTK Associates, 2005). For example, although the projected number of medical beds required for HIV/AIDS is lower with the provision of ART (ranging from about 1500 to 2000 beds), the number remains high and the projected hospital bed needs already surpass current estimates of the total bed capacity of around 1000 beds.

4.1.3 Impact on the Supply of Health Services

HIV/AIDS also impacts the health care system by reducing the ability of staff to supply health care services, as they too are infected and affected by the epidemic. Although there are no data on HIV prevalence in health sector staff, these levels most likely approximate levels recorded in ANCs, particularly for nurses who generally fall within the same demographic description. Staff attrition, increasingly occurring as a result of deaths, is a problem at all levels of the health care system. According to the health impact study, the death rate in 20-49 year olds in the MOHSW was 4.9% in 2004 (HDA & JTK Associates, 2005). While uncertainty exists about the exact degree of HIV/AIDS impact because of incomplete data on previous death rates, projections indicate that without ART 1 in 20 MOHSW staff could die every year by 2009. With ART, between 180 and 460 deaths could be averted by 2010. This highlights the important role that ART can play in mitigating the impact of HIV/AIDS on the health sector, both in averting deaths as well as reducing the costs borne by government due to productivity loss and increased pension and training expenses.

Skilled and experienced staff that have been lost, especially nurses, have proven to be very costly and difficult to replace, in part due to government bureaucracy which hinders the human resource planning capacity of the MOHSW. One source estimates that, for the year 2003 alone, 277 nurses would need to be replaced due to HIV/AIDS and retirement, and the cost for training them would be almost E 6.5 million (Caltabiano, 2003). Many posts have

remained vacant because the pool of qualified professionals in Swaziland is small and there is a migration of staff from the public to private sector (WHO & MOHSW, 2004). MOHSW staff establishment registers reveal that almost 12% of nursing posts and one-third of medical professional posts are vacant (HDA & JTK Associates, 2005). Vacancy levels at Mbabane Government Hospital were equal to 17 percent of staff capacity in 2004, and for three rural hospitals this rate ranged between 29% and 45% (WHO & MOHSW, 2004). As can be seen in Table 4.1, the decline in medical practitioners between 2001 and 2003 is evident and reflects a 13% drop in two years. It is important to note that, with regard to depleting human resources in the Swazi health care system, HIV/AIDS is exacerbating a pre-existing problem.¹²

Table 4.1: Distribution of Doctors by Sector in Swaziland, 2001-2003

	Government		Mission		Private		Industry		Total	
	2001	2003	2001	2003	2001	2003	2001	2003	2001	2003
General Practitioners	46	43	20	17	53	48	10	9	129	117
Specialists	21	16	9	7	20	20	1	1	55	43
% of total doctors in year	36%	37%	16%	15%	40%	43%	6%	6%	100%	100%

Source: Swaziland Medical and Dental Council Reports 2001 & 2003, in HDA & JTK Associates (2005)

In addition to attrition, impacts felt in rising absenteeism rates - and the accompanying decline in performance - can largely be attributed to HIV/AIDS because of increasing time taken off by staff due to illness, compassionate leave, and caring for sickness in the family. According to the 2005 health impact study, many health workers pointed out that HIV/AIDS has also considerably affected performance by decreasing morale and increasing stress levels, therefore heightening the possibility of "burn-out" and compromising the quality of service delivery.

4.1.4 What does this mean for the health system in the long-term?

The impact of HIV/AIDS is already being felt in the health sector through the dual

¹² A majority of doctors working in the public sector are from other African countries. Swazi doctors, trained abroad due to the absence of a college of medicine, often chose to permanently relocate to work abroad where pay and work incentives are greater (Caltabiano, 2003). Whereas there are financial inducements for doctors from overseas to work in Swaziland, there are no incentives or requirements in place to keep Swazi doctors in-country after they are trained abroad (WHO & MOHSW, 2004). The training of doctors, as well as pharmacists and lab technicians, which occurs abroad makes it difficult to approximate the future supply of health personnel. Health worker training within Swaziland occurs at different sites, further complicating the calculation of future supply of medical personnel and the associated costs (HDA & JTK Associates, 2005).

and simultaneous effects of increasing demand for care and decreasing ability of the health system to provide for care. These negative impacts reinforce one another and, if the projections of rising staff attrition and rising needs for care and ART described above are correct, threaten to destabilize the health system in the long run.

Over the long-term, the increasing demand for health care and decreasing ability of the government to provide it will translate into a substantial drop in service quality and health system effectiveness. HIV/AIDS is already commonly perceived to have played a large role in compromising the quality of patient care as a result of rising patient loads with complex HIV/AIDS-related illnesses, in combination with staff shortages and low morale (HDA & JTK Associates, 2005). With the current HIV prevalence level, it is inevitable that the health system will have to cope with a substantially larger case-load in years to come in the provision of care and treatment. The capacity of the health system to persevere in the face of HIV/AIDS is what will, to a large degree, determine the impacts of the epidemic on the rest of the economy and society. The effects of a struggling health care system will reverberate throughout the country over the long-term and, in order to prevent this, committed actions need to be adopted now.

That being said, the MOHSW has recently made commendable progress towards carrying out important aspects of the response, including ART scale up, PMTCT roll-out, and VCT site establishment, as can be seen in table 4.2.

Table 4.2: Health Response Scale-Up in Swaziland, 2004-5

Response Activity	End of 2004	End of 2005
Sites offering PMTCT	17	74
Sites offering VCT	21	37
Facilities offering free ART	8	17

Source: T. Hlophe, pers. comm. (2005) and F. Dlamini, pers. comm. (2006)

Progress in these areas, however, has occurred at different rates and in some regions of country more than others, and still has a long way to go before reaching the level necessary to address the challenge posed by HIV/AIDS (HDA & JTK Associates, 2005). Other areas of the response, including strengthening the thinly-stretched and fragmented home-based care (HBC) system, providing post-exposure prophylaxis (PEP) for abuse victims and responding to the impact

of HIV/AIDS on staff through the implementation of the workplace policy initiated in 2004, remain weak. Many of these response areas are still in the nascent phase and, in the case of HBC, have come onto the scene late given the maturity of the epidemic in Swaziland.

Compared to other African countries, Swaziland's health care system is relatively strong, as evidenced in the basic health indicators displayed in table 4.3.

Table 4.3: Comparison of Basic Health Indicators

Basic Health Indicators	Swaziland	Sub-Saharan Africa (Average)
Percentage of 1 year olds fully immunized against TB (2003)	97	75
Percentage of 1 year olds fully immunized against Measles (2003)	94	62
Percentage of births attended by skilled health personnel (1995-2003)	70	41

Source: UNDP (2005)

The country's health system is therefore in a good position to be strengthened and mobilized to avoid the deterioration of health services and effectively mitigate the impacts of HIV/AIDS on itself, and by extension on the rest of the country. In order for this to happen, however, the health sector response to HIV/AIDS will need to be further intensified. The response must be comprehensive, backed by additional financial resources, and complemented by an attempt to strengthen the health care system as a whole. The current allocation of public resources to health (as discussed in section 3.4) fails to indicate a true priority being given to the health sector by government.

4.2 Impact of HIV/AIDS on Education

There is a widespread recognition of the primacy of education in furthering human development. It is increasingly becoming clear, however, that HIV/AIDS can have a multiple and deleterious impact on education via three main channels: the supply of education, the quality of education, and the demand for education (Carr-Hill *et al.*, 2002; Gunderson, Kelly & Jemison, 2004).

In 1999, the Ministry of Education (MOE) conducted an impact assessment study to look at the potential effects of the epidemic on the education sector and made projections of future impacts (MOE, 1999).¹³ The following sub-sections will attempt look at the degree to which these impacts are manifesting themselves in Swaziland, although data available in this area are quite limited.

4.2.1 The Education Sector in Swaziland

The Swazi formal education system officially begins at age six and includes seven years of primary education, three years of junior secondary education plus two years of high school education, followed by tertiary level education. Pre-primary education services are offered predominantly through private or community-based establishments (EC, 2004).

The government of Swaziland's commitment to develop the education system is evident in the National Development Strategy (GOS, 1999), the Education for All (EFA) Plan of Action (MOE, 2002) and the draft Universal Primary Education (UPE) Plan of Action (MOE, 2005). The government allocates a considerable amount of the national budget to education, which according to budget estimates equalled just over 25% of the recurrent budget in the financial year 2004/5 (MOE, 2004/5). These investments in education have paid off and the education system has made important gains since independence, including achieving universal primary education by 1985 (MOE, 2005).¹⁴ Also, education statistics for the past few years show that performance, enrolment, repetition, and drop-out rates are similar for boys and girls.

One area of weakness in the education sector is the fee paying education policy in the country, which creates obstacles for children who cannot afford fees for access to education.¹⁵ Another is the high rate of drop-outs, repetitions, and average number of years taken per student to complete primary education, which points to inefficiency in the system's ability to deliver educational services effectively (CSO, 2003). Repetition rates in primary schools in 2003 averaged 16% and as few as 13.5% of children who entered the system completed the secondary school cycle. Large differentials exist between gross enrolment ratios and net enrolment ratios at primary and secondary level in Swaziland. This means that there many pupils are not in the appropriate grade for their age.¹⁶

13 The Spectrum Model was used as a basis for modeling projections in this MOE report, from the period of the 1991 Household Survey to 2016

14 This achievement was not sustained

15 Fee amounts vary across schools and are set by each school committee. Fees are collected to cover building and non-wage costs for each school, as the MOE is only responsible for providing teachers and, in the case of primary schools, textbooks (EC, 2004)

16 Gross Primary Enrolment Ratio: number of students enrolled in primary level education, regardless of age, as percentage of entire population of official primary school age; Net Primary Enrolment Ratio: number of students enrolled primary level education who are of official school age, as a percentage of entire population of primary school age

A third weakness is that resources are disproportionately skewed towards tertiary education. Current public expenditure for primary education is allocated 37% of the budget even though 77% of the school-going population is enrolled at the primary level, and this percentage is low compared to other developing countries (MOE, 2005).

The impact of HIV/AIDS is likely to be felt at all levels of the formal education system. HIV/AIDS can also have a negative impact on informal education such as the intergenerational transfer of knowledge from parents to children, but this impact is hard to quantify (Gertler et al., 2003; Bell, Devarajan & Gersbach, 2003). In the following sections the focus is on the impacts on primary and secondary education in the formal education sector, as this is where there are more data available.

4.2.2 Impact of HIV/AIDS on the Supply of Education

The supply of education is affected as sharp increases in morbidity and mortality, due to AIDS, lead to increased absenteeism and loss of skilled educators and system managers. This is either because they themselves fall ill or because they are caring for sick family members or orphans (Gunderson, Kelly & Jemison, 2004). Assessing the impact of HIV/AIDS on teacher supply is difficult, however. This is because data on the supply of teachers in Swaziland are very weak and, as in other sectors, HIV/AIDS is stigmatising and rarely stated by employees as the reason for absenteeism or permanent withdrawal from work (MOE, 1999).

Available statistics on the supply of primary and secondary school teachers fail to show a downward trend (CSO, 2003). There are strong reasons to believe, however, that this data masks the real effects that HIV/AIDS is having on the supply of educators in Swaziland. Although the MOE has in recent years been working to improve reporting mechanisms, reporting on attrition and absenteeism continues to be compromised because of issues of stigma and discrimination (L. Vilakazi, pers comm.). When it comes to HIV/AIDS, teachers are afraid to disclose the reasons for their rising absenteeism to the head teachers in their school. Even when head teachers know that one of their teachers is suffering from AIDS-related illnesses and are increasingly absent, many are afraid to report this to the MOE because they fear that this would result in the loss of employment for one of their staff. Also, MOE policy allows for teachers to be on sick leave for up to 6 months while still remaining on the payroll, receiving a full salary, and additionally for 3 months receiving a half salary (L. Vilakazi, pers comm.). This means that data on total numbers of teachers includes individuals who could in fact be absent for well over half a year or, if school holidays are taken into account, nearly an entire year.

The lack of accurate information on absenteeism levels itself presents a challenge as it undermines the ability of head teachers and the MOE to plan accordingly to deal with attrition. The number of temporary teachers is on the rise, which also adds an additional element of instability into the system, further frustrating the ability for planning and management (Musi et al., 2003; EC, 2004).

