The Shell HIV/AIDS Market Impact Study

What will be the impact of AIDS on Shell's markets in Southern Africa during the next twenty years?

Final Report

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Submitted by

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The opinions expressed in this report do not necessarily reflect the opinions of the staff or management of Shell South Africa (Pty) Ltd or of the Royal Dutch / Shell Group of companies

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Executive Summary

This study was commissioned in 2001 by the management of Shell South Africa in order to understand the possible impact of HIV/AIDS on Shell's markets in six countries of Southern Africa: Namibia, South Africa, Botswana, Lesotho, Swaziland and Mozambique. The principal conclusions are summarized here.

Horrendous, but Manageable Epidemic

The HIV epidemic has spread widely among young adults in Southern Africa, which now has the highest infection rates in the world. These vary from 10-15% in Mozambique to nearly 40% of pregnant women in Botswana. We know that nearly everyone infected with HIV will eventually fall ill and die of AIDS, usually 7-10 years after the original infection. However this will happen little by little. In one model, 4% of the adult population will be ill or die of AIDS in 2008, even though the HIV prevalence ten years earlier, in 1998, was roughly 22%. This is because the annual death rate reflects the annual rate of new infections 7-10 years earlier, while the prevalence rate counts everyone who is HIV+ in a given year, regardless of when they were infected. These figures mean that the burden of disease in any one year will be manageable and – given the long incubation period – it is a burden for which we can prepare.

Projected Economic Impact of AIDS

We know that **households** with AIDS are hit hard, with disposable income and savings being affected, and new household types – grandparent households, orphan-headed households – appearing after parental death from AIDS. In **companies**, both the direct and indirect costs of AIDS are expected to rise, with some of the costs becoming visible now. The **macro-economic models** all project that GDP growth rates will be depressed 0.3 to 1.6 percentage points below non-AIDS growth rates due to reduced productivity and higher company costs, less disposable income, and greater government spending. Studies of **market impact** show that populations in 2020 will be only slightly larger than the population today and smaller and previously predicted..

Interviews in Shell – evidence and postulations about market impact

Interviews with Shell managers in 2001 found that there is **little current evidence** that AIDS is affecting Shell's markets. However, there is increased illness and absenteeism among the forecourt staff in Gauteng and KwaZulu Natal and other signs exist that the disease could become more serious, including a rise in funerals and death notices among young people. In the **retail** sector, Shell staff **postulated** that slower population growth, slower growth in personal income and the loss of disposable income would affect retail sales. In the **commercial** market sector, the dominant assumption was that AIDS would create higher employment costs for commercial clients who would then either mechanize production, squeeze suppliers such as Shell, or possibly go out of business. There was also a fear that illness among Shell staff would increase the risk of accidents, especially in refining and transport, which could then affect sales.

Diagrams showing 'who depends on whom' in Shell's markets found only **one clear hot spot** where the epidemic is currently affecting the business. This is the commercial road transport sector, where drivers have a higher than average rate of infection. Otherwise, Shell is integrated in a

multitude of ways into the economies and societies of Southern Africa and its future markets will reflect the future economies and societies of the region.

The study team also concluded that the future impact of HIV/AIDS could not be deterministically predicted, as a myriad of future decisions by individuals, businesses, NGO's and Government will all influence the way in which the future impact of the epidemic unfolds. This made it infeasible to calculate a clear impact of AIDS on Shell's markets and led to the decision that scenarios should be written.

Scenarios of the Future

There are **three strong driving forces** spreading HIV/AIDS. The first force is the 'Autonomy of Disease'. HIV, like other diseases, has a life of its own. It is a living, evolving organism in a complex ecology that humans can barely control. The second force is the 'Jaiphur Paradigm' that argues that the HIV epidemic spreads fastest when, as in Southern Africa, society is relatively wealthy, but has low social cohesion. The third driving force is the 'Tension between Two Worlds' – African and European. This tension has created an unhealthy dialectic in which long distance migration, reduced social cohesion, and competing explanations for HIV/AIDS have made it hard to slow the spread of the disease.

Given these three strong driving forces and the high current prevalence of HIV, it is **inescapable**, that HIV will continue spreading for at least the next 5 years and that societies will face a rising death rate among young adults for most of the next 20 years. This will bring suffering to households, higher costs to businesses and slower economic growth in the region. However, it appears that these economic costs are bearable and the major risks are social and political, as no one knows how societies will respond as more people die of AIDS. This is the **major uncertainty:** will societies fracture fragile social contracts, especially in South Africa, by refusing to accept the demands of the disease? Or will people use AIDS and its challenges to build stronger foundations for the future? The three scenarios, written with South Africa in mind, present three different answers to this question.

"New Schisms" Scenario

New Schisms is a world in which the Western capitalist system dominates, where success is measured in money and things. It begins as the South African government seeks to build a strong Western-style economy managed by capable African hands. In an early attempt to attract foreign investment, the government's policy on HIV and AIDS changes. The government tacitly accepts that HIV causes AIDS and grants limited rights to treatment. However, the main policy response is to reduce poverty through growth. When foreign investors fail to appear, policy shifts towards the development of a self-sufficient African market through investment in new regional roads. These roads help increase economic growth, but they also increase competition and help to spread HIV. As firms are driven out of business, unemployment does not fall as far as hoped. Furthermore, the benefits of the new regional economy are not well shared, so that while some people become wealthier, many remain poor. This inequality also encourages the spread of HIV/AIDS. As economic growth is emphasized, the legacies of African culture are pushed underground. The new campaigns to slow the spread of AIDS are based on the Western medical model and have little impact on many people at risk. As the public campaigns fail, leaders in KwaZulu Natal ask for more government resources to respond to AIDS. Their requests

are refused. The IFP breaks with central government and calls for a return to traditional values. Little by little, the different cultures in society stop engaging with each other. *New Schisms* are created as HIV prevalence and deaths from AIDS continue to climb, slowing the economy down in the second decade of the scenario period. *New Schisms* is an unstable world.

