CHAPTER 3: FINDINGS - HIV/AIDS AND THE DEMOGRAPHIC STRUCTURE OF SWAZILAND

INTRODUCTION

The first section of Chapter 3 presents a general overview of population trends and processes. The next section considers the various impacts that HIV/AIDS can have on a population. This is followed by a broad overview of population trends in Swaziland and more specifically, the current demographic profile of the rural population in Swaziland. Empirical findings of the 2003 Swaziland HIV/AIDS, Demographic and Livelihoods VAC Survey are used where applicable. One of the explicit aims of this VAC survey is to show how HIV/AIDS has been and is affecting and altering the demographic structure of the population in rural Swaziland. It should be realised that there are limits in using the results of the current VAC survey. The VAC survey was a cross-sectional survey. The information thus collected does not contain a dynamic element, needed to understand the impact of HIV/AIDS at for example, the household level. Such information is typically generated by long-term and very expensive longitudinal surveys. In addition, the survey was limited in scope and collected only a selected number of information variables (see Chapter 2).

In an attempt to enhance the available empirical information, in the final section of the chapter reference is made to a population projection of Swaziland. This was undertaken in order to assess the longer-term impacts of the epidemic on the population.

POPULATION PROCESSES

To understand the role that high fertility levels in Swaziland play in shaping the youthful population structure and its role in the high rate of population growth, it is necessary to look first at general population processes. This background knowledge enables a fuller understanding and appreciation of the effects that HIV/AIDS is having on the population.

Demographic transition

The demographic transition model is a tool that has frequently been used to understand and explain human population processes. This typology describes the different phases of human populations. It has been used on numerous occasions since the 1960's to explain the reasons for rapid growth occurring in human populations. The transition model was developed to understand the behaviour of human populations, and especially the mechanics of the differential growth rates in diverse populations. According to this model, changes in economic development or modernisation alter population growth rates as a result of reductions in mortality and fertility. One of the underlying assumptions of this model is a near constant and one-directional decline in mortality and fertility over time (see Figure 7)[11].

In the pre-transitional stage, the majority of a population is involved in a subsistence economy. The population growth rate is at a low level because both mortality and fertility levels are at high levels. As the economy modernises, mortality and fertility begins to decline. However, mortality reacts faster to external changes than fertility and therefore mortality levels decline at an earlier stage in the development process than fertility levels. The decline in fertility lags the mortality decline because the initiation and sustainability of a decline in fertility requires cultural and societal change. As a consequence of the lag in

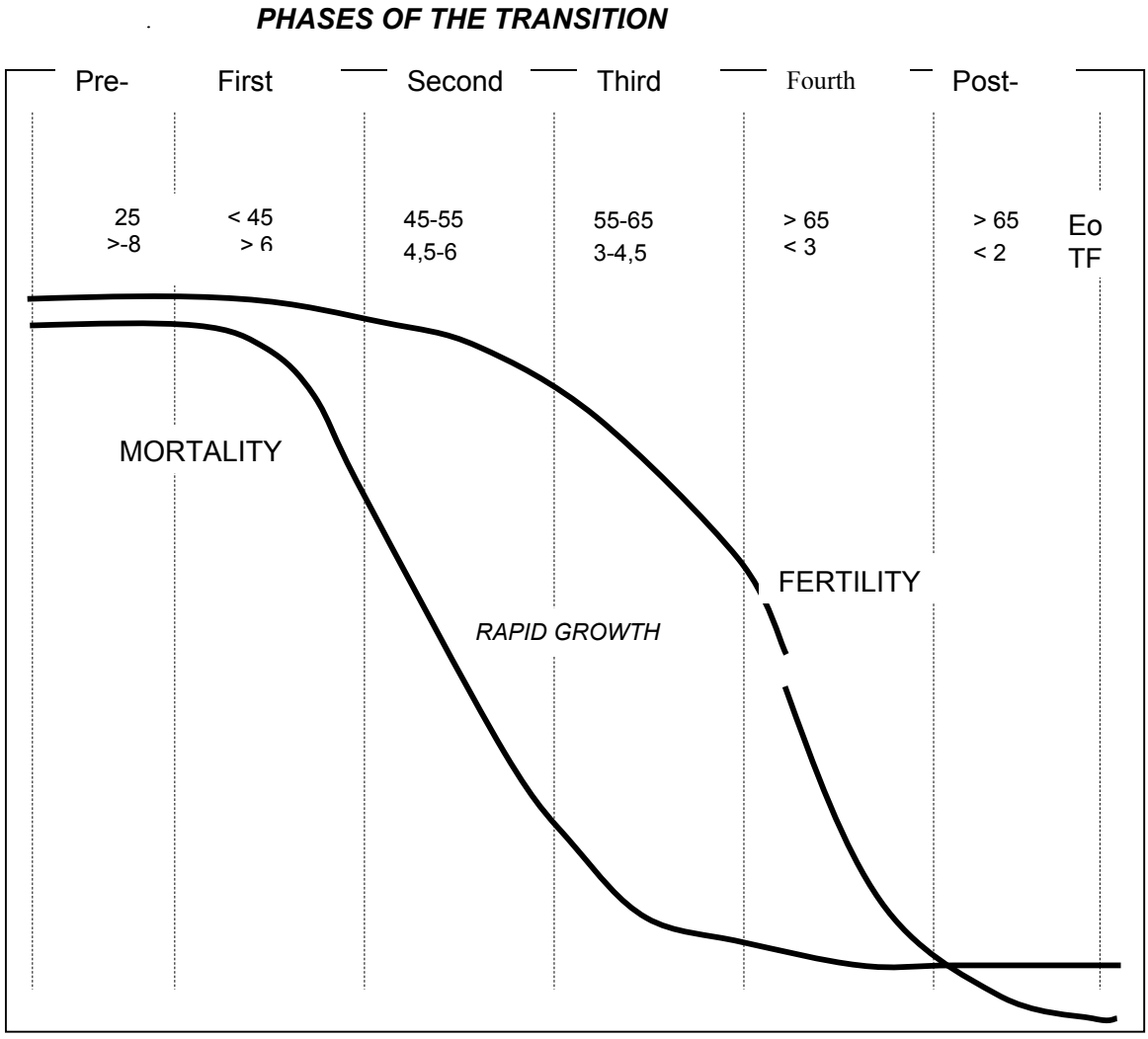
[11] Important to realise is that when this model was developed no one foresaw that vital trends could be reversed with implications difficult to predict. HIV/AIDS is reversing mortality trends and the next section will elaborate on the implications of this on population size and growth. The HIV/AIDS epidemic poses questions with regard to the functionality of the classical demographic transition model.

fertility decline, population growth is rapid. This stage is also referred to as the phase when a "population explosion" is taking place. As economic development progresses, mortality and fertility decline further to reach the final stage of demographic transition where as at the onset of transition, population growth is insignificant. The duration of each of these phases or stages are vastly different. Populations remained in Phases 1 and 2 for thousands of years, whereas in some populations the transition from high to low fertility occurred in a matter of decades.

According to the transition model, populations can be categorised according to their position in the transition process. The demographic transition can be divided into five phases (see points below) or even six phases (see Figure 7):

- The pre-transitional phase with very low life expectancies and high fertility rates. This was the situation found in Swaziland in the period up to the 19th century.
- The first stage of the transition is characterised by high mortality and fertility, in which life expectancy at birth **(E_0)** is lower than 45 years and the total fertility rate **(TFR)** is higher than 6 (each woman on average has 6 children).

Figure 7: A typology of demographic transition



- The second and third phases of the transition occur when mortality and later fertility, decline at an increasing rate. Life expectancy in these two phases is between 45 and 65 years at birth and the total fertility rate declines from 6 to 3.
- The fourth phase is one of low mortality and fertility. Life expectancy is higher than 65 years and the total fertility rate is lower than three.
- The post-transitional phase. In this phase the transition from high mortality to low levels has been completed and fertility is at levels equal to replacement (a situation where the average couple only replaces themselves, i.e. by having about two children) or even lower. In populations characterised by this phase, natural replacement levels are very low or even negative.

What is the situation in Swaziland in terms of this model? Over many decades death rates had been declining while fertility remained high, which in turn resulted in high rates of natural growth. Only during the past two decades did fertility rates start to decline significantly. By the end of the 1990's Swaziland exhibited mortality and fertility regimes that were reminiscent of a transition between stages 2 and 3 as normal development processes occurred. The appearance of HIV/AIDS has complicated an easy explanation of the expected future patterns and trends of vital rates in Swaziland. Mortality rates have already started to increase due to HIV/AIDS induced deaths.

Population processes - a general summary

- An increase in the natural growth rate is usually as a result of declining mortality while declining fertility rates have a large impact on declining growth rates.
- The fertility level is slower to react to social and cultural changes compared to the mortality level. The latter reacts faster to medical, public health and other factors. Global experience indicates that once fertility starts to decline, the decline continues until fertility reaches low levels, albeit with minor variations (for example the baby boom in Western countries during the 1950's).
- Fertility trends have a larger impact on the age structure than mortality trends. A decline in the fertility level inevitably leads to a less youthful population structure.
- The transition model provides no insight into a situation of rising mortality (e.g. as seen in the era of HIV/AIDS).

DEMOGRAPHIC IMPLICATIONS OF HIV/AIDS

HIV/AIDS is already having, and is anticipated to have an even greater impact in future on the Swaziland economy, productivity, aspects of service delivery and the social fabric of the country. These impacts are in many cases a function of the impact that the epidemic is having on the population. For instance, losses among those in the working ages due to premature mortality are and will increasingly affect the labour force. Associated losses of skill, costs associated with replacing lost workers, lower productivity, and pressures on pension and medical aid funds are a few of the consequences of increasing young morbidity and mortality within Swaziland.