Although data are not available on the number of teachers who are infected with HIV/AIDS, it is fair to assume that infection rates reflect the very high estimated rates in the general adult population. Given that these rates far exceed those for the school age population, a shortage of teachers relative to students can be expected. As is the case in the health sector, this impact exacerbates a pre-existing human resource shortage. Prior to the epidemic, the sector had already been facing the challenge of filling posts in rural areas.

The 1999 MOE HIV/AIDS impact assessment projected that, as a consequence of HIV/AIDS, for every teacher that would have needed to be trained in the years leading up to 2016 in the absence of the epidemic, 2.21 will have to be trained in order to maintain education service levels at 1997 levels. In other words, 13,000 will require training, as opposed to 5093. Given that training costs of teachers are quite high, this translates into substantial escalating costs for the education sector.¹⁷ Of course, the expansion of teacher training will be undermined by the impact of HIV/AIDS on the teacher training institutions as well.

Another projection made in the 1999 impact assessment is that sick and death benefit costs associated with teacher morbidity and mortality are estimated to reach up to E1 billion by 2016. When expanded for the wider education system to include non-educators, these are magnified further to E1.725 billion (MOE, 1999). It is worth noting that the MOE projections were not based on a worst-case scenario, and by no means was it envisaged that prevalence levels would reach their current levels (the study estimated that prevalence levels would peak at 23%). The actual impacts of the epidemic on the education sector could surpass these projected impacts – unless decisive action is taken in advance to mitigate such impacts.

An article in the *Swazi Observer* noted that in 2005 the Swaziland National Association of Teachers (SNAT) Co-operative Society recorded almost twice the amount of deaths of its members in comparison to 2004, the figures being 97 and 54 members respectively (Maseko, 2005). It notes that, among other factors, HIV/AIDS is threatening the existence of SNAT by contributing to the decline in membership numbers. Another organization that is endangered by the epidemic is the MOE itself. Infection rates in MOE staff, although they also remain unknown, are also very likely to approximate rates in the general

¹⁷ The MOE impact assessment estimates additional teacher training costs to equal as high as E 400 million for the time period 1999-2016

adult population and hamper the functioning of the Ministry. The skill levels of Ministry officials are also likely to drop as it is increasingly forced to compete with other sectors to recruit staff from an increasingly smaller pool of skilled individuals in the country (MOE, 1999).

4.2.3 Impact of HIV/AIDS on the Quality of Educational Services

The quality of education is compromised by HIV/AIDS due to increased teacher absences and shortages, which cut back class times and cause pupil/teacher ratios to grow (Kelly, 2000a). There is also a deterioration of children's learning abilities within the school environment as a result of the psychological and emotional strain associated with losing a family member to AIDS and facing stigma (Carr-Hill et al., 2002). Also, the financial strain faced by an AIDS-affected household often leads to substantial declines in household food consumption, sometimes by as much as 40 percent. This puts children at a higher risk of being malnourished and can interfere with children's educational performance (UNICEF, 2004a).

The 1999 impact assessment warns that, in the absence of a large increase in the quantity of teachers trained and teaching in the education sector, HIV/AIDS could lead to a rise in the primary school pupil/teacher ratio from the 1997 level of 33.9:1 to above 50:1 by 2006.¹⁸ Primary school teacher ratios did indeed worsen, with the 2000 figure of 35:1 poorer than the 1997 figure (CSO, 1997 & 2000). However, this statistic showed improvement to 32:1 in 2001, 31:1 in 2002 and 2003, and 32:1 in 2004 (CSO, 2001, 2002, 2003 & 2004). These national averages of pupil to teacher ratios are good by international standards. However, this improvement actually reflects a decline in number of pupils, which, as will be discussed in section 5.2.4, suggests deterioration of the education system.

It is important to mention that it is widely acknowledged that this ratio hides the uneven distribution of teachers in schools across the country. In addition, because of the limitations of data on the teacher workforce discussed above, many agree that these ratios do not reflect the reality in schools. A source from the MOE stated that, in reality, classroom pupil sizes have close to doubled over the last few years, with some classes even reaching 70 pupils (L. Vilakazi, pers comm.). This occurs because when one teacher takes an extended leave of absence the remaining teachers must take on the responsibility of teaching the absent teacher's pupils. Primary school field visits in 2003 confirmed that the classes visited tended to have a high pupil/teacher ratio, 1:45/70 (EC, 2004).

18 This projection takes into account the expected decline in the amount of school-going children that need to be educated as a consequence of the epidemic, which will be discussed in the following section

4.2.4 Impact of HIV/AIDS on the Demand for Education

The demand for education is negatively impacted by HIV/AIDS in two ways. First, the demographic impact of HIV/AIDS leads to fewer potential school goers because infected infants rarely survive until school age (Whiteside, 2002). Rising deaths in reproductive-age adults, coupled with lower fertility rates in infected individuals, also mean that fewer children are born. These smaller cohorts will translate into falling school enrolments in the future.

Second, the participation of children in the education system is also determined by whether or not parents and children decide to participate in schooling activities in the first place (Bredie & Beeharry, 1998). The impact of HIV/AIDS on households leads some to choose to substitute away from education in favour of keeping children at home or as labour, thus decreasing enrolment and attendance rates in education, as will be further discussed in chapter 6. This is one of the reasons that children in AIDS-affected households are more vulnerable to educational disadvantage.

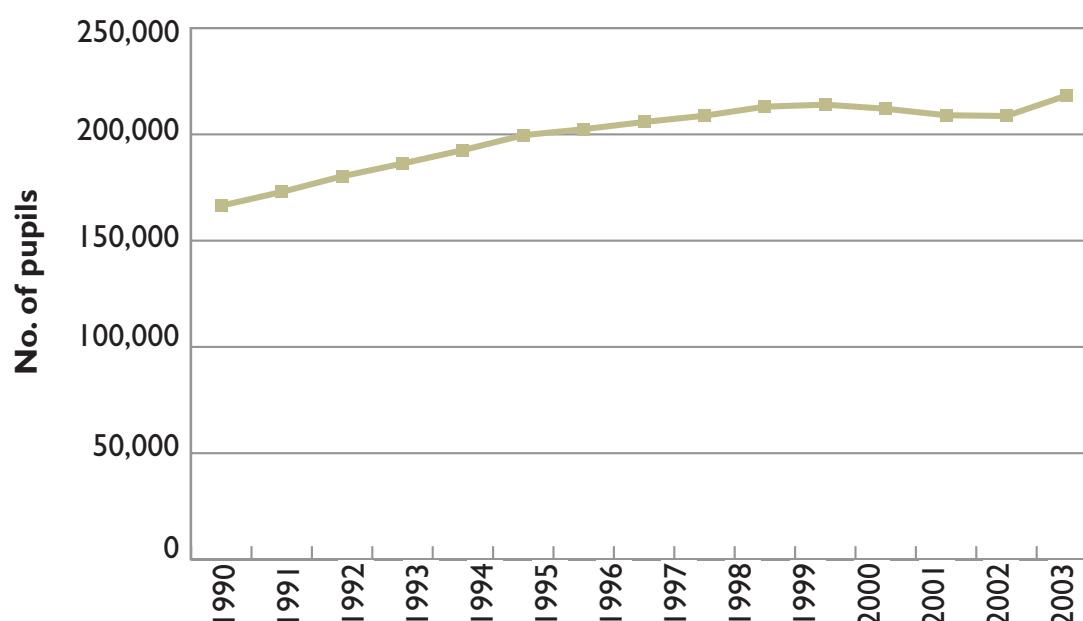
Focus group discussions and interviews with key informants conducted for the 1999 impact assessment showed that most respondents felt that impacts on the demand for education were already “severely” being felt (MOE, 1999). Respondents noted that children were dropping out of school as a result of parents being ill or dying, and they viewed the impact as being a consequence of the lack of affordability of school fees for these children. School administrators pointed out, however, that these impacts were not yet quantified due to the lack of statistics and were hidden by other factors such as drought.

The impact assessment predicted in 1999 that primary school enrolments would continue to grow until 2001, and then Grade 1 attendance would start to drop off and quickly fall in the years to come. Primary pupil enrolment levels rose by an average of 25 percent throughout the period 1989 to 1998 (EC, 2004). More recent education statistics, however, do indeed point to an overall decrease in student enrolments from 2000-2003.¹⁹ The total primary level enrolment declined by an average of 2.5% between these years (see Figure 4.2).²⁰ The gross primary enrolment ratio declined from its 1999 level of 103 percent to 94.3 percent in 2003 (MOE, 2005).

19 The 2003 figure is higher than it would have otherwise been because Community EFA Grants and school feeding schemes were introduced in this year. These interventions are discussed later in this chapter

20 Enrollment rates do not reflect whether or not enrolled pupils are actually attending classes on a regular basis. Attendance data would paint a more nuanced picture of the impact that the epidemic is having as it is a clearer proxy for the demand for education, but no such data was available.

Figure 4.2: Number of Pupils in Primary Schools, 1990-2004



Source: CSO Education Statistics (2004)

The rise in enrolments observed between 2003 and 2004 coincides with the introduction and intensification of efforts to bring children back to into schools, such as the introduction of school feeding programmes and the growing support being provided in the payment of school fees, both which are further discussed below.

The 2004 data may indicate a reversal in the negative trend observed between 2000-2003, however this will only be confirmed with data from coming years. If this is indeed the case, it will attest to the importance of impact mitigation initiatives to cushion the impact of HIV/AIDS on the demand for education.

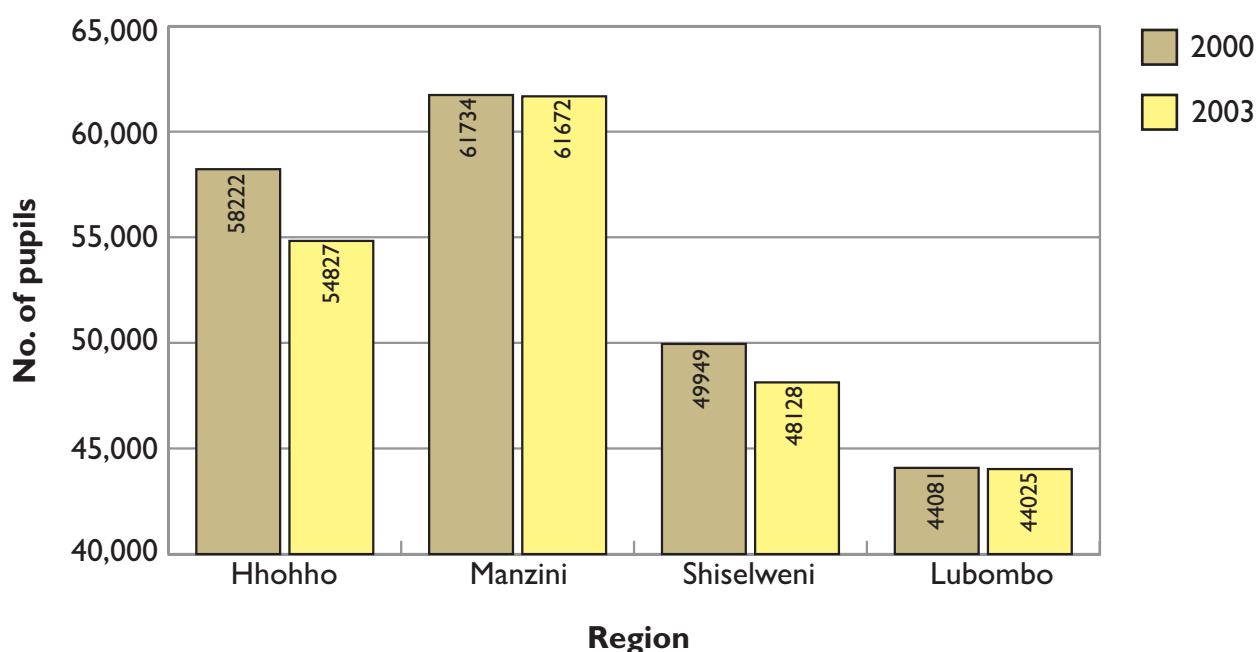
The stagnant economy, high unemployment rate, and rise in poverty discussed in chapter 3 are factors, in addition to HIV/AIDS, that can be contributing to the declining trend in enrolments, and together reinforce each other. All of these can contribute to decreasing household ability to pay school fees. Another possible explanation for this falling trend is the drought, affecting Swaziland from 2000 onwards.