"Silence is Deadly" Scenario

This scenario begins with a global economic slowdown and Government beset by demands for solutions to a multitude of problems. As the value of the South African Rand falls, inflation and unemployment rise. The rising death rate becomes more evident but the issues around AIDS policies are simply too difficult for Government to resolve. Increasingly, the language of AIDS reflects a sense of exclusion from the benefits of a new South Africa. "What did the struggle achieve?" ask many people. There is a growing division in society as the wealthy retreat behind razor-wired walls or leave the country. Despite the noise, few are ready to accept the disease. There is continued denial and blame on all sides. In communities everywhere AIDS is still not given a name, even when young people are dying of the disease. As AIDS hits families, children are withdrawn from school. However even those children who manage to get to school are getting a lower quality of education because teachers are falling ill and leaving their classrooms for long periods. The lack of education and employment fuels the epidemic further. As the general economic situation worsens, the quality of government declines. With little employment available, there is an increase in government patronage jobs, causing a further decline in the quality of government service. Worse, with the lack of any clear policy on the treatment of AIDS, there is a growing black market in anti-retrovirals that create drug-resistant HIV. With no jobs, no money, and the threat of death all around, many people are angry at the failure of the ideals that once ended apartheid. Feeling both tricked and bewildered, they treat the messages about AIDS as just another hoax. This is a story of failed ideals and the violent incomprehension of separate lives. On all sides, one hears the question: "Why should we even try to live together?" but there is no clear reply.

"Communities of Survival" Scenario

Communities of Survival begins slowly as more and more people speak openly about the AIDS crisis. They ask themselves and each other: 'Where did we go wrong?" In late 2003, a delegation from KwaZulu Natal approaches Government, asking for a change of policy. In response, the government devolves responsibility for HIV/AIDS, sub-contracting to local and provincial bodies both inside and outside government. This encourages new partnerships, the skills for which build slowly over the next 5-10 years. Independently, the business sector also begins to respond, finding ways to educate and protect their workforces, including the use of low-cost treatment with anti-retrovirals. As managers give their attention to AIDS, they find themselves caught in a dilemma: there is a clear social crisis, but foreign and local shareholders complain about poor earnings, assuming that disease is a government job. Public relations campaigns intensify in financial markets. The business policy of treatment, however, has an unexpected benefit: it encourages many HIV-positive people to declare their status. AIDS gradually becomes a normal disease and behaviour begins to change. On another front, Western-trained doctors and traditional healers work more closely together. By 2006, new procedures are developed to admit qualified *sangomas* and *inyangas* into Medical Aid schemes. The public language of intervention broadens to include African beliefs about the causes of disease. HIV prevalence starts to fall in 2008 but deaths continue to rise. Women with HIV worry above

all about the future of their children and personal requests for help multiply in all directions – to family, friends, neighbours, bosses and organizations located nearby. Many respond, with new organizations arising to meet the new need. By the end of the scenario period, government is smaller, but more effective. The real achievement has been the growing social engagement and trust in society as all cultures recognize they are fated to live together and can do so successfully.

Recommendations

In all three scenarios, Shell needs to **monitor, minimize and manage** the epidemic in its own operations**.** Monitoring includes a profile of the workforce and its health, as well as monitoring the market for any signs of an increased impact from AIDS. Minimising means working to limit the spread of HIV among staff, partners and customers. Managing includes having clear policies on treatment, retirement and other issues related to managing the effect of ill health in the workforce and working to maintain morale among those who are not ill. All of these efforts need to engage not just Shell staff, but also those who are linked to the company as franchises or contractors or suppliers. In taking these actions, it is important to create the sense that Shell is a **community that cares,** that it is a company made up of people who look after each other and the world around them. AIDS may be a medical issue, but social interventions are likely to be most effective. Many of these recommendations are already being followed.

Shell also has a responsibility in the **broader community.** This is where Shell as a responsible corporate citizen has an important role to play by, for example, supporting efforts to maintain or improve access to education throughout the epidemic, as well as encouraging an industry-wide responses to the disease, something already begun with SAPIA. Shell should also encourage staff to respond personally and learn to benefit from what staff gain by engaging with others outside of Shell. Given the gap between the African traditions and Western concepts of disease, it is also recommended that Shell hire a company *sancoma* to work with staff internally and in the wider community. Finally, the study team believes that the scenario work should be made public, possibly in a road show, in order to encourage a wider debate on managing HIV/AIDS in society.

There is a clear consensus that HIV/AIDS will have **business implications.** Some are already apparent, others will become more important in the years ahead. All need to be debated. For example, as growth will be slower in all scenarios, how will Shell cope with a decade of lower growth? How can Shell manage lower workforce productivity? What can and should Shell do to manage the shortage of big vehicle operators in the region? These are a few of the issues that are likely to arise.

Dilemmas

None of these recommendations are easy to follow and all draw the company further into two serious dilemmas. First, it is one thing to say that Shell is a community that cares, but where is the boundary of Shell's community? This needs to be thought through carefully. Second, and more profoundly, surviving the AIDS epidemic and helping the societies of Southern Africa become stronger through this crisis will raise the costs of doing business in the region and will inevitably affect returns. It is clearly a 'right thing' to do. But how can it be squared with the stock market's expectations for reliable quarterly returns? In managing these two dilemmas, imagination, innovation and care will be required.