HIV/AIDS and the future

When the demographic transition model was developed to explain human population growth it was envisaged that mortality declines would be one-directional. The transition model assumed a sustained decline in mortality of human populations until the limits of human longevity was reached. It was never foreseen that human populations would once again be faced by circumstances where gains in life expectancy would be wiped out and life expectancy would decline. In effect, the HIV/AIDS epidemic is now confronting human populations with a new challenge – a situation of increasing mortality levels and low fertility.

The real long-term impacts of HIV/AIDS on human population are not yet well understood. There are a number of reasons for this. In the first instance we do not have an analogy to fall

back on to provide pointers to what will happen. Other major epidemics, such as the Black Death plague that killed millions of people in Europe in the Middle Ages, are dissimilar to HIV/AIDS in a number of ways. For instance, the infection vectors are different and death usually occurred rapidly following infection, unlike the slow onset of chronic illness and death associated with HIV/AIDS (when untreated). Although great advances have been made in understanding the HIV/AIDS virus, our knowledge of the epidemiology of the epidemic is not yet complete. For example, what is the limit of the HIV epidemic curve in a population? Previously it was assumed that the epidemic prevalence curve would stabilise around 30% of the population and then decline. Yet in Botswana and Swaziland the most recent surveillance results show infection rates nearing 40% of the reproductive female population. Neither do we know when, or if in fact ever, a vaccine will be developed. Furthermore, we do not know whether it will be possible to treat all of those already infected with antiretroviral drugs (e.g. as a result of financial, and infrastructure constraints to name a few) and neither are we sure of the long term efficacy of intervention programmes to prevent new infections from occurring. All of the above factors will have a role in determining the severity of the impact of HIV/AIDS on human populations. However, even with these uncertainties, we can predict within a relatively narrow band of uncertainty that the epidemic will have significant impacts on the mortality levels of a population where HIV infection rates are high. The epidemic also has an impact on fertility in a heavily affected population. It is important that the phases or waves of the epidemic are analysed separately for the purpose of policy and programmatic interventions. Each phase is likely to require a different approach/support mechanism.

With regard to the longer-term implications of the epidemic on the demography of the world and countries, the only recourse at present is by making longer-term population projections, using a variety of assumptions.

Morbidity

Once infected with HIV, the average individual will become prone to an increasing number of infections (AIDS-related diseases) with the progress of time. Due to the reduced levels of immunity, individuals are also more prone to develop Tuberculosis. During the last phase of full-blown AIDS, an individual will be stricken with a variety of infections and related illnesses, to such an extent that illness leaves such a person in a disabled state. The direct impact of the epidemic on the individual is to leave them less productive or unproductive for an increasing number and ever longer period of time until death. Family members and others have to take care of these individuals. The availability of antiretroviral drugs makes it possible that infected individuals can avoid many of the complications of untreated infections, allowing them to live a longer and more productive life, without becoming a burden on their families/communities or the state. Increased morbidity is thus the first apparent impact of the epidemic on the lives of individuals. The infections and diseases eventually lead to the death of an individual. The period between falling ill with bouts of infections and death, if untreated, may vary between individuals but could be from one to ten years. Therefore it is expected given the already high HIV infection rates in Swaziland, that chronic morbidity rates will be high in Swaziland.

Mortality

The epidemic is changing mortality levels and patterns in a way that was not deemed possible a few years ago.

- The major direct impact of the epidemic on populations is the increased number of deaths, resulting in an increase in the crude death rate.

- The change in the level of mortality is accompanied by a change in the age pattern of deaths. Age-specific death rates in the age groups 24-45 years are increasing. Whereas many of the degenerative diseases mainly take their toll among older persons, HIV/AIDS

has changed the age pattern of mortality markedly. People in the younger age groups are falling ill and dying with a number of social, economic and demographic effects.

- Deaths among infants and young children have also risen due to HIV/AIDS, mainly as a result of the vertical transmission of the disease from mother to child.

- As a result of higher mortality, life expectancy at birth is declining to levels found in a pre-modern epoch.

- This change in mortality trends is set to undo many decades of improvements in the general health and welfare status of populations which occurred as a result of improved medical services, the availability of modern medicines and vaccines, health promotion campaigns, improved public health and sanitation, etc. In some countries most heavily affected by HIV/AIDS, mortality levels are set to approach levels found a century ago.

Fertility

In many African countries with high HIV infection rates, fertility levels are declining at the same time as mortality levels are increasing. On the one hand fertility levels are declining independently from HIV/AIDS. This is a process that commenced a considerable time before the advent of HIV/AIDS and is a result of normal developmental processes such as rising educational levels, the availability of modern contraceptive methods, changes in the status of women, changing marital patterns, increasing economic burden of children etc. Although declines in the fertility level of Swaziland were not as rapid in the past two decades as noted in neighbouring countries, the decline had started. And once fertility starts declining, the decline is not easily reversed. Importantly, HIV/AIDS also serves to reinforce this decline in fertility in the following ways:

- Firstly, HIV/AIDS has a fertility inhibiting effect on infected women due to the biological effects of the disease. Small-scale studies in Eastern Africa found (evidence e.g. Carpenter et al, 1997) that fertility rates of HIV positive women are up to 30% lower than a comparable group of women not infected. Thus the fertility rate of the infected cohort of women is reduced and as a consequence, the fertility rate of the entire cohort of women in a country is proportionately reduced.

- In absolute terms, fewer children will be born because of the reduction in the size of the reproductive population cohort. Infection and mortality is largely confined to the reproductive ages. The size of the reproductive population is likely to be reduced in the long term because of AIDS-related deaths among women in these age groups. As a result, the size of the cohort in a population that can potentially bear children is reduced, and therefore fewer children are born into the population – even though fertility rates may remain the same.

- The HIV/AIDS epidemic may even have another fertility reducing impact through behaviour change. Information campaigns focusing on abstinence or increasing the use of barrier methods, especially male condoms, will potentially impact on fertility rates. In neighbouring South Africa, such messages have seen a significant increase in the use of condoms. Therefore one may surmise that given the protective nature of the barrier methods available, and if used effectively, higher rates of condom use should result in fewer infections of HIV and at the same time lead to a reduction in the number of births.

Impact of HIV/AIDS on the rate of natural increase and the population size

As yet there is no example of a country where the HIV/AIDS epidemic has resulted in a negative population growth rate or in a decline of the absolute numbers of people in a population. However, longer-term population projections that incorporate the impact of HIV/AIDS, predict actual population declines to occur in a number of sub-Saharan countries.

In the meantime, there is an increasing body of evidence to show that HIV/AIDS is reducing the rate of natural increase in a number of countries severely affected by HIV/AIDS.

An increase in the mortality rate due to HIV/AIDS reduces the rate of natural increase – but the level of such a reduction depends on the severity of the HIV/AIDS epidemic (expressed n terms of the number dying) and the level of fertility. Negative growth rates will result if death rates increase to levels higher than birth rates.

Preliminary studies in a number of countries resulted in varying findings: where HIV prevalence levels were low combined with sustained high fertility, growth rates declined somewhat (see for example Robinson and Marindo, 1999). In situations with higher prevalence levels and lower fertility levels, population growth rates were lower (O'Neill and Balk, 2001). And although up to the present, the HIV/AIDS epidemic had not led to a situation of negative growth at a national level, high prevalence levels in combination with lowering fertility rates could reduce the future population size in a number of countries (see for instance the long-range population projections carried out by the UN (United Nations Population Division, 2001)).

DEMOGRAPHIC TRENDS IN SWAZILAND

Swaziland is a small country with a population of about 1.1 million people. According to the 1997 census more than 75% of the population is classified as rural, while only 22.5% were resident in urban areas. Numerous other economic and social indicators point to Swaziland as a developing country (albeit recently described as low-middle income). For instance fertility levels remain very high in comparison with developed countries. Mortality rates declined rapidly during the last five decades of the twentieth century but these gains have been reversed as a result of HIV/AIDS (see the next section). The table below contains a summary of the most important population indicators for the country from secondary sources (not from this study).

Table 4: Demographic indicators for Swaziland and the developed world in 2003

Indicator	**Swaziland 1997[1]**	**Swaziland 2003[1]**	*Developed countries*
Birth rate (births per 1000 population)	43	41	11
Death rate (deaths per 1000 population)	11	20	10
Rate of natural increase (%)	3.2	2.0	0.1
Infant mortality rate	88	109	8
Total fertility rate	4.9	5.9	1.6
Percent of the population < 15 years	43	46	18
Percent of the population 65+	3	3	14
Dependency ratio	85	96	47
Life expectancy – Total	57	40	75
Life expectancy – Males	53	40	72
Life expectancy – Females	61	41	79
Percent urban	30	25	75
Percent of married women age 15-49 using a modern contraceptive method	17	28[3]	58
Population density (Persons per km^2)	54[2]	-	23

Sources: [1] Estimates prepared by the Population Reference Bureau, 1997 and 2003
[2] Calculated using the 1997 census total. However the Swaziland Human Development Report 2000 lists a density of 57 persons per square kilometre (UNDP/SHDF, 2001).
[2] Central Statistical Office,2000, Multiple Indicator Cluster Survey

It should be noted that the Population Reference Bureau adjusted the mortality indicators for Swaziland i.e. the death rate and the life expectancy at birth significantly between 1997 and 2003. This was in response to a realisation of the seriousness of the demographic consequences of HIV/AIDS. For comparative purposes, the table contains similar combined indices for the developed countries of the world.