A regional breakdown of enrolment levels in 2000 and 2003, however, reveals that the regions that experienced the greatest drop in enrolment levels (Hhohho and Shiselweni) do not entirely correspond with the regions that have been most severely affected by drought (Lubombo and Shiselweni)

21 Community EFA Grants and school feeding programmes, however, were targeted at schools most affected by drought, poverty and AIDS so disproportionately affect enrollments in different regions

which would be expected if drought was the dominant factor behind this trend (see Figure 4.3).²¹ Looking carefully at the years in question, this declining trend could be a consequence of the long-term effects of the sharp spike in HIV/AIDS infections which occurred in between 1992 to 1996, now beginning to manifest themselves almost a decade later (EC, 2004).²²

Figure 4.3: Primary School Enrolments per Region, 2000 and 2003



Source: CSO Education Statistics (2000 and 2003)

There are a variety of avenues through which HIV/AIDS can be negatively impacting the demand for education in Swaziland, including declining household wealth, increased housework and caring for the sick, and orphanhood. These will be examined further in chapter 5.

4.2.5 What does this mean for the education sector in the long-term?

HIV/AIDS, through its simultaneous impacts on the supply and demand for education patterns, is posing an increasingly large challenge to the management of the provision of educational services. The HIV/AIDS impacts on the total

²² Average time lag between HIV infection and death is estimated to be between 8-10 years

number of students and teachers in the education system, and the lack of accurate, up-to-date information on both of these, undermines MOE ability to plan for education over the medium and long-term (e.g. training and placement of teachers, and construction of schools). This has implications for the effectiveness and efficiency of the education system as a whole. The ramifications of this for Swazi society and for the economy are huge, as it means that the generation that outlives the epidemic will emerge with an inferior skill-base to draw from in the pursuit of a productive and prosperous life in the future. Education is important at all levels. Primary and secondary education play a key role in instilling important life-skills and attitudes that can lower the risk of HIV infection, in addition to passing on basic skills such as literacy which are critical for human growth and socio-economic development. Tertiary education is important because it shapes earning potential and allows for the specialisation of skills in individuals who then go on to play a central role in society, such as doctors, nurses, and teachers. The increase in number of grants given to OVC may, over the long-term, limit the MOE's financial ability to provide scholarship funding at tertiary level for all Swazis, although to date no such impact has occurred as the funds are drawn from different sources (B. Ndlovu and R. Tsabedze, pers. comm.). The higher education system is, however, dependent on an effective primary and secondary education system, as its students are drawn from the latter.

In the context of HIV/AIDS, education is also particularly important because it can render the transmission of HIV less likely. In 2002, a Community Health Survey in Swaziland found that condom usage was higher among individuals with secondary and higher education, and that these respondents were more likely to point to abstinence or condoms as a way to protect themselves than less educated individuals (MOHSW, 2002). Over the long-term, education can contribute to poverty reduction and gender equity in society, both of which reduce vulnerabilities that can contribute to HIV infection (Kelly, 2000b).

The education sector therefore not only needs to be cushioned against the impact of the epidemic, but its capacity as a tool to curb the epidemic needs to be bolstered. As the epidemic overtakes the health sector in the near future (as discussed in section 4.1) there is a risk that resources might be diverted away from education and other arenas to deal with these pressing demands. However, the impoverishing effects of HIV/AIDS put a strain on the ability of homesteads to cover costs such as school and examination fees. This makes it imperative that the government, as well as NGOs and the private sector, intervene to ease this burden if educational standards are to be preserved.

Current responses reveal that there is a strong commitment to mitigating the impacts of HIV/AIDS, as well as poverty and drought, on the education sector. These include the following:

- GOS started providing textbooks for primary school students in 2002, and more recently free workbooks
- In 2002, UNICEF and GOS led an initiative for the provision of school meals, reaching almost 30,000 children in 80 schools in 2003. An assessment of the programme found positive outcomes including near elimination of dropouts and absenteeism. WFP and other NGOs took over this initiative in 2004, expanding coverage to 95 schools, and plan to further expand to 150 schools in 2005-2007 (UNICEF, 2003b; UNICEF, 2004b; WFP, 2006). MOE and NERCHA are collaborating to move towards the expansion of school feeding programmes into all primary schools.
- GOS and other organizations are offering assistance towards payment of school fees. In 2003, a GOS/UNICEF EFA community grants initiative helped 7,500 OVC access education in 44 schools and succeeded in bringing 3,000 OVC back into the education system (UNICEF, 2004b). Funds for bursaries for OVC in schools have been provided by the King's Fund and the MEPD. In 2004, GOS committed E47 million in total to cover capitation grants for 83,000 OVCs enrolled in primary and secondary schools disbursed through MOE, including support from UNICEF and NERCHA (NERCHA, 2005). This system of disbursing funds provides E400 per OVC in primary and E1,500, plus exam fees, per OVC in secondary schools.
- The curricula of Sebenta's non-formal literacy classes has expanded to provide basic literacy skills for children who have never attended school and an upper-primary curriculum for children who have dropped out (NERCHA, 2005).²³

The education sector, in spite of these initiatives and to some degree as a result of them, will continue to face significant challenges. One such challenge is that of coordinating the growing number of education-oriented impact mitigation interventions to avoid duplication and ensure country-wide coverage and sustainability. For example, it is imperative that the MOE finalize its HIV/AIDS policy, currently in draft form, and formulate a school feeding policy so that existing interventions implemented by different partners can be harmonized and scaled up to a nation-wide level (MOE, 2005).

Also, the greater the success these efforts have drawing in and retaining students in schools, the greater the challenge in matching rising enrolment rates with a rising supply of qualified teachers. Current responses to mitigate the impact of HIV/AIDS on the supply-side of education are deficient in comparison with those aiming at sustaining and increasing demand, and this imbalance will further strain the human resources in the education sector and decrease the quality of education provided to students.

²³ Sebenta is a civil society organization that provides non-formal vocational education for adults

4.3 Impact on Social Welfare

HIV/AIDS is closely intertwined with poverty, hunger, inequality, and overextended informal safety nets, such as the family. The epidemic intensifies these issues, and vice versa. The lack of social welfare programmes to alleviate challenges faced in any one of these arenas will have detrimental knock-on effects for the others, while any progress made in mitigating the impact of HIV/AIDS, staving off hunger, reducing poverty and inequality, or reinforcing support systems will resonate positively in all of the other spheres.

This section will consider three social welfare issues that will require increased attention as the epidemic matures. Section 4.3.1 will consider the challenge of OVC, section 4.3.2 will look at the question of the elderly, and section 4.3.3. will consider the strain HIV/AIDS imposes on the Swaziland Public Service Pensions Fund.

4.3.1 Orphans and Vulnerable Children²⁴ - *Bantfwana Bendlunkhulu*

HIV/AIDS overwhelmingly strikes young adults, and the demographic impact of this is most manifest in the increasingly large generation of children being orphaned. The challenge posed to social welfare mechanisms by the orphaning of children due to HIV/AIDS is a unique. This is because AIDS is more likely to result in double orphans than other causes of death since the infection of one parent with HIV leads to a higher chance that the other is also infected. Secondly, it is a chronic problem that will expand over the long-term due to the average 8-10 year time lag between HIV infection and death. The number of orphans will continue to grow as parents presently living with HIV develop AIDS and eventually pass away in coming years, even if no new infections occur.

Data on the actual magnitude of the orphan situation in Swaziland are limited.²⁵ The 1997 Population Census did not gather information on the parental death status or socio-economic status of orphans, but it is expected that the forthcoming Demographic Health Survey will provide this much needed data once it is completed.

²⁴ **Orphan:** A child (under 18 years) who has lost one or both parents; **Vulnerable Child:** A child under age 18 is defined as vulnerable if one or more of these conditions apply: parents/guardians incapable of caring for him/her, physically challenged, staying alone or with poor elderly grandparents, lives in poor sibling-headed household, has no fixed place of abode, lacks access to healthcare, education, food, clothing, psychological care, or shelter, or is exposed to sexual or physical abuse including child labour. In Swaziland's RAAAP for OVC (2004), stakeholders agreed to adopt the above definitions as the nationally accepted definition for OVCs (UNAIDS, UNICEF, USAID & WFP, 2004). This definition is adopted here as it takes into account local conceptions of vulnerability and is in line with the UNAIDS standardized definition.

²⁵ This is the case in many countries as this type of data is subject to biases in reporting. Stigma associated with HIV/AIDS often leads to a denial of deaths being AIDS-related and can lead to under-reporting, while over-reporting can occur as families seek out material support

UNAIDS/UNICEF/USAID (2004) estimate that by the end of 2003 around 100,000 children in Swaziland were orphans, of which 65,000 were estimated to have been orphaned by HIV/AIDS – representing a rise of more than 20,000 from two years earlier. Another source estimates that numbers of orphans in Swaziland have increased from an estimated 20,000 in 2000 to 69,000 in 2004 (UNICEF, 2004a).

Swaziland, because of its high HIV prevalence level, will be disproportionately faced with an orphan challenge in comparison with other countries in the region. According to *Children on the Brink 2004*, orphans will equal one in five children in 2010 in the countries with the highest HIV prevalence, such as Botswana, Lesotho, Zimbabwe, and Swaziland (UNAIDS/UNICEF/USAID, 2004). The report estimates that by 2010 orphan numbers are projected to reach anywhere between 120,000 and 130,000 in Swaziland. As presented in section 1.4.4 of this study, the results from the SPECTRUM modelling that was completed, indicate that by 2015 there will be about 110,000 children who have been orphaned as a result of AIDS.

Another projection made in 2001 on the basis of HIV infection rates in the 1990s estimated that, assuming no treatment breakthroughs occurred, 10,000 children would be orphaned on an annual basis between 2002 and 2010 (Stanecki, 2001). The 2005 health impact study points out that, in the most optimistic scenarios, ART will potentially reduce orphan numbers by 10,000 in years to come, but maternal orphanhood rates are still projected to increase in the next 10 years, from current levels of 10-14%, to around 20-25% of all children (HDA & JTK Associates, 2005). Although these numbers are rough estimates, they are nonetheless illustrative of the orphan crisis facing Swaziland.

It is also important to remember that many non-orphan children are also vulnerable. At least one third of children in Swaziland fall within the above definition of OVC and are living in poverty and lack food security irrespective of whether their parents are alive or not (UNICEF, 2004a). A 2000 orphan pilot survey of children at Zombodze *inkhundla* in Shiselweni region found 15.6% of children under 18 with one or both parents deceased (Nakato & Mndzebele, 2000). It was also found, however, that total number of children abandoned was even larger, equalling 21.1% of children with both parents alive. Taking both orphaned and abandoned children into account, this means that 36.7% of the children in the *inkhundla* were living in a vulnerable situation.

Caring for increasingly large numbers of OVC is placing a tremendous economic and social burden on extended families and community networks. There is increasing evidence that these are overwhelmed and no longer capable of absorbing the shock of escalating numbers of children. Among this is evidence

pointing to a rise in numbers of street children and child-headed households, which will be explored in chapter 6 (UNICEF, 2003b; UNAIDS, UNICEF, USAID & WFP, 2004). As these traditional safety nets give way under pressure and there is a breakdown of non-formal family and community institutions that socialize children, the social welfare department will increasingly have to accommodate this challenge through more formalized safety net structures. This puts existing structures – already under-funded and overstretched – on the verge of collapse.

The MOHSW is the primary ministry mandated to ensure that the rights of all children, including OVC, are upheld, and it is supported by other ministries, development partners, and civil society organizations. The Office of the Deputy Prime Minister is the dominant implementing partner for OVC-related initiatives, together with the “OVC Network” which includes a membership of several government and NGOs (UNICEF, 2004b). This work is carried out, however, without formal government coordination, as the “National Policy on Children Including Orphans and Vulnerable Children in Swaziland” remains in draft form (GOS, 2004).

Measures to support OVCs are a central component of the national response. To date, the approach taken has been guided by efforts to maintain children within their communities and strengthen the capacity of communities to support them, including:

- Establishment of “Neighbourhood Care Points” (NCPs) for getting support, food, care and education services to OVC, led by UNICEF and the GOS. By the end of 2004, 324 NCPs were part of the infrastructure for this community-based response, reaching almost 30,000 vulnerable children (UNICEF, 2004b).
- Building of *kaGogo*, or social, centres in each community to promote social responsibility for OVC, spearheaded by NERCHA in collaboration with AMICAALL and the Deputy Prime Minister’s Office. By end 2005, 277 centres were completed (DPM and AMICAALL Quarterly report, 2005).
- Collaboration between NERCHA and MOAC in 2002 to revive the traditional concept of *Indlunkhulu*, or the provision of food from the Chief’s fields for members of the community that cannot support themselves (Drimie, 2004). In 2005 320 fields were planted (NERCHA, 2006).