Origins & Design of the Study

In January 2001, Errol Marshall, Chairman of Shell South Africa, and Barbara Heinzen, a freelance researcher based in London, discussed the possibility of doing a study of the impact of AIDS on Shell's markets in Southern Africa[1]. There were three clear requirements:

1. to help Shell management understand epidemiological statistics on the spread of HIV and interpret existing studies of the projected impact of AIDS;
2. to identify those 'hotspots' in Shell's markets in Southern Africa that were likely to be worst affected by the disease;
3. to assess the wider impact that the AIDS epidemic might have on the societies and economies of Southern Africa and on Shell's businesses in the region.

By July 2001, a methodology had been designed and terms of reference had been agreed between Barbara Heinzen, Shell South Africa and HEARD[2], directed by Alan Whiteside. The HEARD researchers assembled the data, conducted over seventy interviews in Shell's Southern Africa businesses, and helped Barbara Heinzen interpret the assembled statistical, scholarly and interview information. During the final development of the scenarios, both Tom Papenfus, Strategy and Planning Manager in Shell S.A., and Dr. Chris Snyman, Company Medical Advisor, worked intensively with the team.

The study team presented its findings to the management of Shell South Africa in three Powerpoint presentations, with the key findings and discussion summarized afterwards in a written form:

1. Report 1: What We Know and What We Don't Know (27 August 2001) – a review of the basic epidemiology and studies of the projected impact of AIDS in Africa and Southern Africa.
2. Report 2: Linking People to Numbers, Volumes & Things (8 October 2001) – a feedback of 74 interviews with Shell staff in Southern Africa to identify who depends on whom in Shell's markets, as well as staff's experience of AIDS and its possible impact.
3. Report 3: Peeling the Skin Off Society: Three Scenarios of Illness, Death and Recovery in the Age of AIDS (10 December 2001) – three scenarios of how the epidemic might evolve over the next twenty years and the impact it might have in the region. This report also included recommendations to Shell South Africa.

This Final Report summarises the first two presentations, but describes in detail the scenarios and recommendations delivered in the third presentation to management in December 2001. In addition, all of the study's Powerpoint presentations and written reports, plus statistical tables and key working documents, have been copied onto a CD/Rom for future use within Shell or elsewhere.

[1] For the purposes of the study, Southern Africa included only six countries: South Africa, Namibia, Swaziland, Losotho, Botswana and Mozambique. Zimbabwe was not included due to the chaotic state of the country during the study period.

[2] HEARD is the Health Economics and HIV/AIDS Research Division, University of Natal.

Epidemiology, Impact & Interviews inside Shell

Key Findings of Reports 1 & 2

Report 1: What We Know & What We Don't Know

The Epidemic: *What We Know & What We Project*

The most reliable statistic for tracking the spread of HIV/AIDS in the general adult population is the rate of infection among women attending state ante-natal clinics (ANC data) .[3] All the countries in the region collect sentinel survey data, once a year, from ante-natal clinics in their countries, but only four countries use this data to estimate national prevalence levels. (See Figure 1.) While there is a wide range of infection rates from one country to another and from different sites and provinces within countries, these data show that Southern Africa is currently the worst affected regions in the world.

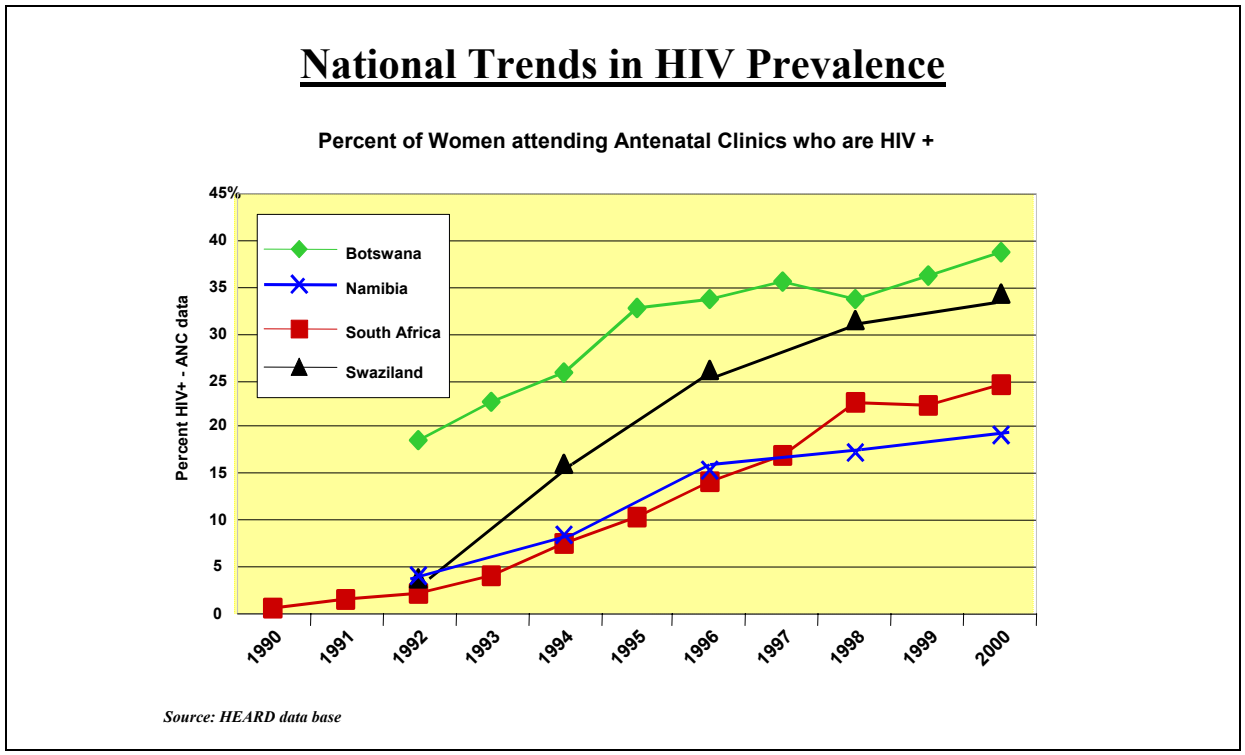


Figure 1: Only four of the six countries produce national estimates of HIV prevalence. Lesotho and Mozambique produce data by site. In Lesotho, prevalences in 2000 ranged from 12.9% in Mokhotlong to 42.2% in Maseru. In Mozambique, the prevalences for 2000 were 5.7% in the northern and 16.5% in the central region.