Population growth rate

Due to declining mortality and sustained high fertility, Swaziland experienced relatively high rates of population growth for a prolonged period of time (Figure 8). The high growth rate recorded for the period 1956-1966 should be viewed with circumspection. It was probably a result of under-enumeration in the 1956 census or even combined with over-enumeration in 1966 (see for example the lower growth rate between 1966 and 1976). In the early 1980s the rate of population increase was 3.2% per annum. If this rate of growth were to have continued Swaziland would have doubled its population in less than 22 years. By the end of the 1980's the growth rate had started to decline (as a result of declining fertility).

The 2003 VAC HIV/AIDS demographic and livelihoods survey in rural areas confirmed this lessening rate of natural increase. Between 1986 and 1997 the annual increase in the rural population was 2.79% - only about 0.1% lower than the national figure. Between 1997 and 2003 the annual increase in the rural population was 2.01%[12]. Although under-enumeration during the VAC study (being a sample census) may have resulted in an under-estimation of the population growth rate, the growth rate generated by this study is in all likelihood closer to the actual situation than the current official growth rate of 2.9%. However, even a growth rate of 2% remains high, if one considers that the population will double within 36 years should the Swaziland rural population continue to grow at this rate. The two components of the decline in the growth rate was a conjectured decrease in fertility, while increased mortality is also playing a more influential role.

Table 5: Population size by urban and rural areas according to recent population census

Year	Urban	Rural	Total[1]
1986 Population Census	154,979	526,080	681,059
1997 Population Census	214,428	715,290	929,718
2003 VAC Survey	-	807,000[2]	-

[1] The figures do not include persons living outside the borders of the country (non-resident)

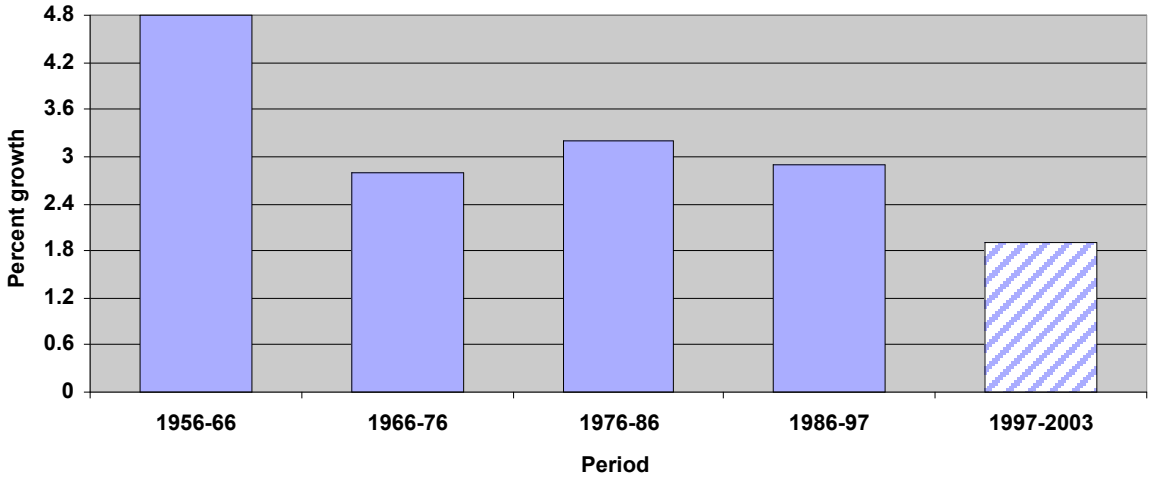
[2] The 2003 VAC survey in rural areas did not include the institutional population resident in the sampled areas. Based on the results of the 1997 census, it is estimated that 3000 persons were resident in various institutions in rural areas. These persons were added to the survey total to provide comparable figures when calculating a growth rate.

The Swazi VAC survey collected detailed information at Tinkundla and EA levels. It would be possible to compare population growth at these levels as long as comparisons included the same variables[13]. Such an undertaking is beyond the scope of this report.

[12] The growth rate for the period 1997-2003 is not exactly comparable to the rates calculated for the other periods as these rates refer to the total Swaziland population. Rates of increase are lower in rural areas compared to urban areas due to rural-urban migration.

[13] This VAC Survey included all 'official homesteads' and did not include 'unofficial homesteads' e.g. army barracks, compounds of sugar cane workers etc.

Figure 8: Swaziland population growth rates



Source: CSO, 1960-1997; Also see UNDP/SHDF 2001; VAC 2003

Fertility

Accurate and recent measures of current fertility in Swaziland are not easily available. Various secondary sources indicate fertility remains at a high level.

The information presented in Table 6 was obtained from secondary sources. The crude birth rate is a measure calculated by dividing the number of births reported in a population during a specific year with the mid-year total population in the same year. The total fertility rate is a more complex measure taking into account the age-specific birth rates. In essence, this measure is an indication of how many children an average woman would give birth to in her lifetime if current fertility rates were to continue. The available information indicates fertility remains at a high level. Given the fact that contraceptive use has increased in recent years, there is a need to verify recent fertility trends in the country. This typically calls for a demographic and health survey.

Table 6: Measures of fertility in Swaziland

Source	Crude Birth Rate	Total Fertility Rate
Sustainability Indicators for Swaziland (circa 1998)	36.8	4.46
Population Reference Bureau (1997)	43	4.9

Mortality

As a general statement it can be said that mortality rates declined in Swaziland for a considerable period of time. However, there is evidence that during the latter half of the 1990's mortality trends were reversed due to an increase in the number of deaths as a result of HIV/AIDS.

The most common measure to monitor changes in mortality trends is the indicator - life expectancy at birth. In the absence of a complete vital registration system, in combination with regular population censuses, the calculation of life expectancy values are more difficult. However, methods and models have been developed to estimate life expectancy indirectly from census results. In the case of Swaziland different sources do not agree about the life expectancy at birth. The table below contains a ten year time series of the life expectancy in Swaziland compiled to construct the Human Development Index. These values show a steady increase in the life expectancy from 1990 to 2000. This does not seem plausible, given the

reported rise in mortality due to HIV/AIDS. In the same report (UNDP/SHDF, 2000: 84) it is stated that a recalculation of the life expectancy using the 1997 census data, put the year 2000 value at 58.3 years. Other more recent estimates of the life expectancy at birth are all derived from models to estimate the impact of HIV/AIDS on the population. These models predict that the life expectancy in the country had fallen significantly. Empirical verification is needed to determine whether life expectancy (40 years at birth) is as low as predicted by modelling.

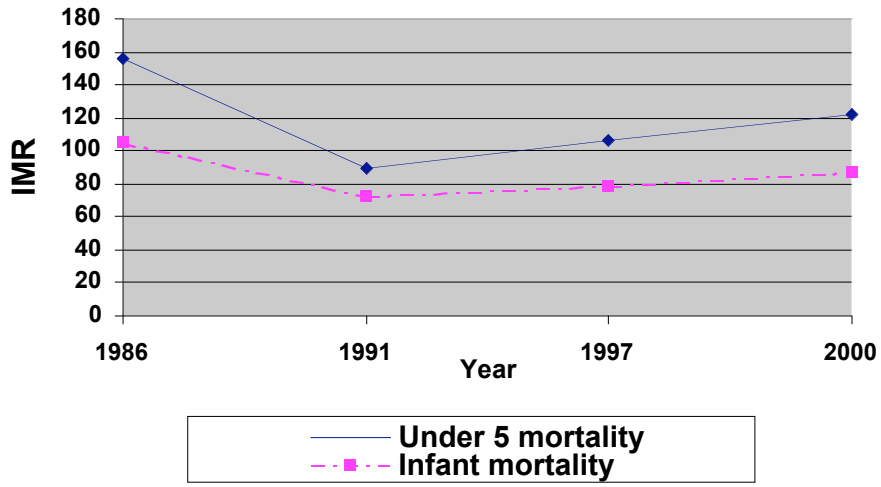
Figure 9: Life expectancy in Swaziland, 1990-2000

Year	Life expectancy at birth HDI series[1]	Other sources
1990	56.8	
1991	56.8	
1992	56.8	
1993	56.8	
1994	57.3	
1995	58.8	
1996	57.8	
1997	58.3	57[2]
1998	58.8	
1999	60.2	
2000	60.7/58.3	40.2[2]

Source: [1]UNDP/SHDF, 2000
[2] Population Reference Bureau

The Multiple Indicator Cluster Survey conducted in 2000 by the Central Statistical Office of Swaziland provides evidence of a recent increase in the mortality of young children in the country. This large survey covered 4,500 households. The aim of the survey was to collect a number of indicators intended to monitor progress towards the goals and objectives set by the World Plan of Action for Children. Using indirect estimation techniques, the results of the survey show that infant mortality (IMR) i.e. deaths among children under the age of one year, as well as the under-5 mortality rate were declining up to the early 1990s (see Figure 10). Whereas the IMR was about 105 deaths per 1,000 births in the mid 1980s, it declined to about 72 in 1991. This was a significant improvement in child survival over a relatively short period. Unfortunately a reversal in child survival trends occurred since the mid-1990s. For the year 2000 the Multiple Indicator Cluster Survey estimated the infant mortality rate at 87, while in that year 122 children under the age of 5 years died, up from 89 in 1991 (per 1000 children in that age group). These reversals will make it very difficult to reach targets set by the Plan of Action for Children or the Millennium Development Goals. The recent increases in child deaths can only be ascribed to the impact of HIV/AIDS due to the vertical transmission of the virus from mother to child.