Challenges to the response include the lack of a strong system to monitor numbers of OVC, which undermines the planning capacity and targeting potential of initiatives to address coverage gaps. Broader data issues exacerbate this problem, for example, the total number of schools in the country is unknown. Also, there is a critical need to strengthen the coordination of above

initiatives to be able to provide a more comprehensive, non-*ad hoc* response in all regions of the country. Stronger collaboration is needed between the organizations involved to avoid duplication, so that they may benefit from, instead of compete with, the services being provided by each other.

4.3.2 The Elderly

The impact of HIV/AIDS on the welfare of the elderly has, to date, failed to attract the attention and resources that it warrants, not only in Swaziland, but around the world as well. Shifting responsibilities for overseeing OVC or caring for the sick to the “community” often means shifting responsibilities to the elderly. This occurs at a time when they no longer have a source of income, their economic, emotional and physical well-being is already deteriorating, and the care that they give is not reciprocated (ULARN, 2003).

Findings from a study conducted by Umchumanisi Link Action Research Network (ULARN) in 2003 revealed that the elderly in Swaziland are to a large extent shouldering the growing burden of HIV/AIDS, poverty and unemployment. Of the 207 elderly (defined as over 55 years) individuals interviewed, only 16.4% were recipients of remittances from their (adult) children, yet 83.1% cared for people in their household and 35.5% of them cared for people not in their household. 81.4% of the elderly with caring responsibilities were looking after grandchildren, and such caring responsibilities fell disproportionately on women.

Programmes aimed at supporting the elderly tend to be insufficient and erratic, and the ULARN study noted that: knowledge regarding the availability of support programmes was generally low; beneficiary selection was seen to lack objectivity; and procedures for accessing support such as state grants were unnecessarily burdensome and prevent those in greatest need of support, such as the disabled, from accessing it. While the elderly are eligible to benefit from the Public Assistance programme, in reality a very small percentage is able to access the programme and the amount of financial support given is insufficient for meeting basic needs (ULARN, 2003). Only 16.9% of elderly individuals interviewed were receiving state grants.

Initiatives that support OVC, such as the subsidisation of school fees and school feeding schemes, indirectly ease the financial burden of elderly caregivers, but these are not enough. For example, OVC have access to the provision of meals at NCPs, but elderly caregivers are not entitled to them (UNICEF – RAAAP Tool 2c, 2004). Efforts to supply farm inputs and food to the elderly also need to be coordinated because a large number of the elderly population in

Swaziland enters old age with limited resources, poor health, and the imminent threat of poverty, and they need support if they are to care for OVC.

4.3.3 Swaziland Public Service Pensions Fund

Swaziland's pension system includes three components: Swaziland National Provident Fund, private pension funds, and Swaziland Public Service Pensions Fund (PSPF) (IMF, 2003). The legal obligations of the government are limited to the latter, and HIV/AIDS threatens to have a negative impact on the PSPF in the medium term. In its 2002 Article IV Consultation report, the IMF notes that the payment of death benefits escalated in the years leading up to 2000, and rose again sharply in 2001 (IMF, 2003). Disability benefits allow for an early retirement without penalty, and death benefits include payment of double the pensionable annual salary as well as spouse's pension and payment linked to number of children. Rising mortality levels due to HIV/AIDS thus present a liability for the government, and threaten to undermine significantly one of the social safety nets put in place by the Government of Swaziland.

4.4 Concluding Remarks

The impact of HIV/AIDS is making it more difficult for individuals in Swaziland to access good quality health, education, and social welfare services. Being deprived of such basic services, however, magnifies the socio-economic impacts of HIV/AIDS. As seen above, HIV/AIDS is increasing the number of children who are forced to grow without the support of their parents and family – and by extension less able to access education services as well as more likely to suffer from abuse – thus making children in Swaziland more vulnerable to contracting HIV (MOE, 2004).

Additionally, the impacts on social services and welfare are not felt in isolation, but instead reinforce one another. For example, the efficiency of ART as a health care response to treating an HIV positive individual is undermined by poverty and hunger (HDA & JTK Associates, 2005).

These factors contribute to setting the stage for a “second cycle” of the epidemic where the socio-economic impact of HIV/AIDS itself, through its impoverishing effects, raises the risks of even higher rates of HIV infection in vulnerable groups (UNICEF – RAAAP Tool 1B, 2004).

To be able to respond effectively in the short term, the health, education and welfare sectors need to be equipped with up to date information for decision-making regarding impacts being felt due to HIV/AIDS. Once provided, this information needs to be utilised for planning. For example, the human resource challenges and needs

identified in the education sector (1999) and health sector (2005) impact studies need to be addressed, and projections should be used inform planning within these sectors.

In order to be addressed in a sustainable way over the long-term, a challenge of such magnitude will necessitate a collaborative response from all sectors, with cooperative efforts at all levels of society: individual, household, chiefdom, *inkhundla*, district, national and international.

5. HIV/AIDS and Rural Livelihoods

This chapter examines the impact of HIV/AIDS and poverty on the livelihoods of individuals, households and communities, as well as the strategies that they use to cope with the epidemic. It should be stressed at the outset that there is a limited amount of literature in Swaziland on the impact of HIV/AIDS at the micro-level in general, and on urban and peri-urban settings in particular. Moreover, since over 70 per cent of the population in Swaziland lives in rural areas and is supported by subsistence farming on Swazi National Land (SNL), the available information about livelihoods focuses mainly on subsistence farming (CSO, 1997). For these reasons, this chapter focuses on *rural* livelihoods.

From a strictly economic standpoint, the impact of the HIV/AIDS epidemic can be viewed in terms of direct and indirect costs. The former primarily consist of out of pocket expenditure, such as medical and funeral expenses, and the latter include the loss of income and labour as a consequence of prime-age mortality or individuals giving up employment to take on care-giving responsibilities. The rest of the chapter is outlined as follows: Section 5.1 describes the direct and indirect costs of the epidemic. Section 5.2 examines coping mechanisms developed in Swaziland as a response to the impact of the epidemic. Finally, section 5.3 concludes the chapter with a discussion of the long-term consequences of these findings.

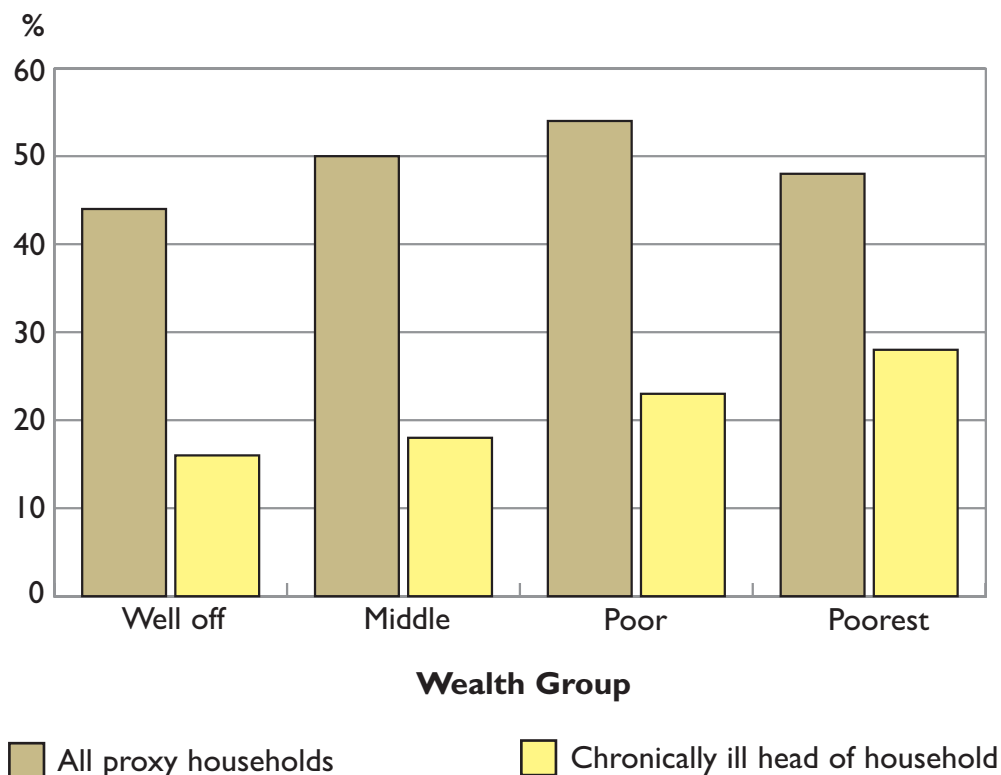
5.1 Impact of HIV/AIDS on Rural Livelihoods

5.1.1 HIV/AIDS and the Household Economy

HIV/AIDS has the potential to impact on the household budget both by reducing sources of income and by increasing household expenditure. A decline or loss of family income due to HIV/AIDS frequently occurs because of higher adult morbidity and mortality in the household. Loss of income may also lead to the deepening of poverty in a household. This is particularly true in the case of HIV/AIDS due to the long duration of illness associated with the disease, which often leads to additional health expenditure. Several studies from countries in sub-Saharan Africa have documented the impoverishing effects of HIV/AIDS on households due to the loss of a primary income-earner's salary. In studies from Zambia and South Africa it was found that the monthly incomes of AIDS-affected households dropped by 66-80 per cent (Steinberg et al., 2002; Barnett and Whiteside, 2002).

The link between poverty and HIV/AIDS is also evident in the Swaziland Vulnerability Assessment Committee (VAC) study completed in 2004. This study shows that whilst the prevalence of HIV/AIDS infection across the country is rather uniform, the incidence of chronic illness in heads of household varies across the country and wealth groups. In general, a higher number of poor people are found in households affected with chronic illnesses, such as HIV/AIDS, than in non-affected households. Figure 5.1 below illustrates this and shows that the “chronically ill head of household” variable occurs disproportionately in the two poorest wealth groups (on the right side of the figure). The highest percentages of chronically ill household heads and poor people can also be located in a particular geographical area, namely in the Lowveld agro-ecological zone.²⁶

Figure 5.1: Proxy Variables at National Level



Source: Swaziland VAC (2004)

²⁶ Since 2001, the Swaziland VAC has highlighted the Lowveld zone as an area of concern (Swaziland VAC, 2004a).

According to the Swaziland VAC (2004) study, the household income in rural Swaziland comes from a wide range of sources. Overall, the largest source of income for all household types is produced sales. For wealthier households, the second largest source of income is remittances, while for the poorer households it is non-farm income.

These findings are consistent with results at the national level from the MOAC et al. (2002) impact study, which showed that an overwhelming majority of the households (87.7%) sold their farm produce to raise income. The second largest source of income in the same study was remittances (50%).²⁷

AIDS is assumed to represent a substantial cost for households in Swaziland, but the existing evidence is mixed. According to one study, no significant increase in health costs for households that suffered an AIDS related death was found (MOAC et al., 2002). However, this result strongly contrasts with the findings in a national survey with a sample size of over 600 households.

This survey found that 62% of the households considered the costs associated with illness and death to be the biggest financial setbacks to the household (Finscope & JTK Associates, 2003).²⁸ This result is further supported by research from other countries in sub-Saharan Africa which show that medical expenditures make up a large share of the household expenditure (see for example, Conticini, 2004).

Burial cost is another large direct cost to the rural households because, as mentioned in previous chapters, AIDS is causing mortality to rise.²⁹ In a survey by Finscope and JTK Associates (2003), 21% of the households surveyed stated that funeral expenses had the most impact on their financial security. This cost is largely borne by rural communities since it is common for HIV-infected urban dwellers of rural origin to return to their communities during the terminal stages of disease (e.g. Murray and Lopez, 1996).

A number of costs associated with burial in Swaziland are illustrated in Table 5.1, and include food offered to guests at the funeral – which often requires sacrificing valuable livestock – and coffin costs (Desmond et al., 2004).

27 The results from the Swaziland VAC (2004) study showed a difference between the relative importance of specific income sources for various household types, for example depending on whether the household had experienced a death in the household or not. This is discussed further in section 6.2.1.

28 A likely reason for the sometimes large divergence between the results in these studies is that their analysis is at different levels of aggregation. While the MOAC study considers the impact at the national level, the other study looks at the regional level.

29 Transportation cost paid to access health care or for funerals is another substantial direct cost for households. However, this cost will not be discussed in length due to paucity of data.