[3] For all the study countries, except South Africa, these public sites represent the population at large fairly well. Private clinics track the wealthier populations, but do not yet contribute data to the national sentinel survey. In South Africa, this adds a racial bias to the data, as many white, coloured and Asian women do not visit state ante-natal clinics.

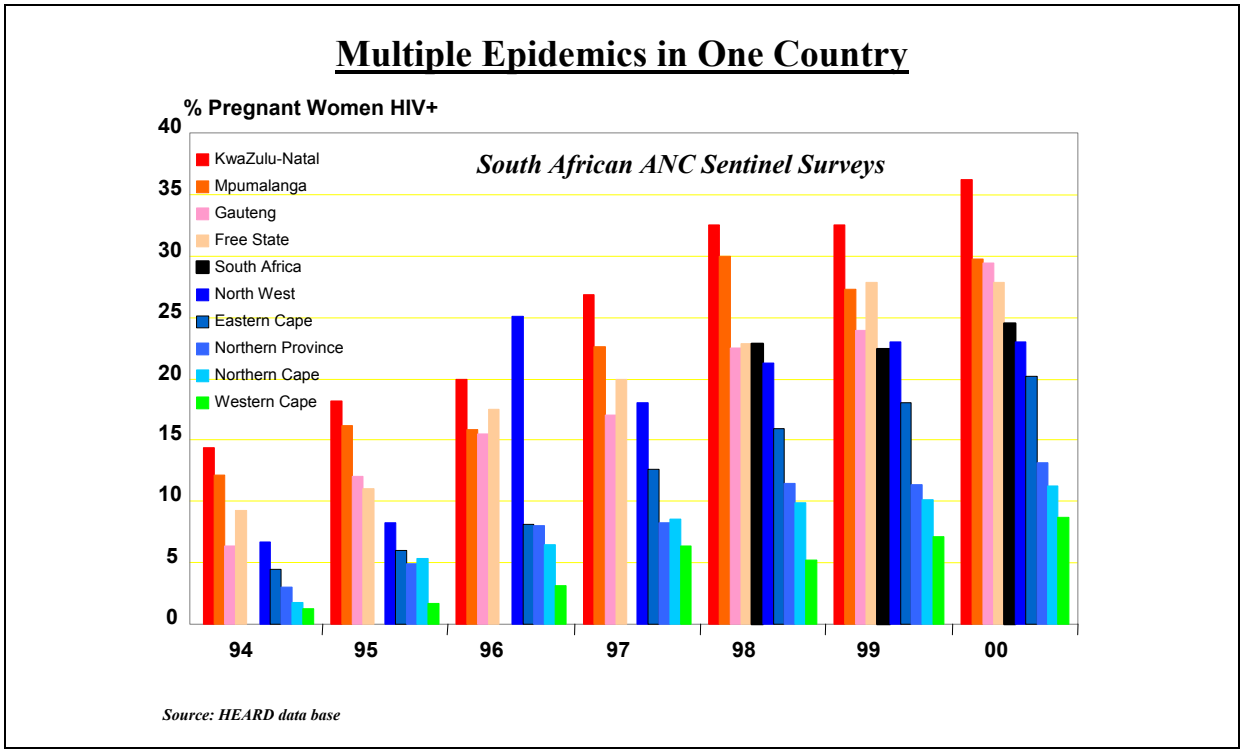


Figure 2: In other countries, there are similar variations in HIV prevalence rates between survey sites.

Among women, the age group most affected is in their 20s, while the highest rates among men tend to occur when they are in their thirties. When this is translated to the impact on a single age group of people born in 1970, it can be seen in Figure 3 that by 2010 one in five of that cohort will have probably died of AIDS, with almost another 20% infected, but still alive.