Figure 10: Infant mortality trends in Swaziland



Source: Central Statistical Office, Multiple Indicator Survey, 2000

Age and sex structure of rural Swaziland

The age and sex structure of a population is a mirror of past population processes that occurred in that population. The age and sex structure reflects the impact of fertility (having the major impact on the age composition) as well as mortality and migration. For the purpose of this study, the age and sex structure of the rural population of Swaziland was scrutinised at three points in time namely 1986, 1997 and 2003. This was done by means of a population pyramid (Figures 11-13).

The 1986 population pyramid shows a very youthful population, a result of sustained high fertility levels and moderate mortality levels. This pyramid also indicates missing males from the ages of 20 to approximately 44. It is unlikely that this is the result of excess male mortality, but rather the consequence of significant male out-migration from rural areas to urban areas or as migrant labourers to South Africa.

The 1997 pyramid exhibits a fairly similar picture with the exception of a smaller number in the age group 0-4 years than the preceding age group. Analysing the 1997 pyramid in isolation, one could either infer that the reduction in the age group 0-4 years is evidence of the beginning of fertility decline among the rural population of Swaziland, or as a result of the non-enumeration of children 0-4 years, which is a common occurrence in developing countries.

In 2003 (from the data collected by this VAC survey) the population pyramid is starting to look different from the pyramid of 1986. The bottom age categories (0-14 years) are smaller than the in previous censuses giving substance to the hypothesis of a decline in fertility in rural Swaziland. It also indicates that the fertility decline is larger and more sustained than one would have thought, given the rural nature of the population.

Figure 11: Swaziland rural population, age and sex structure in 1986

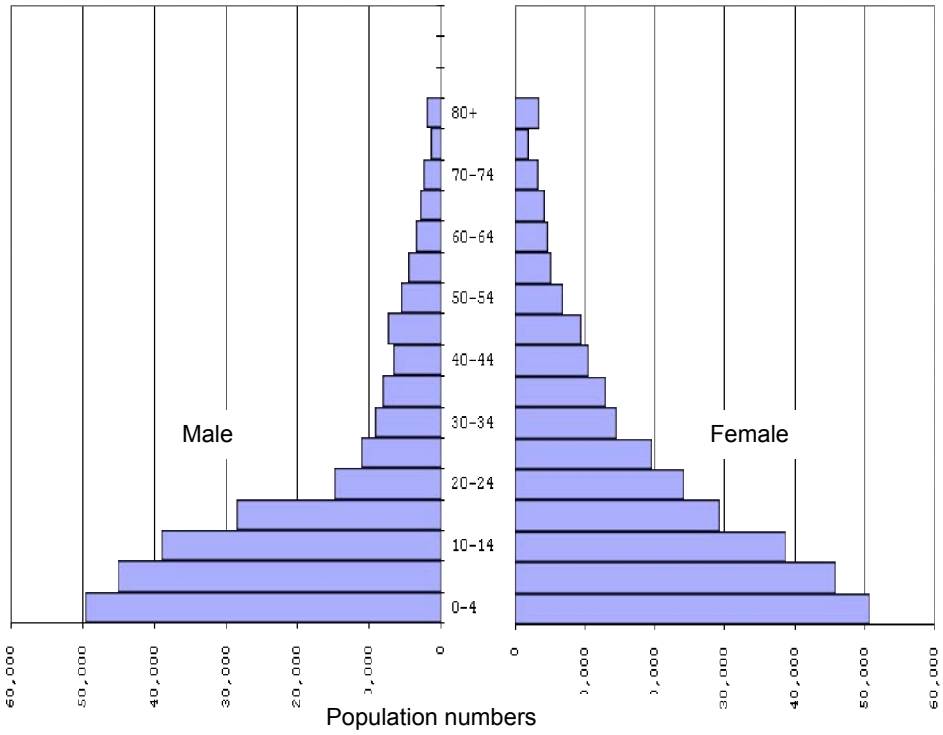


Figure 12: Swaziland rural population, age and sex structure in 1997

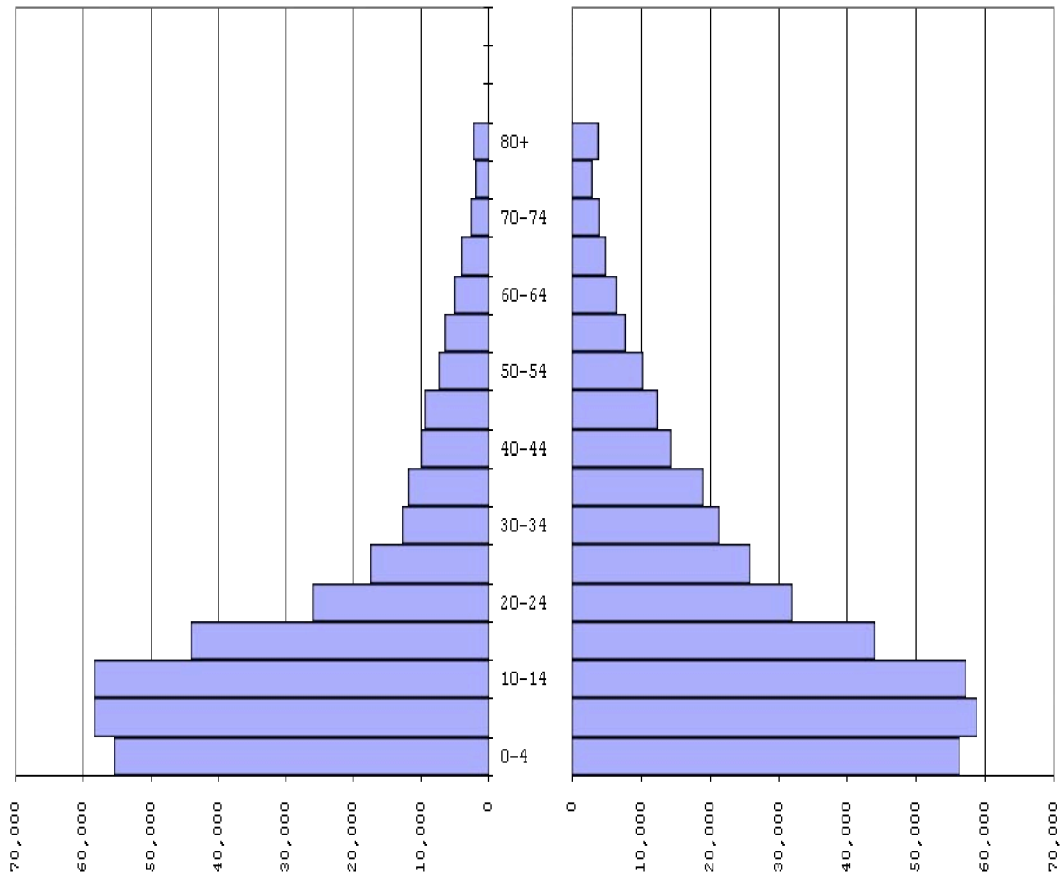
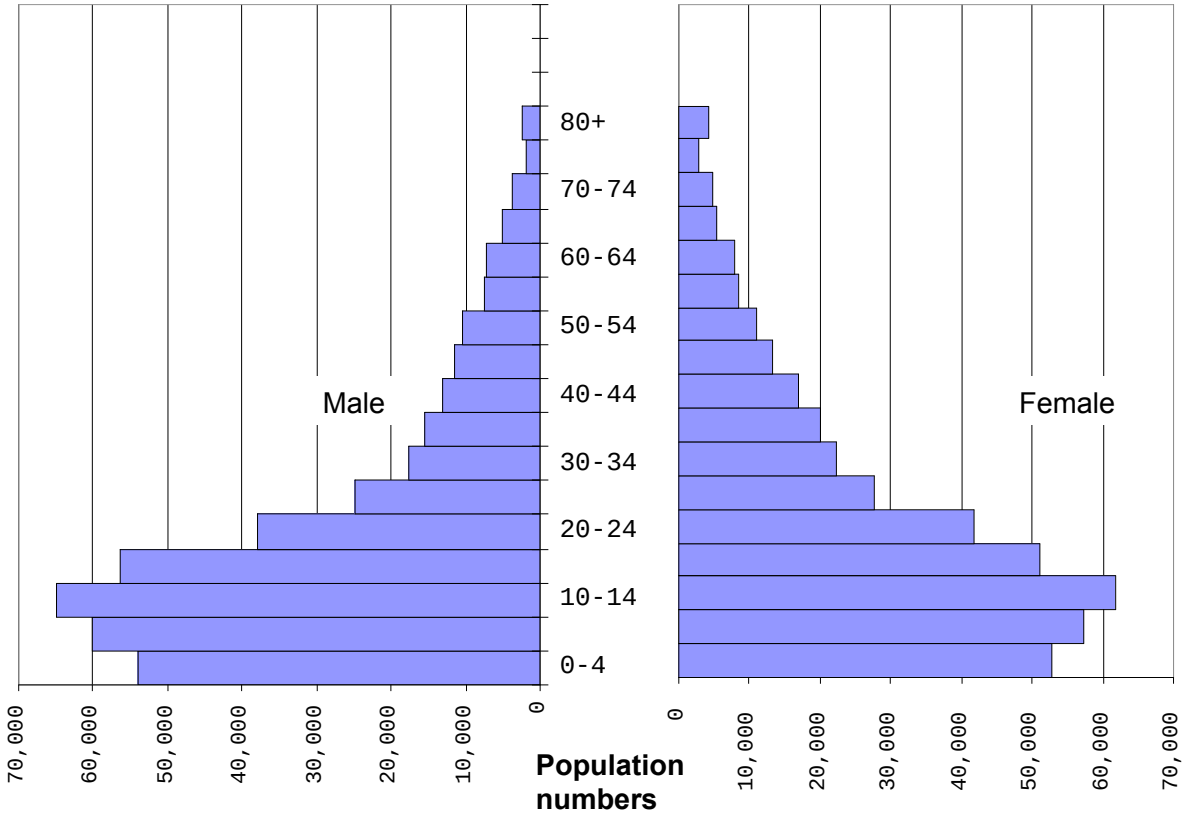


Figure 13: Swaziland rural population, age and sex structure in 2003



As a consequence of the reduced number of persons in the younger age groups in 2003, the Swaziland rural population is less youthful than 17 years ago. In addition the shortage of males in the prime productive ages is less prominent than at the time of the two preceding censuses. However, due to the small scale of a pyramid, it is not possible to detect the impact of higher mortality on the age and sex structure of the rural population during the past few years.