Table 5.1: Costs Associated with Burial (in US\$)

Description of Cost	Cost
Transport of body from place of death to morgue or homestead	8.4
Death/funeral announcement on local radio station	1.4
Death notice in paper	14
Grave site at municipal cemetery	21
Slaughter of animal: Beast	252-280
Slaughter of animal: Goat	63
Food purchases	98-112
Coffin (average cost)	183.7
Funeral (average cost)	83.9
Total	473.3-207.3

Note: Costs are in US\$ with a rate as of 2004: 1 Emalangeni=0.14 US\$.

Source: Desmond *et al.* (2004).

However, it should be noted that this table is not exhaustive when it comes to the expenses related to funerals. One expense that is not accounted for is for instance the cost of memorial services, a cost which can be substantial in Swaziland. Another indirect cost that is not included in Table 5.1 is increased absenteeism from work (lost labour income) to attend funerals. In a country like Swaziland (hard hit by the AIDS epidemic), this cost is likely to be significant. This is because funerals may be held on several days a week, due to the increased number of deaths. Burial practices in Swaziland, however, have shown very little evidence of adapting to a changing environment as they have done in other sub-Saharan countries. In Malawi examples of such adaptations include shorter duration of funeral services and mourning periods in order to save money and time. The reason for this is not clear, but strongly suggests that more research is needed in this area (Arrehag *et al.*, 2006a).

5.1.2 Impact of HIV/AIDS on Household Labour

The MOAC *et al.* (2002) study investigated the sources of labour used on rural household farms in Swaziland. Despite the fact that this study does not separate the results according to HIV/AIDS and non-HIV/AIDS affected households, the findings still serve as an overview of the sources of labour available to farm

households. As can be seen in Table 5.2 below, over 80% of the rural households surveyed rely on members of the household as labour for the farm. Hired labour is the second most important source of labour (43.9%).

Table 5.2 Sources of Labour on the Household Farm

Source of labour	Households n=456 (%)
Household members	378 (82.2%)
Hired labour	200 (43.9%)
Hire farm machinery	96 (21.1%)
Use livestock to plough	45 (10.1%)
Communal pooling of labour (lilima)	76 (16.7%)

Source: MOAC et al. (2002)

Furthermore, the MOAC et al. (2002) study found that HIV/AIDS, through increased mortality of heads of households and other active members of the household, has led to a reduction in the quantity of household labour and source of income for the households. Other tendencies found in the study were an increased number of households headed by women and an increased number of orphans (see also Chapter 4).³⁰ Since HIV/AIDS is associated with a prolonged morbidity compared to non-AIDS illness, it is likely to result in a diversion of labour to care for the sick (Swaziland VAC, 2004). Family members, especially women, take time away from working on the farm to care for the ill. MOAC et al. (2002), however, did not find evidence of a significant increase in diversion of labour to care for a patient with AIDS in Swaziland. More research is needed to explore the care-giving responsibilities being increasingly taken on across the country, particularly by women in rural areas.

5.1.3 Impact of HIV/AIDS on Subsistence Farming

The majority of the population in Swaziland lives in rural areas and relies on subsistence farming as a livelihood source. The effects of HIV/AIDS are likely to be substantial for small farmer households. Several factors point to the vulnerability of Swaziland's subsistence farm system to the impact of HIV/AIDS. These include:

- *Dependence of production on labour inputs:* As the younger members who are disproportionately affected by HIV/AIDS die, the reduction in labour supply will negatively affect farm production.

³⁰ The result concerning female heads is consistent with the 1997 census which shows that female headship increased by 2.98% over the 11-year period between the two censuses in 1986 and 1997 (CSO, 1997)

- *Reliance on remittances:* Many of the households depend on remittances for survival, and when those that remit money die of HIV/AIDS the reduction in income may also lead to reduced farm production.
- *Wide use of hired labour on farms:* Over 40% of households use hired labour on their farms (see Table 5.2 above). This makes farms more vulnerable to variations in income which is used to hire labour. (See chapter 4 for a discussion of impacts on the labour market).
- *Increasing number of female-headed households and orphans:* The death of heads of households (usually men, see Section 5.1.4), results in a loss of institutional memory that is vital for sustaining production on the farm. Women who take over as head of household often have limited skills and knowledge of animal husbandry and livestock management. In addition, with the death of one or both parents in a household, knowledge, skills and experience in agricultural practices, farm management and marketing are lost, and young household members may not have the necessary experience to continue managing the household farm (MOAC et al., 2002).
- *Limited range of crops in an area with erratic rainfall and poor soils:* The fact that rainfalls are erratic and the soils are poor and require use of fertilisers to obtain good crop yields increases the households' vulnerability.

The vulnerability of the subsistence farm system to HIV/AIDS can also be analysed by looking at the production levels of various crops. The MOAC et al. (2002) study analysed maize production to determine the impact of HIV/AIDS on crop production at the national level and found a considerable reduction (54.2%) in maize production in households which have had an AIDS-related death. This is illustrated in Table 5.3. However, it should be remembered that the decrease in agricultural production is not caused by chronic illness alone. Other important factors that combine to undermine rural livelihoods in Swaziland include the lack of agricultural inputs and/or the inability to purchase them due to rising input and staple food prices, unfavourable weather conditions, and depressed employment opportunities.

Table 5.3: Farm Production of Maize in Households with a Non-AIDS and AIDS-related Death

Average Household Production of Maize per Year

Non-AIDS-related Deaths	AIDS-related Deaths	Reduction in Production due to AIDS	% Reduction in Production due to AIDS
35.06 bags	16.05 bags	19.01 bags	54.2%

Source: MOAC et al. (2002)

5.1.4 HIV/AIDS and Food Security³¹

For several years there has been a food crisis in the entire sub-Saharan African region. In July 2004, a Special Report by the Food and Agriculture Organization (FAO) and the World Food Programme (WFP) estimated that 262,000 people faced food/income shortages to varying degrees in Swaziland, and that about 28,000 tons of food was needed to meet the deficit for the entire year. According to the National Food Security Policy, nearly one-third of the country's population (some 330,000 people) needed food aid to survive in late 2005 (MOAC, 2005). In 2005, an estimated 250,000 Swazis were classified as vulnerable and food insecure. According to the National Food Security Policy, the three main contributing factors for this state of affairs are the high rate of poverty, inequality in income distribution, and the incidence of HIV/AIDS.³²

In general, it is not surprising that the maps of HIV prevalence and malnutrition overlap, and this has been widely documented in the recent literature (see for example, Gillespie and Kadiyala, 2005; Arrehag et al, 2006). Malnutrition and HIV/AIDS appear to be linked – malnutrition lowers an individual's immunity and increases the individual's susceptibility to opportunistic infections. Opportunistic infections in turn lead to low dietary and nutrition absorption, thereby increasing the severity of malnutrition. Malnutrition, in turn, speeds the progression of HIV infection to AIDS (IFPRI, 2002). In September 2005, 12% of the population in Swaziland was malnourished, or the equivalent of 132,000 individuals (MOAC, 2005). HIV/AIDS also has negative impacts on both food production and consumption which can lead to malnutrition (Gillespie and Kadiyala, 2005). Hence, enhanced food security and livelihood opportunities can mitigate the effects of HIV/AIDS and should be encouraged.

At the household level, the MOAC et al. (2002) study found that male household heads were dying in a ratio of 3:2 to female household-heads. Under Swazi communal tenure, this has consequences for food security in farming households. This is especially true for female-headed households, where knowledge in animal husbandry may be completely lost when the man dies due to gender specific knowledge with regard to livestock activities. Hence, when women take over as household-heads, they may not have the required farming skills. According to the same study, 57% of rural households were headed by women. This is an increase of about 8% compared with the latest available census in 1997, which showed that 49% of rural households were headed by women (CSO, 1997).

31 In this study, food security refers to physical and economic access to food of sufficient quality and quantity (see for example Gillespie and Kadiyala, 2005; MOAC, 2005).

32 Additional factors specific for the rural areas include: chronic drought, widespread soil erosion and land degradation, lack of agricultural land and isolation from markets, limited income generating opportunities, restrictions on women to access land and resources, and lack of implementation of appropriate policies.

Given the link between HIV/AIDS and food security, one could expect to find large disparities between the relative importance of various sources of food - food purchases, food aid, and food for work - in relation to the socio-economic status of a household and whether or not the household has experienced an AIDS death. However, according to the Swaziland VAC (2004), food sources showed a remarkable degree of similarity across household types in 2004 (see section 5.2.1 and Figure 5.2 for further information). This was also largely the case when wealth groups were considered. In the next section we take a closer look at the link between the impact of HIV/AIDS and culture.

5.1.5 Impact of HIV/AIDS on Livelihoods and Socio-Cultural Norms

The erosion of socio-cultural norms is of concern in Swazi society, and was identified as one of the key drivers of the country's HIV/AIDS epidemic at a workshop held on the drivers of the epidemic in 2003 (Whiteside et al., 2003). It has been addressed earlier in the report. In addition, several informants have commented that research on the relationship between culture and HIV/AIDS in Swaziland should be a priority. Thus, this section questions what impact HIV/AIDS has on the breakdown of socio-cultural norms and how this, in turn, affects the livelihoods of individuals, families and communities.

When a household is hit with HIV/AIDS it experiences increased pressure on all available resources, including everything from labour to income. In combination with other pressing factors, such as droughts and asset depletion, this process may impoverish the household and weaken the family structure. This is evident when the household is no longer able to care for their own children or take in orphans as part of an extended family unit. A study by the University of Swaziland Consultancy and Training Centre (CTC) argues that the high (and rising prevalence) of HIV/AIDS in Swazi society might be a reflection of the lack of stability within the family unit and the consequent erosion in social relations (CTC, 2003: 5). A 2005 study on the public opinion of the official response to HIV/AIDS, showed that as many as 56% of the respondents think that AIDS is causing a breakdown in traditional values in their villages.³³ In response to the question of *how* AIDS is breaking down values, the local opinion was that 'traditional practices (such as polygamy) are given up' (57%), that there was 'no one left to pass on the traditional values' (9%) and that there was an 'increase in number of orphans' (7%) (Zogby et al., 2005).

At present, Swaziland is under economic, political and social pressure. This in turn affects culture, and by extension has implications for the HIV/AIDS epidemic in the country. Not only is it possible that HIV/AIDS is impacting cultural values, as seen above, but changing cultural dynamics may also be impacting the epidemic.

³³ This study was also undertaken in Botswana, Malawi and South Africa. In Swaziland the sample for this study is nationally representative with 400 respondents.

The current development of Swazi culture is also being influenced by the inflow of modern values and influences from the outside world, driven by globalisation and more generally by social change. The interface of modern and traditional values in turn impacts cultural dynamics. The Swazi way of life is at a cultural crossroad, where modern influences from the outside world are pulling individuals in one direction, while many Swazis are clinging to the traditional values that they have learned to respect and still attach importance to. This is manifested in changes in many aspects of life - from behaviour and dress, to social relations and gender roles. The challenge is that when it comes to things like sexual behaviour, there is no clear path to guide individuals, particularly youth, as to what is culturally determined as right or wrong. A frequently expressed view during the interviews completed in late 2005 was that this has led to a cultural confusion, where distorted cultural norms are sometimes used as an excuse to justify irresponsible and dangerous sexual behaviour from the point of view of HIV/AIDS transmission. One example, is whether polygamy can be used to justify relations with multiple sexual partners, whereas in its true form it implies faithfulness within the polygamous unit and does not make it culturally acceptable to engage with girl- or boyfriends outside of this union (interview with D. von Wissell, 2005).

Cultural change does not only have an impact on individuals and households, but also on communities and the way in which they are structured. Indeed it seems as if the way in which rural communities are organised has undergone a shift, from a collective to a more individualistic structure. For instance, this is seen in the traditional communal systems of pooling labour together known as *lilima*, which is no longer widely practised. It is also reported that the extended family is no longer a certain source of care for orphans, as these are gradually overwhelmed with the increasing number of AIDS orphans (MOAC et al., 2002). In 2002 the Community Health Survey by the MOHSW found marriage rates to be low, with the proportion of women (15-49) and men (15-54) that were currently married equalling 30% and 29%, respectively. Although the reasons behind this are not well understood, it may have implications in terms of the spread of HIV/AIDS since marital status can affect sexual behavioural patterns.