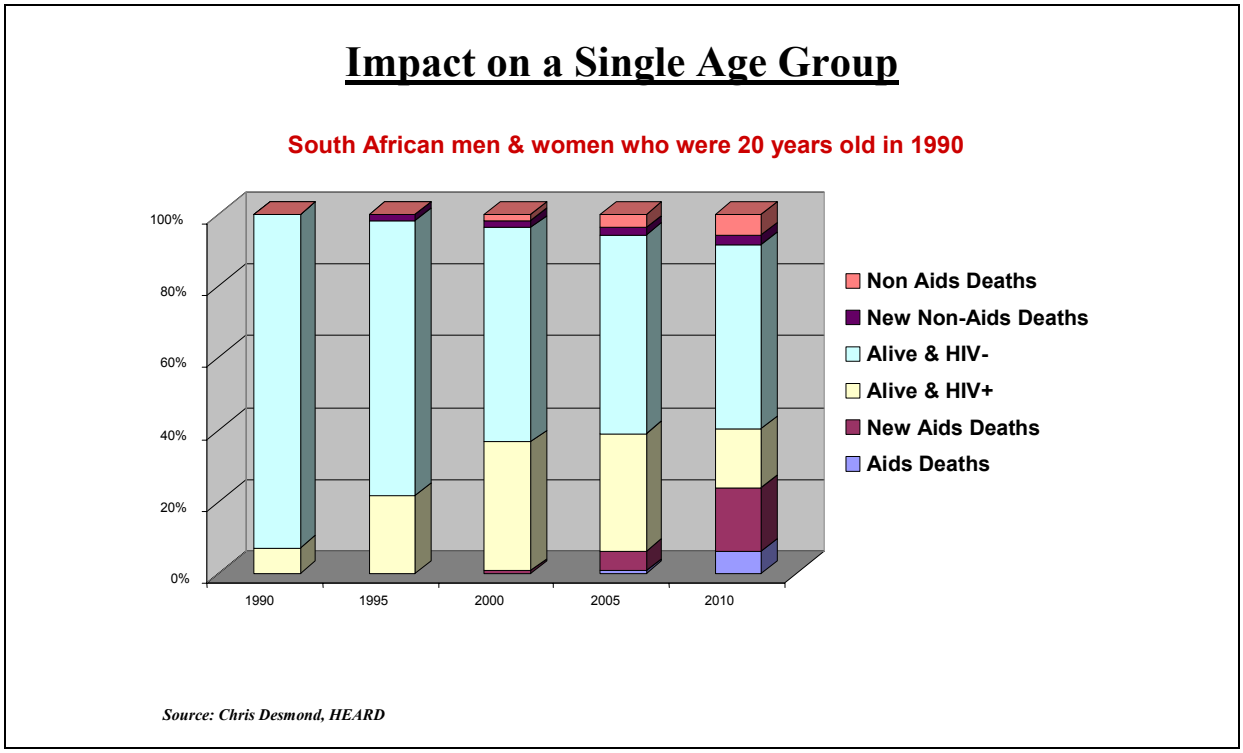


Figure 3: This projection shows HIV/AIDS reducing the number of healthy people in a given generation.

The projections of future AIDS illness and death due to current HIV rates are considered fairly accurate, but assume that there is no dramatic change in the incubation rate of the disease, i.e. the period that elapses between the original infection with HIV and falling ill with AIDS-related diseases. These projections of AIDS show an epidemic that grows slowly, killing a small, but significant percent of the population each year. Some projections put the annual illness and death rate as high as 7%; others are as low as 4% of adults each year, depending on what is assumed about the incubation period. This rate of premature illness and death is horrendous, but it is also manageable because we can anticipate it and prepare for it.[4]

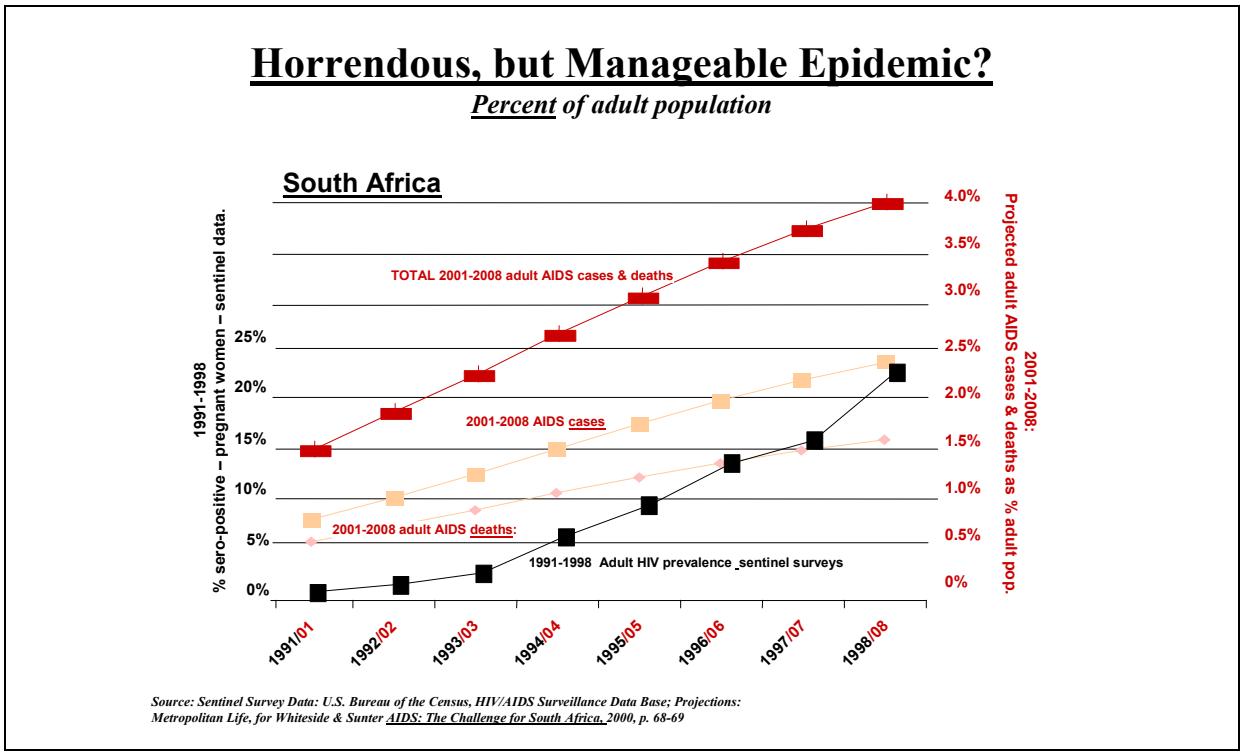


Figure 4: The line representing illness and death reflects the percent of adults falling ill and dying in a particular year. The line representing prevalence 10 years earlier, represents everyone who was HIV+ regardless of when they were first infected. As a cumulative figure, the prevalence is bound to be higher than illness and death.