Broad age categories

An analysis by broad age category confirms that the Swaziland rural population is less concentrated in the younger ages in 2003 than in 1986 (see figures above). Whereas 51.2% of the **rural** population was younger than 15 years in 1986, this proportion has dropped to 43.7% in 2003. The shift in population is evident in the fact that while nearly 45% of the rural population was in the broad age range of 15-64 years in 1986, those in this category made up nearly 53% of the population in 2003.

Figure 14: Age composition of the Swaziland rural population (%)

Rural Population In Selected Age Categories	1986	1997	2003
Proportion aged 0-14	51.2	48.2	43.7
Proportion aged 15-64	44.8	48.1	52. 6
Proportion aged 65+	4.0	3.7	3.7

The age dependency ratio

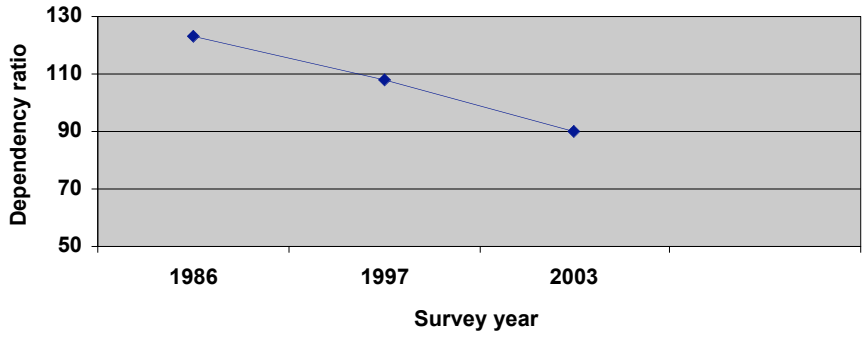
The age dependency ratio is defined as the ratio of young people less than 15 years of age plus persons aged 65 and older to those in the age group 15-64 years. This is a demographic

determined measure, and indicates the relative importance of those in the "dependent" ages to those in the productive ages. This ratio also serves as a measure of demographic change. In developing countries characterised by high fertility, the ratio typically ranges from 80 to 105 dependents per 100 productive persons while in developed countries the ratio is between 50 and 60 per 100 productive persons.

Comparing the three main population data sets used in this analysis, i.e. the 1986 census, the 1997 census and the 2003 sample census, it is apparent that the dependency ratio at the national level has **decreased** (or improved) substantially (by 27%) between 1986 and 2003 (see Figure 15). Compared to developed countries, the current dependency ratio of 90 is still high. This reduction in the dependency ratio in rural areas is due to changes in the age structure, which in turn is mainly the result of lower fertility levels and less so due to the effects of mortality. It is expected that the dependency ratio will show further reductions in the years to come as fertility declines to lower levels. And although HIV/AIDS will increase mortality levels among those in the adult ages,[14] those deaths will not be sufficient to cause a rapid upturn in the national dependency ratio, at least not in the short and medium term.

At the household level, the dependency ratio may be very high in particular households affected by the death of adult members, leaving behind children and possibly elderly persons. In these circumstances the "dependency ratio" may serve as one useful function by identifying households that are vulnerable. However, it should be realised that empirical information obtained by means of a cross-sectional survey may underestimate the impact of high mortality on households (and therefore the dependency ratio). This is because the phenomenon of households that have disintegrated because of significant mortality cannot be detected by a single survey. Examples that come to mind are single person households that "disappear" after the death of that person or that other households may dissolve after a death of a member because of migration/moving away of the remaining household members and/or the absorption into other households.

Figure 15: Reduction in the age dependency ratio in rural Swaziland, 1986-2003



An analysis of crude dependency does not adequately portray the impact of HIV/AIDS on the burden experienced by affected households. De Waal correctly pointed out that one has to look at a slightly refined dependency ratio, where those who suffer from chronic illnesses are assumed to be dependent (as they have to be cared for and supported) in order to factor in the impact of HIV-related illnesses. He described this measure as an "effective dependency ratio" (see for example de Waal and Whiteside, 2003). In the preceding paragraphs it was shown that there had been a steady improvement in the age determined dependency ratio. However, an analysis of the "effective dependency ratio" in rural Swaziland shows significant differences between groups, which may well be a reflection of the differing impact of the

[14] Another reason why AIDS does not markedly influence the dependency ratio at a national level is that AIDS also leads to child deaths which partly cancel out the adult deaths.

epidemic on different segments of society and thus also have important implications for mitigating the impact of the epidemic.

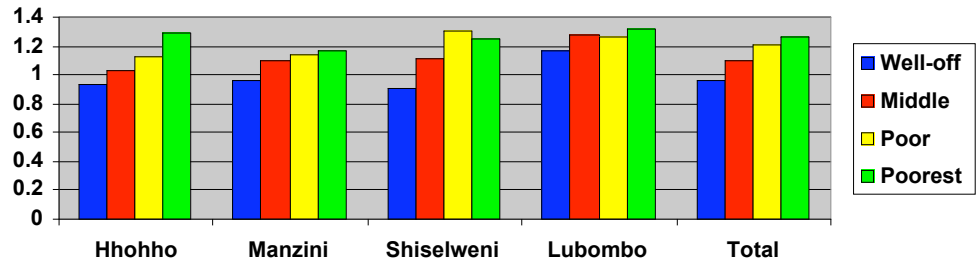
In table 7 below a comparison is provided of the age dependency ratio and the "effective dependency ratio" by food economy / livelihood zone in rural Swaziland. The table clearly indicates that the dependency burden increases when those, suffering from bouts of chronic illness, are added to the conventional group of dependents. In general, the "effective dependency ratio" is between 20–30 % higher than the conventional dependency ratio. In the Lowveld cattle, cotton and maize food economy / livelihood zone the "effective dependency ratio" is 35% higher than the conventional age dependency ratio.

Table 7: Dependency ratios by food economy / livelihood zone

Food Economy / Livelihood Zone	Dependency ratio	Effective dependency ratio (difference)
Highveld maize and cattle	0.88	1.08 (0.20)
Lomahasha trading and arable	0.88	1.21 (0.33)
Lowveld cattle and cotton	0.98	1.30 (0.32)
Lowveld cattle, cotton and maize	0.95	1.28 (0.33)
Lubombo plateau	0.96	1.15 (0.21)
Middleveld maize and cattle	0.96	1.18 (0.24)
Timber highlands	0.82	1.04 (0.22)
Peri-Urban corridor	0.67	0.79 (0.12)

In the Lowveld cattle, cotton food economy / livelihood zone, there are effectively 130 dependents for every 100 productive persons. This is an indication of the direct impact that the burden of disease is having on the rural population. The variation of the effective dependency ratio between zones poses some interesting questions relating to the access to health provision, level of HIV/AIDS prevalence and in general the high level of chronic illness in the Lowveld areas of the country. Levels of chronic illness, highlighted by showing the difference between the traditional dependency ratio and the effective dependency ratio, vary significantly around the country. Clearly the Lowveld and Lomahasha areas reflect relatively higher levels of chronic illness while the Peri-Urban corridor seemingly has significantly lower levels of chronic illness, possibly as a result of better access to health care facilities. The figure below shows the "effective dependency ratio" according to region and wealth rankings. The "effective dependency ratio" is consistently higher in those households classified as poor compared to more well off households. In fact, this near linear relationship is found across all regions. For rural Swaziland as a whole, the effective dependency ratio of households classified as the "poorest of the poor" is 30% higher than the ratio found in well off households. This finding has clear programmatic implications. For targeted interventions it is possible to use the results of the Swazi VAC survey to obtain "effective dependency ratios" at a smaller geographical level and do cross tabulation with socio-economic status for example. Such an approach would make it possible to identify specific geographic areas or groups of households in need of livelihood and health support initiatives.

Figure 16: Effective dependency ratio by region and socio economic status



CURRENT IMPACT OF HIV/AIDS ON THE POPULATION OF RURAL SWAZILAND

This section primarily utilises the empirical evidence collected during the 2003 VAC HIV/AIDS, Demographic and Livelihoods Survey in rural Swaziland in order to provide pointers on how HIV/AIDS is impacting on the dynamics and structure of the Swaziland population. The impact of HIV/AIDS is changing continually, driven by the proportion infected. To provide a future dimension of expected trends, use was made of a population projection. That dynamic element cannot be described by a survey conducted at a specific point in time.