5.2 Responding to the Epidemic at the Micro-level

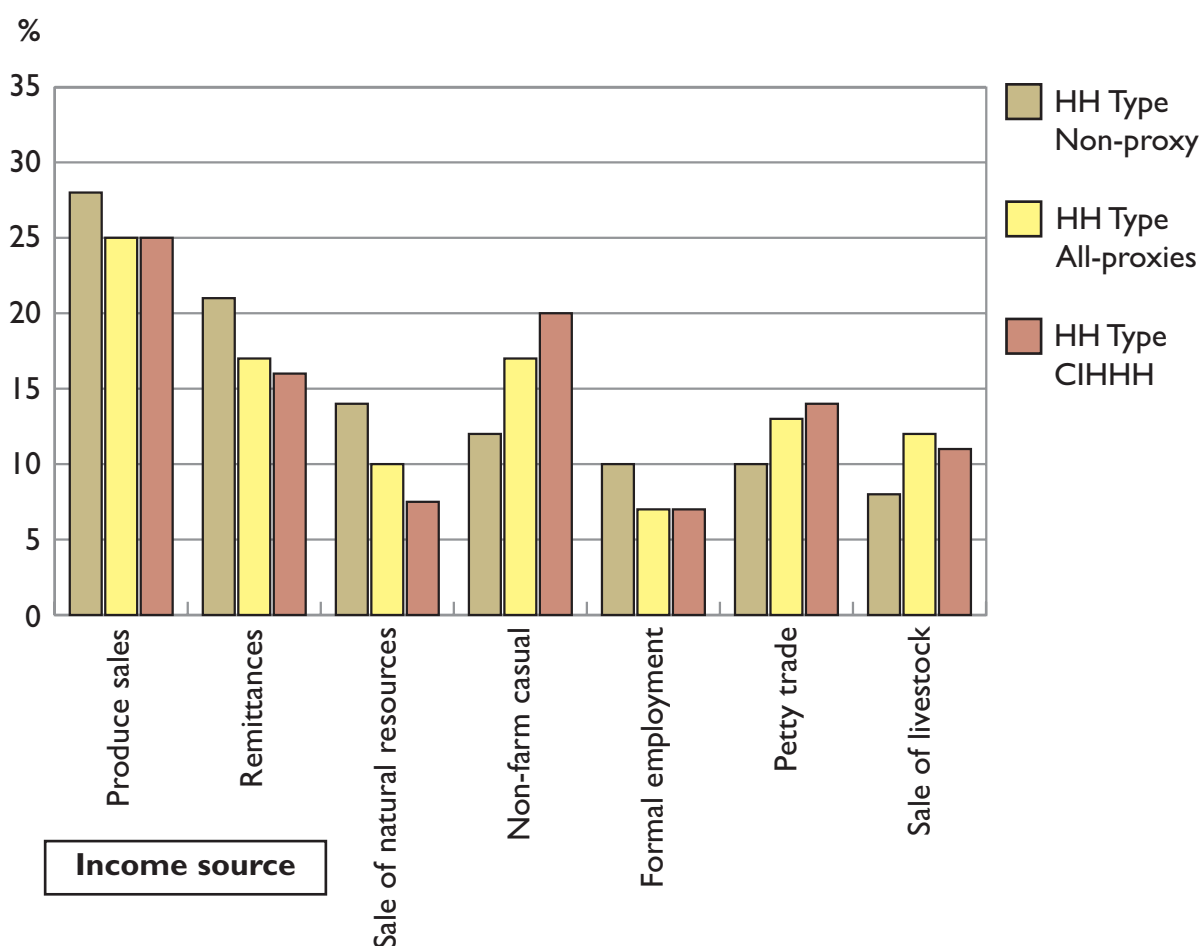
Individuals, households and communities use a large variety of coping strategies to deal with the specific hardships and problems associated with the HIV/AIDS epidemic.

Some of the coping strategies used to deal with both the direct and the indirect costs of the epidemic are discussed below.

5.2.1 Coping with Increased Household Expenditures

To get an idea of how AIDS-affected households are coping with the increased expenditure associated with the epidemic, one can analyse how the main sources of incomes in rural Swaziland might be impacted by HIV/AIDS (see Figure 5.2 below, derived from the 2004 Swaziland VAC study).

Figure 5.2: Important Income Sources by Household Type, National Level in 2002-03



Notes: The three household types consist of non-proxy, all-proxy (all-proxy households, excluding those with a chronically ill household head) and CIHHH households (proxy households with a chronically ill head of household).

Source: Swaziland VAC (2004: 58).

In Figure 5.2 the households are separated into three types of households: all-proxy households (all-proxy households include proxy households, excluding those with a chronically ill household head), chronically ill head of household (CIHHH) (proxy households with a chronically ill head of household) and non-proxy households. For all three households, “produce sales” was the most common income source. A few notable disparities are also observed between household types. Remittances were for instance less likely to be mentioned by ‘all proxy’ households and CIHHH households, as compared to ‘non-proxy’ households. In addition, proxy households are more likely than non-proxy households to cite non-farm labour and sales of livestock as the most important income sources, and are less likely to mention sale of natural resources. Based on these findings, the hypothesis presented in the Swaziland VAC study was that ‘all proxy’ households and households with a chronically ill head primarily rely on non-farm casual labour and livestock sales (to some extent) to compensate for loss of income from reduced remittances and produce sales caused by ill-health and death.

To control for differences in the socio-economic status between household types, the Swaziland VAC also performed a wealth group breakdown for four groups of income sources into a well-off, middle, poor and poorest group. For the poor group, this analysis showed that non-farm casual labour was mentioned much more frequently for ‘all proxy’ households and households with a chronically ill head, than for non-proxy households. Based on this result it is reasonable to deduce that the CIHHH not only have at least one chronically ill head of the household but that these households are also the poorest ones. This finding is also illustrative of the vicious cycle between HIV/AIDS and poverty.

5.2.2 Taking Children out of School

Poverty and lack of money was identified as the most significant factor affecting children’s access to, and retention in education by all of the informants surveyed in 16 communities in Swaziland (Musi et al., 2003). In these communities, most out-of-school children had been enrolled to begin with, but at a later stage dropped out, most often because they lacked the funds to continue. In the context of HIV/AIDS, the decision to forego education is more likely to be made because children’s time is needed to engage in farming or income earning activities to help compensate for the household’s lost labour inputs, incomes and rising expenses. If children continue to drop out of school, this will also impact human capital accumulation in the longer term, as discussed in chapter 3.

Even though Swazis in general value education highly, as discussed in chapter 4, the education statistics show that children are being taken out of

school. Direct costs such as fees, textbooks and school uniforms can also represent a great obstacle. Studies conducted in other sub-Saharan African countries confirm this (see for example, Ainsworth, Beegle and Koda, 2005). For instance, in Zambia's Copperbelt region it was observed that the inability to afford school costs was the main reason behind low overall levels of school participation for orphans (Kelly, 2000a). Other studies have reached similar conclusions concerning orphan vulnerability to educational disadvantage in relation to non-orphans, as orphans are more likely to be removed from school (see for example, Case, Paxson and Ableidinger, 2004; UNICEF, 2003; Gunderson, Kelly and Jemison, 2004).

Given the paucity of literature with regard to this particular coping mechanism, and indeed coping mechanisms more generally, it is hard to discern *how common* it is to resort to taking children out of school in Swaziland (in response to HIV/AIDS). One available study that at least touches upon this matter is the frequently cited MOAC et al. (2002) study. This study found a significant increase in the number of children dropping out of school in households with an AIDS deaths (46%) due to lack of money to pay the school fees. This result is supported by the 1999 education sector impact assessment, where respondents stated that children drop out of school as a result of parents being ill or dying and as a consequence can not afford to pay the school fees.

Besides lack of funding to pay for school fees, children may also be kept out of school if they are needed at home to care for sick family members or to work in the fields. According to results from the MOE (1999) study, children in Swaziland, particularly the ones living in rural areas, spend most of their out of school time doing housework including cooking, cleaning, fetching firewood and water and herding. It is therefore reasonable to expect that they may be increasingly kept at home if the load of housework increases due to HIV/AIDS.

This issue is also discussed in the Swaziland VAC (2004) study with particular reference to orphans. The study argued that the presence of orphans in a household may, on the one hand, increase food insecurity and strain the financial situation of the household. However, depending on their age, orphans may, on the other hand, offset labour shortages in the household. Other important factors in such cases are the gender and age of the orphan, as well as the socio-economic position and demographic characteristics of the host household. According to this line of reasoning, however, the smallest and most vulnerable orphans are also the ones that are least valuable to the household. Hence, it is not hard to suspect that these orphans have a higher probability of being left to look after themselves, than relatively older and stronger orphans.

Despite the dark situation described above, there is, however, some hope that the ability of children to stay in school may improve through the new dispensation by the Constitution of the Kingdom of Swaziland. In this document, it is stated that by July 2008 every Swazi child shall have a right to free education in public schools at least up to the end of primary school (Aphane, 2005). Moreover, the latest education statistics for 2004 show an increase in enrolment. This result is partly attributed to the school feeding programmes and education grants given out to OVCs, because where such educational support has been given, it has proven to be an effective way to keep children in school (see section 4.2.5 for more on this).

5.2.3 Community Support Structures

Traditionally, when rural homesteads in Swazi society experienced an increased pressure on their livelihoods they could rely on the extended family system for help. This was built on a collective way of organizing communities and was often based on the principle of reciprocity. An example of this is the communal labour system *lilima*, discussed earlier in section 5.1.5. However, this system is no longer widely practised (see Table 5.2) because the communities feel that it is expensive as one has to provide food for the community members who turn up (Muwanga, 2004). This coping mechanism is therefore out of reach, especially of poor households and for those with small portions of land.

Similarly, the overstretched traditional extended family care system leaves many children and elderly persons vulnerable. Over time the ability of these social networks to absorb the increasing demand for care will not be sufficient, as dependency ratios increase when more young adults die due to AIDS and leave orphans behind. According to the annual report by UNICEF in 2003, the extended family system in Swaziland managed to take in orphaned children up until 2000, but anecdotal evidence suggests that in 2001-2002 the capacity of the extended family was overwhelmed, and that the number of child-headed households was growing rapidly. The severe orphan situation in Swaziland is also reflected in a study on public opinion, as nearly all respondents (97%) 'agree' and 92% 'strongly agree' that children left orphaned by parents who have died of AIDS are a problem in their communities (Zogby *et al.*, 2005) (see Chapter 4 for further information about OVCs). However, despite the fact that orphans are currently a big societal problem, it should be remembered that high rates of fosterage and orphanhood were also found in rural areas as a result of high mortality and migration prior to HIV/AIDS (Mdladla *et al.*, 2003). Thus, the orphan challenge is not a consequence of AIDS alone, even if the epidemic exacerbates the situation.

5.2.4 Reduction in Area of Land under Cultivation

A common coping mechanism for smallholder farmers in many sub-Saharan countries is to cultivate only a portion of their land or leave it fallow when a family member falls ill or dies, especially if this happens prior to the onset of the agricultural season. This is done due to labour shortages or the inability to procure agricultural inputs.

At the national level in Swaziland, there was a significant reduction in area under cultivation in households that had experienced an AIDS-related death. Land under cultivation was, on average, reduced by 34.2% in households that had experienced an AIDS-related death, see Table 5.4 (MOAC et al., 2002). Table 5.4 also shows that the percentage of land cultivated in households without an AIDS death was 84.2%. The average household land under cultivation for a household with an AIDS-related death was only 50%. This result provides support for the hypothesis in previous research that a household experiencing an AIDS-related death leave some or all of its land fallow for one or several agricultural seasons.

Table 5.4: Land Cultivation

Average Household Production of Maize per Year

Average household Land under Cultivation	Non-AIDS-related Deaths	AIDS-related Deaths	% Reduction in Production due to AIDS
% land cultivated	84.2	50	34.2

Source: MOAC et al. (2002)

A reduction of land area under cultivation can in turn result in a reduced crop yield. In addition to land cultivation, the MOAC *et al.* (2002) study analysed maize production to determine the impact on crop yield and found that there was a significant reduction in yield in the households that experienced an AIDS related death. The reduction in maize production directly attributable to AIDS was 54.2%. This is somewhat less than the 61 per cent reduction in maize production found in Zimbabwean households with an AIDS death (Kwaramba, 1998). This difference is likely to be due to the fact that maize production was already under stress from insufficient and erratic rainfall in the region over the past ten years.