The Epidemic: What We Don't Know

In general, sentinel survey data is only broken down by age, sex and geographic site. There are very few detailed breakdowns of who is infected by income, education or occupation, with most such information coming from company data or from Swaziland's sentinel survey. These limited sources show that infection has reached people in all education and income groups, to varying degrees. In Debswana, 19% of their two highest job groups were infected. In Swaziland, 36-37% of women with high schools and secondary educations were infected.

These limited data mean we still do not know reliably the distribution of HIV infection by income, education, ethnicity, or occupation. Nor do we know the impact of all interventions to limit

[4] Prevalence represents all people who have HIV in a given year, regardless of what year they first became infected. The future incidence of AIDS, on the other hand, represents the number of people falling ill or dying of AIDS in a given year. This rate reflects an earlier incidence of HIV – i.e. the number of new infections at a particular time in the past. The projected incidence of AIDS in any year is therefore lower than the prevalence rate 8-10 years earlier.

the spread of HIV and manage AIDS, including the use of anti-retrovirals. Nor do we know what will happen after the peak of infection is reached; will infection rates decline or only stabilize? This lack of this data makes it hard to predict what the future economic impact of AIDS might be.

Impact: *What We Know & What We Don't Know*

There are very few published empirical studies of the impact of AIDS on households, companies, consumer markets or economies. None of the published studies of households cover the six countries of Southern Africa included in this study, although there are eight recent studies of the impact in companies in Southern Africa and three market studies for South African companies. We do know that households with AIDS have used their savings, investments and the sale of assets to cover the cost of disease, while also pulling children out of school and looking for ways to diversify their income. New households have formed around grandparents and orphaned children, while some households have disappeared, with survivors being taken in by others. A five-year study in Zambia found that the average disposable income of both urban and rural households experiencing AIDS declined by 80%. Similarly, the companies studies show that both direct and indirect costs will rise due to AIDS and some of those costs are visible now. The market studies are not empirically based, but project that both slower population growth and diverted consumer spending will result in smaller markets for goods.

There is only one historical study of the macro-economic impact of AIDS and malaria in Africa from 1990-97, which found a 1.2% decline in per capita growth due to these two diseases. All other studies are based on simple models which first model the prevalence of infection, illness and death, then model the resulting impact on population structure and size, and finally model the impacts of these on the economy. They do not try to model the interaction of AIDS with the economy and therefore leave out, for example, how a slower economy might increase the prevalence of HIV. Demographic projections show that populations will not grow as much as had been expected, but will still be larger (in most countries) than they are today, with a large gap in the working-aged population. Projections of economic growth all show a decline in annual GDP growth of 0.2-1.9% due to AIDS. The key variables determining the impact of AIDS on the economy are the availability of skills, savings, and government finance. If highly skilled people, and people with high savings fall ill and die, both skills and savings will be lost. If the government attempts to finance most of the cost of AIDS, there will be a slow down in the economy. However, if the disease largely appears among easily replaced unskilled labour and government spending patterns do not change because of AIDS, then economy will be less affected.

All the current models of the future economic impact of AIDS are relatively simple and linear. Linkages, therefore, are the biggest unknown here: how might infection, illness and death interact with wider economic, social and political activity and vice versa? We simply do not know.

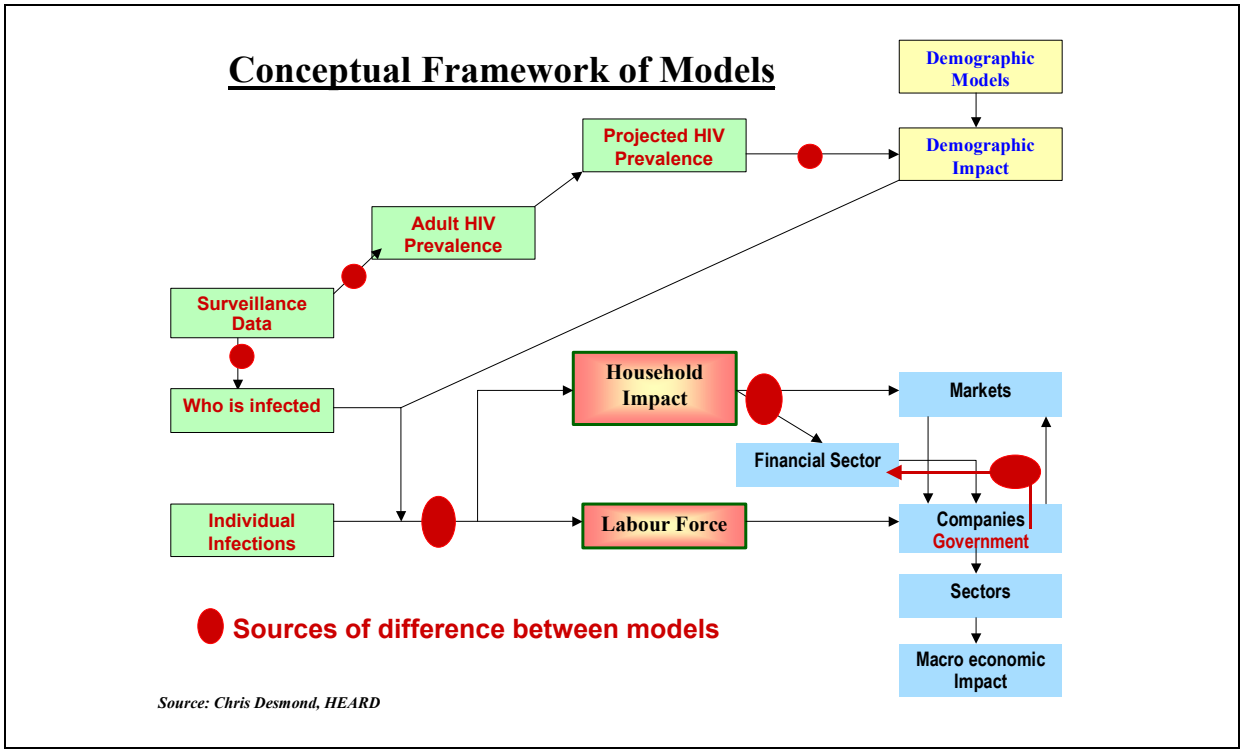


Figure 5: All models are linear. They trace the impact of HIV/AIDS from illness to demography to economy. None looks at the impact of the economy on AIDS and vice versa.