Morbidity

In the 2003 VAC survey, respondents were asked to list the members of the household suffering from a chronic illness during the year preceding the survey. Respondents reported high rates of chronic illness. Reported rates of chronic illness decrease from age 0-4 years to age 10-14 years. Thereafter, the chronic morbidity rate increases linearly with age. Even at ages where one would expect individuals to be healthy and not exhibit signs of any chronic illness, e.g. between the ages of 15 and 29, nearly 9% of inhabitants of rural areas were classified as being chronically ill. It is plausible to point to the impact of HIV/AIDS as a reason, given the high HIV prevalence rates. Very disturbing is the fact that 15% of women in the age group 35-39 years were reportedly suffering from bouts of chronic illness. In the age group 45-49, nearly a quarter of women were reported as chronically ill (see Figure 17). These trends are ominous, given the important role that women play as homemakers, income earners and subsistence agriculturalists. High rates of chronic illness among those older than 50 years probably relates more to the normal aging process than any single factor. Furthermore, there appears to be a gender difference with women being more likely to suffer from chronic illness after the age of 10 years. These periods of being unable to be productive will have significant effects on child care activities, food production, domestic management and other income generation activities in rural Swaziland.

Figure 17: Prevalence of chronic illness by age and sex

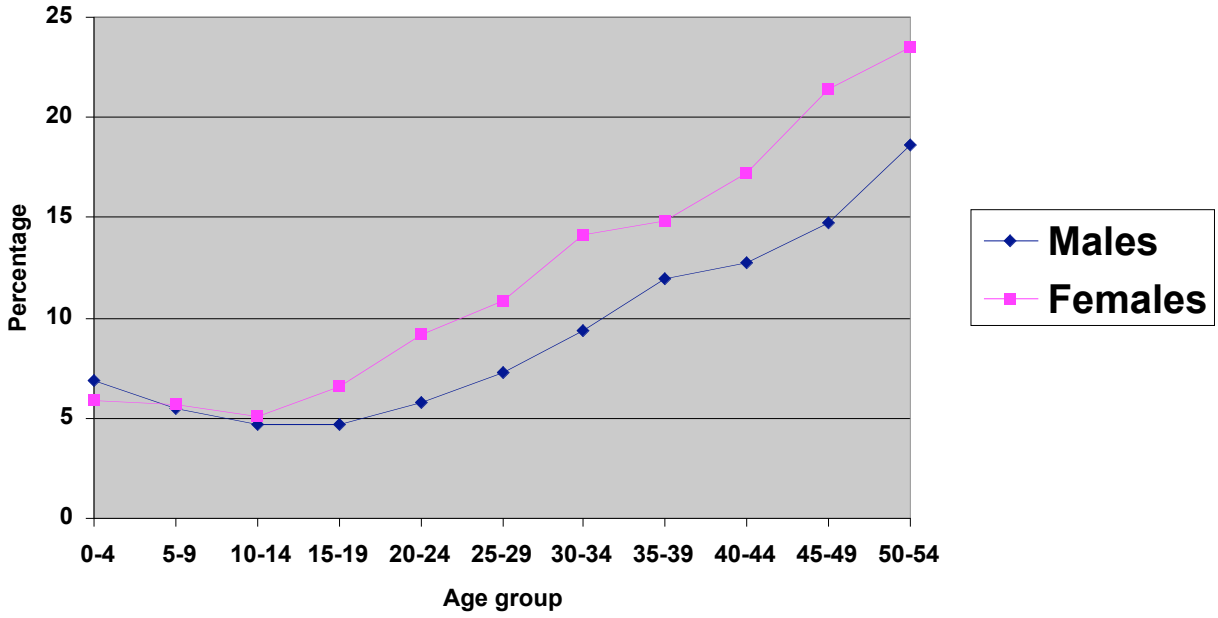
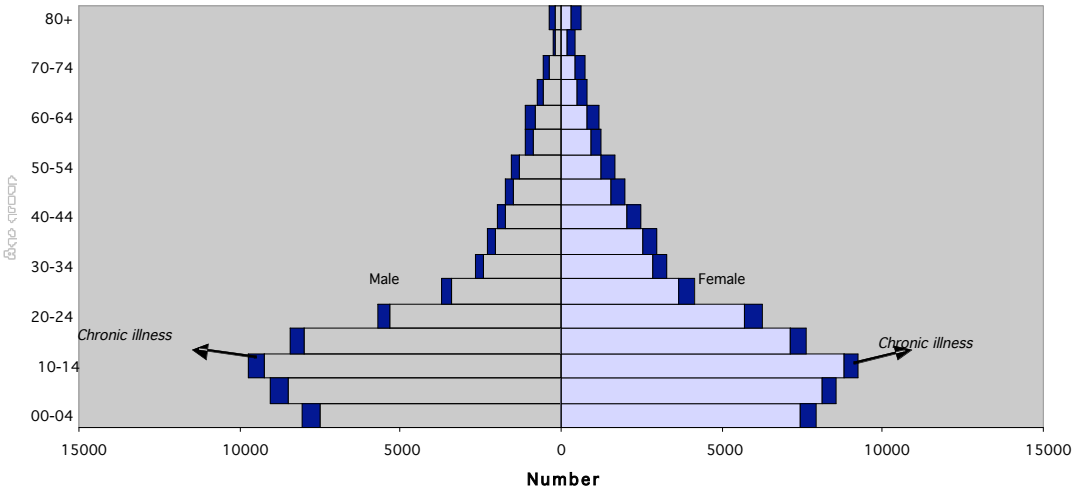


Figure 18 below provides a visual presentation by means of a population pyramid, of the proportion of chronically ill persons found among the rural population in Swaziland.

Figure 18: Proportion of chronically ill population (rural Swaziland)



The results generated by this VAC survey allow for the generation of tables of numbers of chronically ill persons by smaller geographic area e.g. at the Tinkundla level. Comparing such data with the available clinics/hospitals in the area should be instructive in terms of the accessibility of health to those in need as well as the ability of the health services to meet the demand for such services.

Mortality

In less than two decades, the near exponential increase in the HIV prevalence rate ensured that a sizable proportion of the population has become infected (possibly more than a third of the adult population). The epidemic is set to reverse the long-term trend of a steady decline in death rates in Swaziland. The increase in the number of deaths in recent years had a noticeable impact on the crude death rate and on the rate of natural increase. Current deaths reflect infection levels of approximately a decade ago. The extent of future increases in mortality levels will depend to a certain extent upon the quantity and accessibility of anti-retro viral drugs in the country. At present, the results of the Swaziland VAC survey indicate **higher** than "normal" mortality rates in the prime adult age groups (thus reflecting both higher mortality and a radical change in the normal mortality curve).

What is the extent of mortality in rural Swaziland? As mentioned in Chapter 2, respondents were requested to list those household members who had died during the past 12 months by age and sex. Admittedly such information has many flaws. Among these reasons is an inability to correctly assess the previous 12-month period, recall lapses, an unwillingness to talk about an unpleasant occurrence or even including persons not belonging to the specific household. **Yet even with the possibility of including such errors, the results of the 2003 VAC survey indicate high levels of death among those living in rural areas.** Table 8 contains the crude death rate for selected age categories. The crude death rate is a simple measure obtained by dividing the number of deaths in a specific category with the total number of persons in that category. The result is usually expressed per 1,000 of the population. To place matters in perspective - in developed counties the crude death rate is about 10 while in many developing countries it is even lower (due to the youthful age structure concomitant with the fact that young people are less likely to die compared to the elderly).

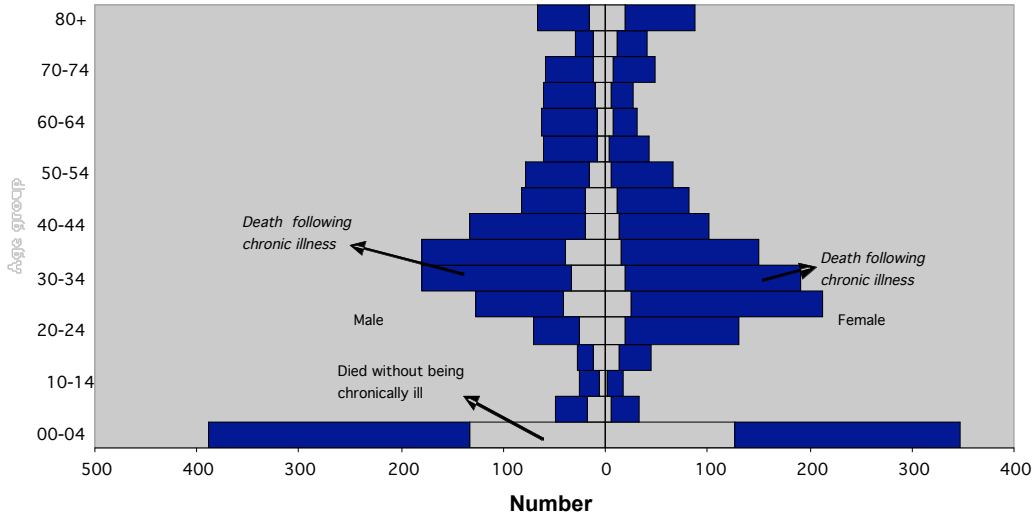
Table 8: Crude death rate in rural Swaziland