The Swaziland VAC study, however, was not able to confirm the findings

in the MOAC *et al.* study at the regional level. In fact, it was not able to detect any strong consistency in relationships between HIV-proxy and non-proxy households in relation to areas cultivated, input used or yields achieved. One tentative conclusion from the study was however that although proxy households were more inclined to grow tubers than non-proxy households, they were less concerned to preserve or increase cash crop and cereal production. This finding is in line with the widely observed coping mechanism of HIV/AIDS households focusing on low labour input tuber crops at the expense of more labour intensive crops. However, it is important to explore this issue through further research before drawing definite conclusions.

5.2.5 Change in Cropping Patterns

In previous research it has been assumed that HIV/AIDS is bringing about important changes in subsistence farming systems. For instance, a large number of studies propose that cash crops and other types of crops requiring expensive inputs may be dropped as a response to prime-age adult death.

The only study that discusses this coping strategy in the case of Swaziland is the MOAC *et al.* (2002) study. This study found that 42.3% of the households that experienced AIDS-related deaths showed changes in cropping patterns. Such changes included the substitution of labour intensive crops like cotton with less labour intensive crops like maize, and moving from cash crops to purely subsistence crops. The change in cropping patterns, however, was not significant. Moreover, as discussed earlier, crop shifts are not necessarily caused by chronic illness. Other factors that may affect cropping patterns are, for example, lack of farm inputs, unfavourable weather conditions and depressed employment opportunities.

5.2.6 Selling Livestock

Livestock serves multiple functions in sub-Saharan Africa. Frequently it represents a form of savings that can be sold under seasons of stress to improve the household economy and to meet immediate cash needs, such as paying for increased medical or funeral expenses. Selling livestock (for example, goats or cattle) is a common coping strategy for households all over sub-Saharan Africa and does not result in increased poverty if it is done on a small scale.

Results from the Swaziland study by MOAC *et al.* (2002) on how AIDS impacts livestock production are shown in Table 5.5. The table shows that households with an AIDS-related death experienced a 29.6% reduction in the

number of cattle kept, as opposed to the households without any AIDS-related deaths. This reduction results from sale of cattle, to cater for the increased costs of healthcare and funerals. These findings corroborate the findings by Kwaramba (1998) in Zimbabwe which found a 29% reduction in number of cattle kept as a result of an AIDS-related death in the household.

Table 5.5: Farm Production for Households

Livestock	Average Household Production per Year			
	Non-AIDS Deaths	AIDS deaths	Reduction in Production due to AIDS	% Reduction in Production due to AIDS
Cattle	13.6 head	9.6 head	4 head	29.6%

Source: MOAC et al. (2002)

The above result is further supported both by national statistics and the Individual Household Assessment draft report by the Swaziland VAC Committee from 2004, which claims that the numbers of cattle and goats have been declining (Swaziland VAC, 2004a). This was especially true in the Lowveld zone, which is a particularly hard hit agro-ecological zone in terms of HIV prevalence, poverty levels and weather conditions. In addition, according to the Swaziland VAC study, livestock sales were higher and sales of natural resources lower for all proxy and chronically ill head of household groups in comparison with the non-proxy group (Swaziland VAC, 2004).

Moreover, an argument posed in the literature from other sub-Saharan countries is that the AIDS epidemic may lead to a concentration in the ownership of cattle assets, as afflicted households sell off assets to those with the resources to accumulate them (Jayne *et al.*, 2004; MOAC *et al.*, 2002). Lack of literature specific to Swaziland however means that no conclusions can be reached regarding this hypothesis.

5.3 Concluding Remarks

This chapter has shown that prolonged morbidity and mortality due to HIV/AIDS lead to increased household expenditure because of health care and funeral costs, reduced savings, reduced income due to loss of remittances, loss of farm labour and loss of institutional memory. The impact of the epidemic is also manifested through problems

maintaining food supplies. This in turn increases the vulnerability of HIV/AIDS affected households and individuals in the longer term as it may lead to malnutrition, with the final result being an increasing number of stunted and wasted children. Malnutrition in turn speeds the progression of HIV infection to AIDS as it lowers the resistance of the immune system, thereby making the body more vulnerable to opportunistic infections. Opportunistic infections in turn lead to low dietary and nutrition absorption, thereby increasing the severity of the malnutrition. In late 2005, 12% of the population in Swaziland was malnourished, and if no drastic interventions are taken this number is expected to rise rapidly over time (MOAC, 2005).

Households and communities feel the negative socio-economic impact of HIV/AIDS more directly than any other units. The intensity of the impact of the epidemic, however, is not felt uniformly across the affected households and individuals. This depends on a large variety of factors, such as the coping strategies at hand to mitigate this impact and how these, in turn, affect the long-term viability of the household.

As a response to increased costs, households use a number of coping strategies - in combination with other strategies, or in isolation. Some of the coping strategies that households in Swaziland resort to include a reduction of household expenditures, an increase in household labour supply, a reduction in the land under cultivation, changes in cropping patterns (to some extent), an increase in number of households caring for orphans, and the sale of farm produce to raise income. Another coping strategy within households experiencing scarcity of labour is to rely on child labour. When children are removed from school, in order to work, their education and future skill base is undermined. It has long-term effects on society as a whole including, for example, contributing to stagnant economic development and possibly an increase in crime levels.

An interesting finding in this chapter, distinct from findings in other sub-Saharan African countries, is that even though households are struggling under the financial burden of paying for funerals, there is as yet little evidence of changing funeral practices. Given that the HIV/AIDS epidemic continues to have a heavy toll on Swazi society, it is likely that this will serve as a catalyst for change of the funeral practices in Swaziland. In particular, under such a situation one can assume that funerals in the future will become less expensive and shorter in duration as households become further impoverished.

What will be the long-term development of the socio-cultural aspects of Swazi society discussed earlier? The CTC (2003) study argues that the challenge that faces Swaziland is to devise policies that would make cultural strategies an entry point in seeking alternative solutions in the fight against HIV/AIDS. They further claim that adopting a cultural approach is necessary as it will enable the consideration of the Swazi

way of life, value systems and traditional beliefs as key references in building a framework for strategic and project planning. However, the answer to the cultural uncertainty and how this could be turned into something positive in the fight against HIV/AIDS is far from being self-evident. The only thing that is certain is that the key to the problem involves substantial behavioural change, not only when it comes to sexual behaviours, but also mindsets.

This chapter ends with an overarching question arising from this literature review: Why has Swaziland, a country with such a serious epidemic, thus far been subject of so little research? Identified research gaps in this chapter include the micro-level impact: coping mechanisms and livelihoods in the peri-urban and urban areas, information about incomes (including in the informal sector) and expenditures for HIV/AIDS affected households. When planning for various policy interventions, it would be, for instance, helpful to know how large a share of the household budget is assigned to medical expenditure in an HIV/AIDS-affected household. Similarly, further information on the socio-economic status of households is vital for a proper allocation of food aid for ensuring that this help reaches the households in greatest need.

6. Long-term Implications of HIV/AIDS and Responses

6.1 Understanding the Long-term Implications of HIV/AIDS

Swaziland currently faces a number of challenges. Some are beyond the control of the politicians, planners, and policy makers, while others can be, and should be faced. The issues have been identified in a range of *fora*, including the FSE *Quo Vadis* report.

This report looks at the HIV/AIDS epidemic. There is generally a good understanding of HIV/AIDS issues in Swaziland. The fundamental problem has been getting people, especially decision makers, to understand the nature of the epidemic and what it might do to society. In the early years, a prevention poster took as its theme an iceberg – AIDS cases represented the tip, with the mass of HIV infections hidden. Of course, this also illustrates the problem of getting people to take AIDS seriously. Given that the iceberg is hidden, how can we persuade people of its presence?

The four key issues with regard to responding to the epidemic are:

- How do we convince people of the existence of the epidemic where it is not yet clearly visible?
- How do we look into the future?
- How do we deal with the stigma related to the sexual nature of HIV?
- What do we do about it in resource poor settings?

In Swaziland, the increase in the number of new HIV infections may be nearing its peak, but the number of illnesses and deaths is still climbing. The challenge is to convince people of the danger that the epidemic poses. This means that they have to believe that HIV/AIDS exists, that it has the potential to spread to individuals, including themselves, and that it will pose a credible threat to the nation. Achieving this is still not easy.

There are three stages of response: i) problem identification, ii) ownership, when people see that the issue has implications for them and their society, and iii) empowerment, where people believe that something can be done and they can be part of it. This means that our message has to be realistic, but also give ways forward.

For many, these stages present issues. Most believe in the existence of HIV. Unfortunately the step from recognising the existence of the virus to understanding how it operates and what impact it will have is not so simple. There is an additional problem with understanding the science, and appreciating that a cure is a long way off.

It is sometimes difficult to persuade people that HIV/AIDS has the potential to spread in their countries, that they have reason to take emergency action and that HIV/AIDS should be a priority. Admitting that populations engage in the behaviours that allow the spread of HIV, be they visiting commercial sex workers or simply having more than one sexual partner outside marriage, is seen as somehow shameful and stigmatising. In this conclusion we look at the idea of building scenarios as one way forward; we then assess the research gaps, and what lessons can be learnt elsewhere.

6.2 Building Scenarios³⁴

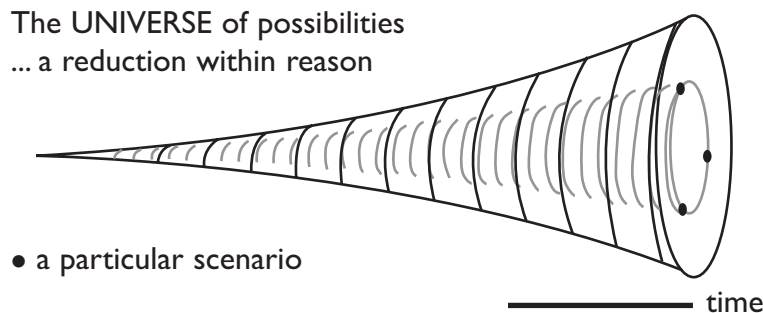
Scenario building is widely used by businesses and by some governments. For example, in the 1980s, the large multinational Anglo-American projected possible futures for South Africa. The outcomes played an important part in setting the scene for the negotiations that brought an end to the apartheid regime.

Figure 6.2 illustrates how scenario planning works. This shows a ‘Cone of Uncertainty’ opening up into the future. For example, if we asked what the sugar price will be in a week’s time, we would get answers covering a range of a few Emalangeni. If we look ten years into the future the range might be in the hundreds of Emalangeni. This is true of any parameter: the further you look into the future, the less certainty there is.

Scenario planning aims to reduce the number of reasonable possibilities; hence the inner cone becomes what is most likely to happen. With regard to AIDS impact, we start by looking at what we know, now. For example, we can predict the numbers who will fall ill and die with some certainty over the next ten years. The next step is to look at ‘key uncertainties’ within the reduced cone. These are factors that are important for the future, but whose movement cannot possibly be predicted, for example a very cheap and effective treatment becoming available.

Figure 6.1 The Universe of Possibilities

The UNIVERSE of possibilities
... a reduction within reason



Source: Sunter (1987).

³⁴ Taken from Barnett & Whiteside, 2002

Finally, the scenario exercise examines the interplay between ‘key uncertainties’ and writes the plausible scenarios. These are simple and consistent stories about the future which illustrate possible outcomes and challenges. Of particular importance is that scenarios are able to take into account the complex interactions of multiple long-wave events.

In 2002, UNAIDS with Royal Dutch Shell undertook a scenario building process to look at the futures of Africa with AIDS through to 2025. This involved wide-ranging consultation with “experts” of many kinds – academics, sex-workers, civil society activists, members of governments, religious leaders and others. The outcomes consisted of three futures, which were then presented in various formats across the continent.³⁵

This was a bold initiative. The actual scenarios are of limited value because they are for the entire continent rather than individual countries. In addition, they fall along predictable dimensions – a pessimistic, an optimistic and a mediocre future – and thus fail to engage with the diversity which is AIDS. However, scenarios are a powerful tool and developing them for Swaziland is one of the ways forward this report recommends. One of the final outcomes would be developing a terms of reference for a scenario building exercise.

6.3 Research Gaps

This section identifies a number of areas where further research is needed. Women aged 20-29 continue to be the hardest hit. The gendered nature of infection and impact needs to be further assessed. It would also be valuable to look at the primary determinants of infection by education and marriage. There is currently a DHS in the process of being undertaken in Swaziland. This type of survey can provide a considerable amount of information and it is important that Swazi researchers and the users of the research be involved as much as possible in the design, data collection and analysis.