Report 2: Linking People to Numbers, Volumes and Things

The second stage of research consisted of 74 interviews with Shell staff in the six Southern African countries included in the study. Four questions were asked:

1. Who depends on whom in your market?
2. What influences your market?
3. What might be the impact of HIV/AIDS on your area of business?
4. Have you seen any evidence of the impact so far?

What Dependencies? What Influences?

The interviews led to the development of about 20 detailed diagrams of business relationships in Shell's markets in Southern Africa[5], showing who depends on whom for their flows of income. These 'relationship maps' highlighted the fact that Shell's activities are integrated in all areas of society in Southern Africa, but given the variety of ways in which the HIV/AIDS epidemic might affect society, the study team concluded that no clear, deterministic conclusions about the impact of AIDS on Shell's markets in the region could be drawn. Commercial Road Transport (CRT) was the exception. This is already an epidemic 'hot spot' where the AIDS epidemic will have a direct impact on Shell's businesses and operations in the region.

[5] These diagrams are included in the CD/Rom.

Given these findings, it is not surprising that, although AIDS was a concern for Shell managers, it currently has only middling importance. Government policy, politics, competition, prices and the economy are all seen to have more influence on the current business than the epidemic.

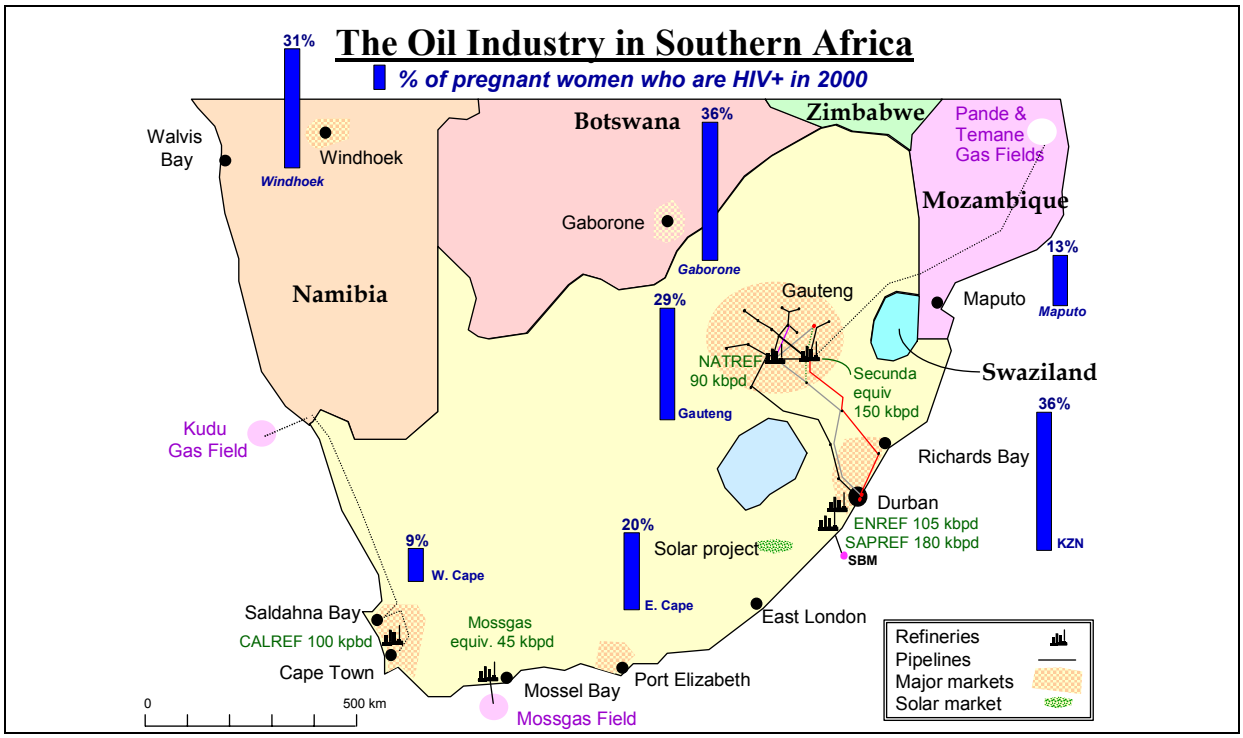


Figure 6: Main areas of Shell's business are also hot spots of the epidemic. So far, however, evidence of clear direct impact is limited.

Present Evidence – What Is Seen Now

There is considerable overlap in the location of the oil industry and the location of the HIV/AIDS epidemic. One would, therefore, expect to see evidence of AIDS in Shell's operations and markets in the region, but the evidence of present impact was limited, although several managers had noticed increased funerals and death notices in their regions.