Age group	Crude death rate (Number of deaths per 1000 persons)			Number of deaths
	Male	**Female**	**Total**	
0-4	44.4	41.9	43.2	4,612
5-19	3.3	3.5	3.4	1,187
20-29	19.6	30.5	25.3	3,345
30-54	61.1	43.0	51.1	7,763
55+	76.9	52.5	63.6	3,878
Total	**26.7**	**25.1**	**25.8**	**20,785**

The 2003 VAC survey found a crude death rate of 25.8 for the total rural population. Of more interest is the breakdown of the crude death rate by age and sex. As expected, a high death rate was reported for the age group 0-4 years. Also not unexpected was the very low reported death rates for the age group 5-19 years. Virtually no gender differentials are found at these age groups. At this stage of the life cycle, human beings are healthy and experience low mortality. In terms of HIV/AIDS the older children in this group are at high risk of HIV infection, but as a result of the epidemiology of the disease, if infected in their teenage years, such persons will only die later. The death rate increases rapidly in the age group 20-29 years. Typically this is also a healthy age group and one would expect low mortality. Yet this is not the case in Swaziland. More striking is the fact that the death rate among the females aged 20-29 is more than 50% higher than the comparable male rate. This is consistent with the typical pattern of HIV infection and AIDS-related mortality in sub-Saharan Africa, where younger females are being infected at rates higher than their male counter parts. An even higher crude death rate is found in the age group 30-54. The gender differential is reversed in this age group and among males the death rate is 61 per 1000 males. And although the death rate is higher in the next category (persons aged 55 and older), this can be expected. More important is the fact that the number of deaths among those aged 30-54 was more than double the number found in the next age category. This has many social and economic implications as the age group can be seen as the core productive segment of a population.

The figure below provides certain clues as to the cause of this higher mortality. During the VAC survey, respondents were asked to indicate whether household members who died during the past year, had suffered from a chronic illness before their death. In all age groups, deaths preceded by a chronic illness constituted the majority of deaths. In conceptualising the study, chronic illness followed by death was seen as a proxy for AIDS-related mortality (with a stronger correlation among younger age groups 15 to 45 years). The high level of death among men and women in their productive years rather than among the elderly shows the extent of the problem.

Figure 19: Comparison of deaths following chronic illness and deaths not preceded by chronic illness (un-weighted numbers)



The sample size of the VAC survey makes it possible to generate a variety of tables even at smaller geographic level. This could assist programme managers to direct their efforts to more problematic areas. For analytical purposes, relative magnitudes are more important to indicate levels/trends while a field manager involved in a programme would equally be interested in the actual numbers. Table 9 illustrates the point. The table provides a breakdown of the number of deaths following a chronic illness by socio-economic group, including an indication of the relative weight of these deaths compared to all deaths. For analytical purposes it would have been more useful to present the results of this table as crude death rates in order to make comparisons using a common unit.

Table 9: Number of deaths by socio-economic group and the proportional importance of such deaths among all deaths

Age group	**Number of deaths following chronic illness**					**Deaths following chronic illness as a percentage of all deaths (%)**				
	Well off	*Middle*	*Poor*	*Poorest*	*Total*	*Well off*	*Middle*	*Poor*	*Poorest*	*Total*
0-4	219	1063	1506	261	3048	59.2	69.9	63.3	75.9	66.1
5-19	67	261	460	53	842	70.5	73.7	69.7	67.9	70.9
20-29	225	881	1384	175	2665	78.4	76.6	81.1	86.6	79.7
30-54	606	2064	3325	577	6573	79.8	85.5	84.1	90.7	84.7
55+	429	919	1666	131	3146	84.1	77.3	83.0	76.1	81.1
Total	1547	5189	8341	1197	16274	76.6	78.3	77.9	83.6	78.3

Orphans

This 2003 Swazi VAC survey provided the opportunity to investigate the prevalence of orphanhood in the rural areas. Sometimes called the "Fourth Wave" of the HIV/AIDS epidemic, the rise in the number of orphans as a result of their parent dying due to AIDS-related complications, has significant social and societal repercussions. In a normal situation of low mortality, approximately 2% of children under the age of eighteen are likely to have lost one or both of their parents. With an increase in mortality levels, there is a strong likelihood of an increase in the proportion of children being orphaned. Respondents within households were asked whether the natural/biological mother and father of children aged 0-14 years, resident in the household were alive at the time of the survey. This information enabled the calculation of maternal, paternal and double orphan rates.

Table 10 below presents the maternal, paternal and double orphan rates for rural Swaziland. The reported paternal orphan rate is double that of the maternal orphan rate for the age group 0-14 years. However, the paternal orphan rate should be used with caution as it may over-estimate the number of paternal orphans. This indicator is prone to errors, especially in situations where high rates of non-marital births occur (as is the case in Swaziland), where family dissolution is common or where men participate in labour migration. Therefore, the maternal orphan rate calculated in this fashion is a more reliable indicator. Overall in 2003, 2.3% of children younger than 15 years had lost **both** parents and these children are in a particularly precarious position. Although the proportion of children who have lost both their parents is relatively low at the present time, a calculation based on the survey results indicates that there are already 7,400 double orphans aged 0-14 years living in the rural areas of Swaziland.

Table 10: Paternal, maternal and double orphan rates in rural Swaziland

Age group	Paternal orphan rate	Maternal orphan rate	Double orphan rate
	Percentage		
0-4	5.8	**2.3**	**0.7**
5-9	13.0	**5.7**	**2.2**
10-14	16.8	**9.0**	**3.6**
0-14	12.2	**5.9**	**2.3**

Table 11 below shows the number and percentage of children under the age of 15 years who lost their biological **mother** according to the sex and age group of the child as well as according to the agro-ecological zones in the country.

Table 11: Maternal orphan rates of children under 15 years by age group, sex and agro-ecological zone

Agro-ecol. Zone	Age group							
	0-4		5-9		10-14		0-14	
	%	*N**	*%*	*N**	*%*	*N**	*%*	*N**
Highveld:								
Male	2.9	377	6.7	971	8.8	1,348	6..3	2,696
Female	2.7	329	5.9	812	9.5	1,434	6.3	2,575
Both sexes	2.8	706	6.3	1,783	9.1	2,782	6.3	5,271
Middleveld:								
Male	2.4	469	5.8	1,319	8.6	2,154	5.9	3,942
Female	1.8	364	4.4	928	8.8	2,027	5.2	3,320
Both sexes	2.1	833	5.1	2,247	8.7	4,181	5.5	7,261
Lowveld:								
Male	1.8	253	5.7	851	9.0	1,468	5.7	2,572
Female	2.5	341	5.9	897	8.8	1,349	5.8	2,587
Both sexes	2.2	594	5.8	1,748	8.9	2,817	5.8	5,159
Lubombo Pl:								
Male	1.7	71	6.9	285	11.0	430	6.5	786
Female	2.0	72	6.5	229	11.3	428	6.7	729
Both sexes	1.9	143	6.7	514	11.1	858	6.6	1,515
Swaziland:								
Male	**2.3**	**1,170**	**6.1**	**3,426**	**8.9**	**5,400**	**6.0**	**9,996**
Female	**2.2**	**1,106**	**5.3**	**2,866**	**9.1**	**5,238**	**5.7**	**9,210**
Both sexes	**2.3**	**2,276**	**5.7**	**6,292**	**9.0**	**10,638**	**5.9**	**19,206**

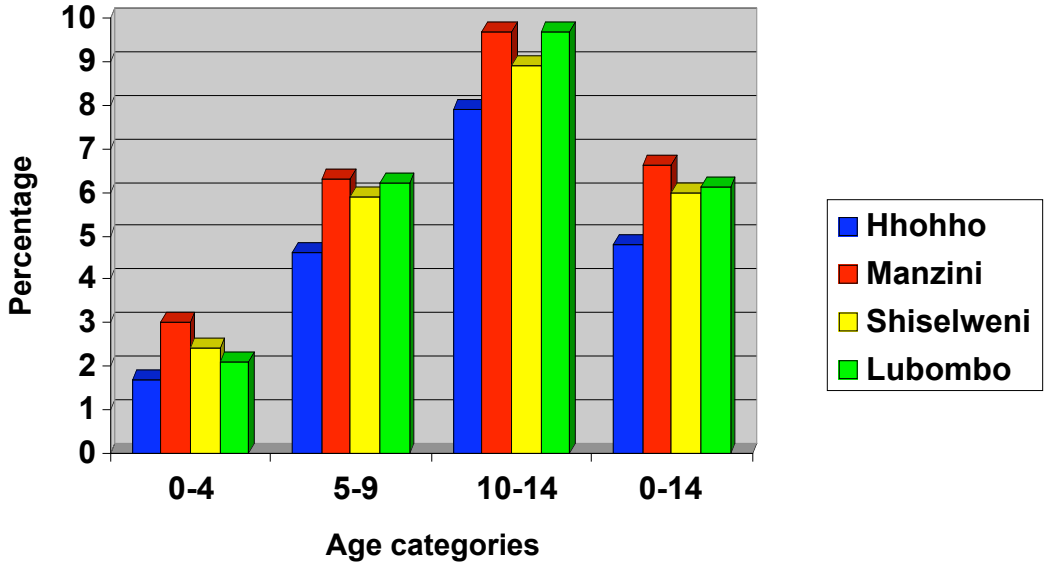
*Number of maternal orphans in the specific locality, according to age group and sex.