The demographic impact of AIDS is recognised by demographers, but not by others. It is recommended that there be population projections that show numbers and ages to give information that can be used, especially regarding the dependency ratios, orphaning and gender imbalances. These then need to be incorporated into all aspects and levels of government planning, beyond just the national level.

No systematic research has been conducted to determine the role played by cultural practices and gender disparities in spreading or slowing down HIV infection. These are politically and culturally sensitive, however there seems to be a general consensus that they need to be addressed.

³⁵ <http://www.unaides.org/en/AIDS+in+Africa+Three+scenarios+to+2025.asp>

The economic impact of AIDS needs closer examination. Swaziland is in an economic slump, with GDP growth rates expected to slow down to 1.5% in 2005, and is vulnerable to any further economic shocks. Budgetary implications and resource-tracking of aid flows for HIV/AIDS need to be examined. Also, ramifications for the productivity of public and private sector institutions need to be understood so that they can be mitigated. Persistent drought has lowered agricultural yield and threatened food security – Swaziland imports approximately 60% of its consumed food items. Food security and agriculture are crucial and the interventions that organisations are implementing and NERCHA is coordinating need to be assessed.

More work is needed on the uptake and provision of ART. What are the barriers and how can they be averted? What will the impacts of ART be on the economy and families? What will happen to the health system and the cost of providing services? The HDA & JTK Associates impact study in 2005 has been valuable in bringing these issues to the fore, but more needs to be done given the recent large scale-up of ART.

In addition to ART, a substantial amount of resources is being dedicated to cushioning the impact of HIV/AIDS on the education sector and to supporting OVC. Empirical information on factors affecting the supply and demand for education – such as the most effective ways to overcome barriers preventing OVC from accessing education – is much needed, and the country stands to gain if the recently launched UNESCO/MOE initiative to operationalise a Regional Educational Monitoring Information System is successful.

At the household level, prolonged morbidity and mortality due to HIV/AIDS lead to increased expenditure as a result of health care and funeral costs, reduced savings, reduced income due to loss of remittances, loss of farm labour and loss of institutional memory. These in turn increase the vulnerability of HIV/AIDS affected households and individuals, and may lead to malnutrition with increasing numbers of stunted and wasted children. Households and communities feel the negative socio-economic impact of HIV/AIDS more than any other sector, yet the intensity is not felt uniformly across all affected households and individuals. This depends on a large variety of factors, such as the coping strategies at hand to mitigate this impact and how these in turn affect the long-term viability of the household. The assessment of vulnerability and issues affecting the design of effective and targeted responses needs more work. There is a need to take a closer look at female-headed households and, given the current dialogue taking place regarding the compensation of care-givers, there needs to be an investigation of the role of care-givers in shouldering the burden of HIV/AIDS in Swaziland. It is also important for future research to acknowledge the rural versus urban dichotomy, and take into consideration the peri-urban areas which to date have been overlooked in research.

Finally, the scale of the response and the multiple actors involved in Swaziland require that special attention be given to examining issues of coverage and access to HIV/AIDS-related services. The Service Availability Mapping exercise that is being planned is a positive step in this direction. However, it is also necessary that the different organizations involved in the response spruce up their programme monitoring and evaluation systems and feed information into the inter-organizational dialogue – who is doing what, where, when and how. This will require strengthening systems for disseminating data and research.

6.4 Concluding Remarks

In Swaziland, the path that the HIV/AIDS epidemic and the corresponding impact will take into the future critically hinges on decision-making in the present, both at the individual and institutional level.

For individuals to change the decisions they make – be it with regards to their private behaviour or to the priority that they ascribe to HIV/AIDS in their sphere of work – they need to not only recognize the existence of HIV/AIDS, but also understand its implications, and the critical role that they can play in shaping the epidemic's future course. Scenario-building is a useful tool that can be used to influence decision-making, as it can act as a catalyst in stimulating individuals to re-assess their current decision-making processes. It is therefore strongly recommended that Swaziland embark on a scenario-building exercise. If individuals do not understand the possible magnitude of the future impact of HIV/AIDS in Swaziland, and on themselves, then it cannot be expected that they will make decisions in the present that take the future into consideration.

Decision-making within institutions requires information that is accurate, useful, and timely. Government ministries, NERCHA, the private sector, the donor community, NGOs and CBOs are all actors contributing to a national response that is increasingly being recognized internationally as being one of the strongest in the world. The large number of initiatives that are ongoing require that a lot of strategic information be made available for decision-making so that interventions may be targeted, effective and responsive to changing needs. For this reason, this study has highlighted areas where research is required to produce information that may be used to guide planning processes. To complement this research, organizational monitoring and evaluation systems must be strengthened so that there is an understanding of where the response to HIV/AIDS is, and where it is going. Finally, organisations – in particular NERCHA – need to facilitate the information sharing that occurs with local communities, and between organizations, to improve coordination in decision-making, and with the international community to garner funding support and share best practices.

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8. Key Informants¹

- ILO - Khombie Nkonde
- SIPAA (Action Aid) - Zakaria Yakubu, Country Technical Advisor
- UNAIDS - Mulunesh Tennagashaw, UNAIDS Country Coordinator
- UNDP - Lare Sisay, Deputy Resident Representative
- UNICEF - Res. Representative Alan Brody and Fabian Mwakichwa, HIV/AIDS Project Officer
- USAID - Daniel Halperin, Regional Technical Advisor for Prevention and Change
- WFP and FAO - WFP Country Director: Abdoulaye Balde
- WHO and UN Theme Group on HIV/AIDS - David Okello, WHO Representative and UNTG Chair
- Business Coalition on HIV/AIDS (BCHA) - Khosie Hlatshwayo
- Central Bank of Swaziland - Felicia Dlamini, Domestic Economy Unit and Tsidi Nxumalo, Assistant Economist
- Central Statistics Office - Themba Tshabalala
- Ministry of Agriculture and Cooperatives - Sipho Nxumalo, Undersecretary
- Ministry of Economic Planning and Development - Steven Motsa, Undersecretary
- Ministry of Education - Della Nsibande, focal person for HIV/AIDS; Lineo Vilakazi, Senior Measurement Officer; Rebecca Tzabedze, Head of Department of Statistics; Bethwell Ndlovu, Chief Inspector Secondary
- Ministry of Finance - Nonhlanhla Nkambule, focal person for HIV/AIDS
- Ministry of Public Service and Information - Patrick Muir, Undersecretary and Director of the Public Sector HIV/AIDS Coordinating Committee (PSHACC)
- Department of Labour - Jinno Nkambule, Commissioner of Labour
- Swaziland Investment Promotion Agency (SIPA), parastatal - Nathi Dlamini
- Ministry of Health and Social Welfare: Swaziland National AIDS Program (SNAP) - Velephi Okello, ART focal Person; Sibongile Maseko, M&E Office Epidemiologist
- Swaziland Environment Authority
- Swaziland Federation of Employers- Treasure Maphanga, CEO
- Vulnerability Assessment Committee (VAC) - Colin Tshabalala
- NERCHA² - Derek von Wissell, Director; Thembi Gama, Impact Mitigation Coordinator and Nozipho Mkhathshwa, Impact Mitigation Assistant Coordinator; Faith Dlamini, Prevention Coordinator; Marjorie Mavuso, M&E Manager
- Coordinating Assembly of NGOs (CANGO) - Emmanuel Ndlangamandla, Director
- Mbabane Clinic - Dr. Mark Mills
- Family Life Association of Swaziland (FLAS) - Dudu Simelane and Cedric Mgogo
- JTK Associates - Jane Tomlinson and John King, Consultants
- Royal Swazi Sugar Corporation - Skhulile Dlamini, HIV/AIDS Programme Coordinator
- Save the Children - Sifiso Mdluli, Field Coordinator for Emergency & Development Programme
- SWAGAA - Nonhlanhla Dlamini, Director

¹ In addition, a workshop was held on November 30, 2005 for all Principal Secretaries and Heads of Department in Government where participants provided information and feedback for this study.

² Additional NERCHA staff participated in a senior staff workshop session including: Khanya Mabuza, Assistant Director Coordination; Dumisani Kunene, Assistant Director Technical; Sibusiso Dlamini, Care and Support Coordinator; Busi Dlamini, Head of Communications.

- SWANNEPHA - Gavin Khumalo, Treasurer
- TASC - Janet Ongole, Fundraiser
- WLSA - Zakhe Hlanze, Research Officer
- Swaziland Health and Population Education (SHAPE) - Zanele Dlamini, Director

APPENDIX I

Modelling the Impact of HIV/AIDS on Swaziland using SPECTRUM

This appendix outlines the input data and assumptions that went into modelling the demographic impact of HIV/AIDS on Swaziland using SPECTRUM. It should be noted that the projections made by the model are only as accurate as the data, which is inserted into the model. This input data together with the assumptions made by the model are highlighted in this section in order for the projections to be interrogated by the reader.

Input Data

Demographic inputs

The Male to female (Sex) ratio was changed from 103.0 to 89.9 as this was the figure recorded on the Swaziland Population Census of 1997. These figures will remain stable from base year (1980) to the end of the projection (2015).

The model's default figure of 103.0 is derived from United Nations World Population Prospects: The 2004 Revision. This projection assumes zero net international migration and no impact of AIDS.

The Total Fertility Rates were inserted into the model using the data from National Surveys carried out in Swaziland in the years 1987, 1991 and 1997. The fertility rates for the three years stand at 6.36, 5.24 and 4.53.

The 1997 figure of 4.53 has been disputed by Prof. Rob Dorrington. However, without knowing the basis of the disputed figure it is impossible to therefore disregard in-country population based surveys over UN estimates. The figure therefore stands.

The model's default figure for 1980 which stands at 6.64 formed the basis with which to interpolate and therefore adjust the model's default figures. Default figures from 1998 onwards remain.

The population for Swaziland stands at 292900 males and 323300 females in 1980 (base year).

The Age Specific Fertility rate stands at the Sub-Saharan average. For purposes of Comparison the rates are as follows:

Table 1: Comparison between Data of Age Specific Fertility Rates from 1986, 1991, and 1997 and the Model Default Data from UN estimates for the same years

Age Group	1986	Model Default	1991	Model Default	1997	Model Default
15-19	0.1445	0.1580	0.1209	0.1619	0.0897	0.1555
20-24	0.2893	0.2428	0.2394	0.2526	0.2108	0.2526
25-29	0.2791	0.2204	0.2330	0.2205	0.2096	0.2207
30-34	0.2459	0.1753	0.1997	0.1709	0.1693	0.1706
35-39	0.1780	0.1210	0.1426	0.1164	0.1328	0.1166
40-44	0.0892	0.0656	0.0775	0.0621	0.0640	0.0630
45-49	0.0452	0.0168	0.0354	0.0158	0.0307	0.0170

It should be remembered that the model default data is not taking into consideration the impact of HIV/AIDS and has been modelled from base-year data.

Epidemiology Inputs

Progression from HIV to AIDS in Swaziland is considered to emulate that of fast pattern progression in both adults and children. However, this was the assumption used for the initial modelling, which produced results that were radically different from in country Census reports and other demographic data compiled on Swaziland. It was found that by changing the pattern of progression to slow in both children and adults it produced results reflective and consistent with other demographic data on Swaziland.

The default values for the Male and Female ratio of HIV prevalence to prevalence at 25-29 were accepted.

Table 2: Male and Female ratio of HIV prevalence to prevalence at 25-29

Ages	Male 2004	Female 2004
0-4	0.00	0.00
5-9	0.00	0.00
10-14	0.00	0.00
15-19	0.23	0.24
20-24	0.38	0.63
25-29	1.00	1.00
30-34	2.06	1.11
35-39	1.34	1.13
40-44	1.56	0.68
45-49	1.60	0.51
50-54	0.86	0.40
55-59	0.56	0.24
60-64	0.10	0.13
65-69	0.05	0.01
70-74	0.00	0.00
75-79	0.00	0.00
80+	0.00	0.00

Table 3: Ratio of fertility of HIV infected women to the fertility of unaffected women

Ages	Ratio
15-19	1.50
20-24	0.70
25-29	0.70
30-34	0.70
35-39	0.70
40-44	0.70
45-49	0.70

The Prevalence was modelled using EPP 2005. The 2002 and 2004 data points were considered to provide the most accurate data due to improving methodology and data collection. As this is a curve-fitting model, the earlier data points (from 1992) are not indicated and represented on this line graph. This is simply because it did not fit within the prescribed and calibrated curve of the model.