This table was constructed using weighted data. Salient points that emerge from the statistics are:

- The maternal orphan rate is higher in each subsequent age category.
- There is an unexpected gender difference between orphan rates of male and female children. The differences that occur are possibly the result of age misstatements and sample size. However, it is also possible that male orphans are more likely to remain a separate household than female orphans after parental deaths have occurred and are more likely to be numerically counted in surveys than female orphans who may sometimes be assumed to be with their biological parents.
- When comparing the main agro-ecological zones, children living in households in the Lubombo Plateau Zone are slightly more likely to be orphans, than those in for example the Middleveld Zone.
- The highest maternal orphan rates are found in the age group 10-14 years. On average 9% of children have lost their mother.
- In total there are approximately 19,206 maternal orphans under the age of 15, living in rural households in Swaziland.

The prevalence of maternal orphans according to region is shown in Figure 20. The increase in the maternal orphan rate by age group is clearly visible. Of the four Regions in Swaziland, Hhohho had the lowest maternal orphan rates in all age categories. The highest maternal orphan prevalence rates are found in Manzini Region – albeit only higher than the other Regions. Overall the maternal orphan rate for the age group 0-14 is nearly the same in the rural areas of Manzini, Shiselweni and Lubombo, however from the age of 5 years both Manzini and Lubombo Districts have a slightly higher level of maternal orphanhood.

Figure 20: Maternal orphan rate of children under 15 years of age by region



FUTURE POPULATION SIZE AND GROWTH

The results of the VAC survey are empirically based and are therefore very useful when tracking past trends. However, the survey results cannot provide any indication of future trends. To do this, some modelling is required. To provide some indication of future population trends for the country as a whole, a population projection was undertaken.

The projection itself was done with the use of Spectrum, a widely used population projection programme developed by the Futures Group (Stover, 1999). HIV/AIDS parameters were estimated by means of the EPP programme (UNAIDS, 2003). These results were used as input for the Spectrum population projection programme. The 1986 Swaziland census population was used as the baseline of the projection enabling a mid-way check of the accuracy of the modelling. It allowed a testing of the model with current empirical data such as the 1997 census and the 2003 VAC Survey. This check on more recent information allowed an assessment of how well the projection was performing.

The population projection is largely confirmed by the results of the 1997 population census and the 2003 VAC survey. Trends generated by the modelling exercise are largely similar to the trends found in the Swazi VAC survey. Population growth rates will continue to decline. Even though the number of deaths will increase in the coming years, Swaziland will not experience negative population growth in the near future (see Table 12). The population growth rates generated by the projection seem too low in comparison to the results of the VAC survey, indicating that the fertility assumptions used in the projection may have been too low. In addition, the age structure of the country will increasingly become more mature, as the younger age groups are reduced in size. This potentially has numerous positive implications in terms of the economy, employment, education provision and the like.

The projected population size up to the year 2010 is shown in the table below alongside the rate of natural increase for the preceding five year period. It should be remembered that this modelling exercise is subjective and is dependent on several assumptions. The mortality and fertility outcomes should be verified by empirical studies.

Table 12: Growth of the Swaziland population, 1995-2010: results of a population projection*

Year	*Males*	*Females*	*Total*	*Rate of natural increase (per 100)*
1990	405,000	345,000	850,000	3.12
1995	480,000	510,000	990,000	2.24
2000	530,000	570,000	1,100,000	1.0
2005	**565,000**	**595,000**	**1,160,000**	**0.36**
2010	**590,000**	**600,000**	**1,190,000**	**-**

*Rounded to the nearest 1,000

The table below contains a summary of indicators generated by the modelling exercise. Note should be taken of the assumed decline in fertility. A change in this value will produce different population size outcomes. Of concern is the drop in the life expectancy at birth, projected as a result of the impact of HIV/AIDS. Of interest is the fact that the infant mortality rate declines again after 2005. This may indicate flawed input data, or the impact of changing fertility levels. According to this projection the annual rate of natural increase will decline to only 0.3% by the year 2000. This low level of natural increase in the population predicted by the modelling between 1997 and 2003 has not been borne out by the empirically based VAC survey.

Table 13: Selected demographic indicators, 1990-2010

Selected indicators	1990	1995	2000	2005	2010
Total fertility rate	**5.9**	**5.3**	**4.8**	4.2	3.7
Crude birth rate	**46**	**41**	**37**	33	30
Life expectancy at birth	**54.4**	**49.6**	**35.5**	29.6	29.7
Crude death rate	**13**	**13.3**	**19.9**	26.2	26.8
Infant mortality rate	**94.4**	**95.3**	**97.3**	89.8	80.7
Rate of natural increase	**3.2**	**2.8**	**1.7**	0.7	0.3
Dependency ratio	**0.97**	**0.95**	**0.92**	0.88	0.8

The modelling exercise shows a drastic increase in the crude death rate, very similar to the findings of the 2003 VAC survey. Between 1990 and 2005 the crude death rate will double as a result of HIV/AIDS-related deaths. By 2010 the crude death rate will stabilise at approximately 27 per 1000. The table below contains an estimate of the annual number of deaths occurring in Swaziland, based on this population projection. After 1995 the number of deaths increased rapidly - while an estimated 13,000 people died in 1995 with a corresponding crude death rate (CDR) of 13.3 per thousand of the population, the projected number of deaths in 2000 rose to 21,990 (CDR =19.9). It is projected that the increase will continue until 2010 when it will stabilise at approximately 31,830 deaths per annum (a CDR of 26.8). The increasing relative death rate of women compared to men is important when considering the social and economic impact that the mortality may have on homesteads and the country as a whole

Table 14: Estimated annual deaths in Swaziland for selected years: results of a population projection

Year	Males	Females	Total	Crude death rate (per 1000)
1990	5,500	5,520	11,020	13.0
1995	6,630	6,450	13,090	13.3
2000	11,240	10,750	21,990	19.9
2005	**14,620**	**15,930**	**30,540**	**26.2**
2010	**14,960**	**16,870**	**31,830**	**26.8**

CONCLUSIONS

This 2003 HIV/AIDS, demographic and livelihoods VAC survey in rural Swaziland confirmed that rates of natural increase have lessened in rural areas down to approximately 2.0% growth per annum. This reduction was not solely the result of the long term trend of declining fertility rates in Swaziland. The death rate among the rural population was found to be high and increasing. In addition, a fair proportion of these young and normally unexpected deaths occurred after a bout of chronic illness, some indication that AIDS related complications play a determining role in the increasing death rate. These results should be seen against a backdrop of rising HIV prevalence rates as measured at selected antenatal clinics in the country.

The survey confirmed the presence of relatively high rates of chronic illness among the rural population, even in age groups where one would normally not expect this to occur.

The 2003 VAC survey in Swaziland found high rates of orphanhood among children below the age of 15 years. At present, 6% of children (totalling 19,206) aged 0-14 years are

maternal orphans and 2.3% of children less than 15 years have lost both their parents. Given the predicted course of the epidemic, characterised by deaths among young adults, the proportion of orphaned children is set to rise in the coming years. This will have numerous social and economic implications, both on care-giving households, as well as the country as a whole. Access to education for these orphans is one determinant of whether they will be in a position to actively contribute to Swaziland society and economy as they grow older. It is important to monitor how many of these orphans are indeed regularly accessing education and build on current initiatives (by NERCHA and other NGOs etc.) of education provision for these often vulnerable children.

One of the pre-survey expectations was that this VAC study would show higher age dependency ratios at the national and sub-national levels, as a result of increasing deaths among adults. However, the results of the survey indicate that changes in the age structure, as a result of declining fertility, more than compensated for deaths among those in the most productive age groups. When taking into account household members who reported bouts of chronic illness, and thus are not likely to be productive (income earners/home makers etc.) in the usual sense, the Swaziland VAC survey found that the "effective dependency ratio" in rural Swaziland was between 20% and 35% higher than the standard dependency ratio. The effective dependency ratio will, of course, vary by area and household. Therefore individual households who lost productive members, or who took in orphans from households that have dissolved, or who have ill members, may be faced by a "dependency" crisis: children, sick members and elderly persons depending on fewer or no productive adults that may bring food and/or income into the household.

The population projection undertaken to benchmark the findings of the VAC survey, resulted in magnitudes largely consistent with the survey results, as well as with the findings of other projections carried out in Swaziland. The VAC survey highlights a strong need for a demographic and health survey in Swaziland. Besides generating accurate fertility and infant mortality data, such a survey should investigate other reproductive health matters, not the least is the current use of barrier methods. This will indicate how successful current information, education and communication (IEC) campaigns are in convincing the population of Swaziland to change behaviour patterns in order to stop the epidemic from spreading any further.

Another aspect to note is the need for accurate population-based HIV prevalence data. Recent population-based surveys conducted in Zambia, Kenya and South Africa found that surveillance data may over-estimate the HIV prevalence rate in the population (ORCMacro, 2003; Shisana, et al 2003). Stronger statistical prevalence data will give more credibility to the outputs of models predicting the course of the epidemic as well as population projections.

It is possible (and indeed desirable) to generate numerous tables on a variety of topics for example by smaller geographic area and socio-economic status because of the large sample size of the survey. Due to length considerations the present report did not exhaust the numerous potential avenues of analysis at smaller geographic levels. Therefore, government departments, NGOs and multi-national donor and aid organisations active in Swaziland may desire additional analysis from the data collected during the survey. More detailed tabulations will make it possible to conduct interventions and programmes targeted in specific areas. For example, it is possible to determine figures on the estimated number of orphans by Tinkundla, or for instance the number of chronically ill women and/or men by Tinkundla. The comparison of crude death rates by smaller geographic area could also show if there are indeed any regional differences in the impact of HIV/AIDS. The Swazi VAC is keen to hear from stakeholders who are interested in taking the analysis further.