In **Retail,** managers in KwaZulu Natal and Gauteng, did not report evidence of any market impact, but did report higher turnover and absenteeism among staff on the forecourts. Several also noted that staff complained of "Loss of Power". "They look perfectly healthy … but give 'loss of power' as the reason for compromised performance", said one manager in KwaZulu Natal. Wealthier areas reported no evidence of an impact at retail sites. However, these small signals could point to larger future effects. During one interview from a prosperous area of Soweto, local people were described as "thin and sickly and scarce", with rising death notices in the local paper. "That they are all young is the most devastating fact. This is the work force, future generation, future leaders, name-carriers, etc. …" "AIDS will impact significantly. The epidemic is hitting mainly black people who are well and truly our biggest market."

On the **Commercial** side, there were reports of increased illness and absence in the workforces of agriculture, construction and government, with a ready acceptance that high rates of HIV exist in the mining sector. In addition, there was one important story of key market relationships having been weakened by the illness of a Shell staff member. This illness, which was not explained to other staff, also led to considerable demoralization in his part of the company.

The most direct current impact is in **Commercial Road Transport**, which also affects Shell's operations. Shell's CRT customers are already experiencing an AIDS epidemic and the fear here is that more illness will lead to accidents and bad service. Among smaller companies this could lead to closure or bankruptcy. Larger CRT companies might limit the road hours of their drivers, which would cause costs to rise. If costs rose because of driver illness, then these CRT companies might try to squeeze suppliers like Shell in order to stay profitable.

Some of the most interesting interviews were in Botswana, where the HIV epidemic is widely spread and well-established. All the Shell staff in Botswana have had experience of the epidemic in one way or another. However, they were also confident that this was a disaster that could be managed. In taking this point of view, they are helped by the high profile lead taken by President Festus Mogae and by the wealth of the country's economy.

Possible Impacts – Speculations on the Future

Although present evidence of the epidemic is scattered, Shell people in both the retail and commercial sectors speculated on the types of impact that could be felt. In retail there were worries that a decline in service station standards due to ill health would drive customers away in prosperous areas relatively unaffected by AIDS. There were also fears that fewer people, a decline in disposal income, the sale of private cars and rising unemployment would all reduce the size of future retail markets. However, there was also speculation that households would need to rely increasingly on the taxi trade that would make this a more important market segment.

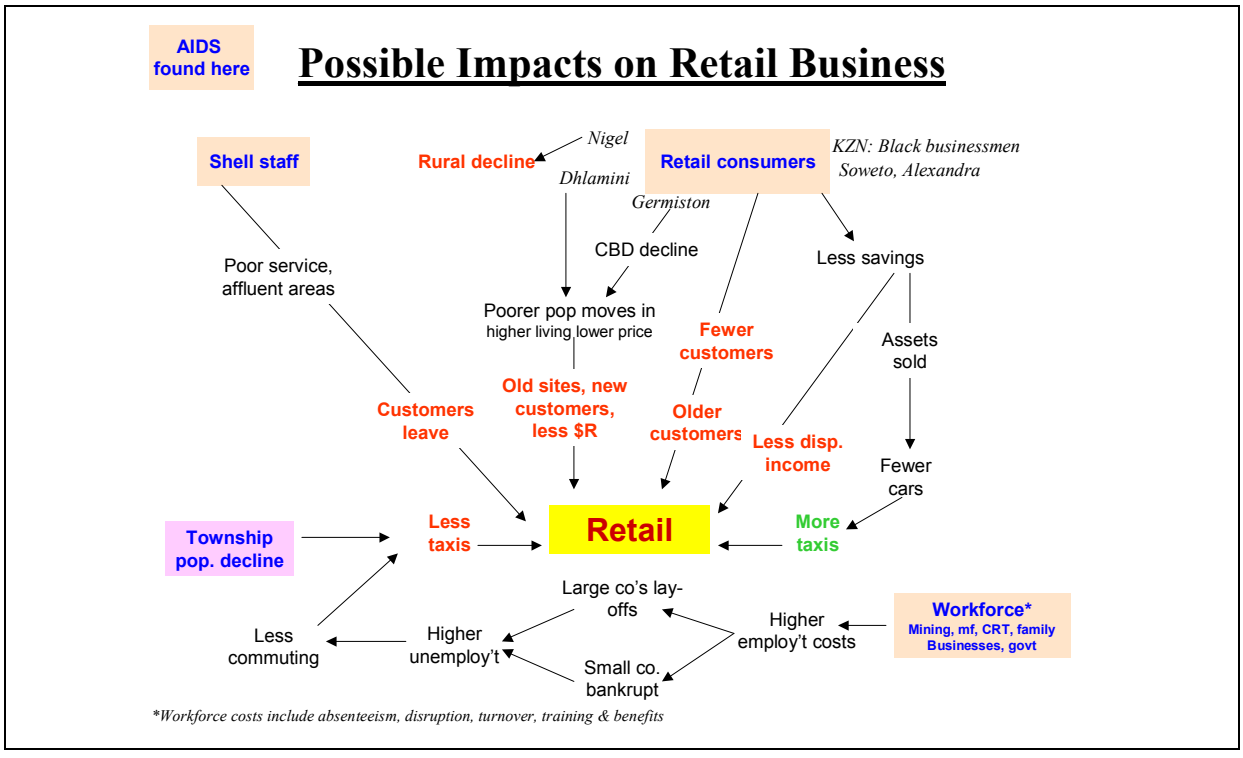


Figure 7: Shell staff postulated a variety of ways that AIDS could reduce the size of the retail market in coming years.

Retail could also be affected indirectly. There was a distinct worry that increased illness among Shell operators in manufacturing and refining would increase the risk of accidents which would have an impact on Shell's image and brand. Similar risks could hurt the convenience stores, largely

through food contamination. This led one person to identify a central management dilemma around AIDS: "How do we be politically correct and safe?"

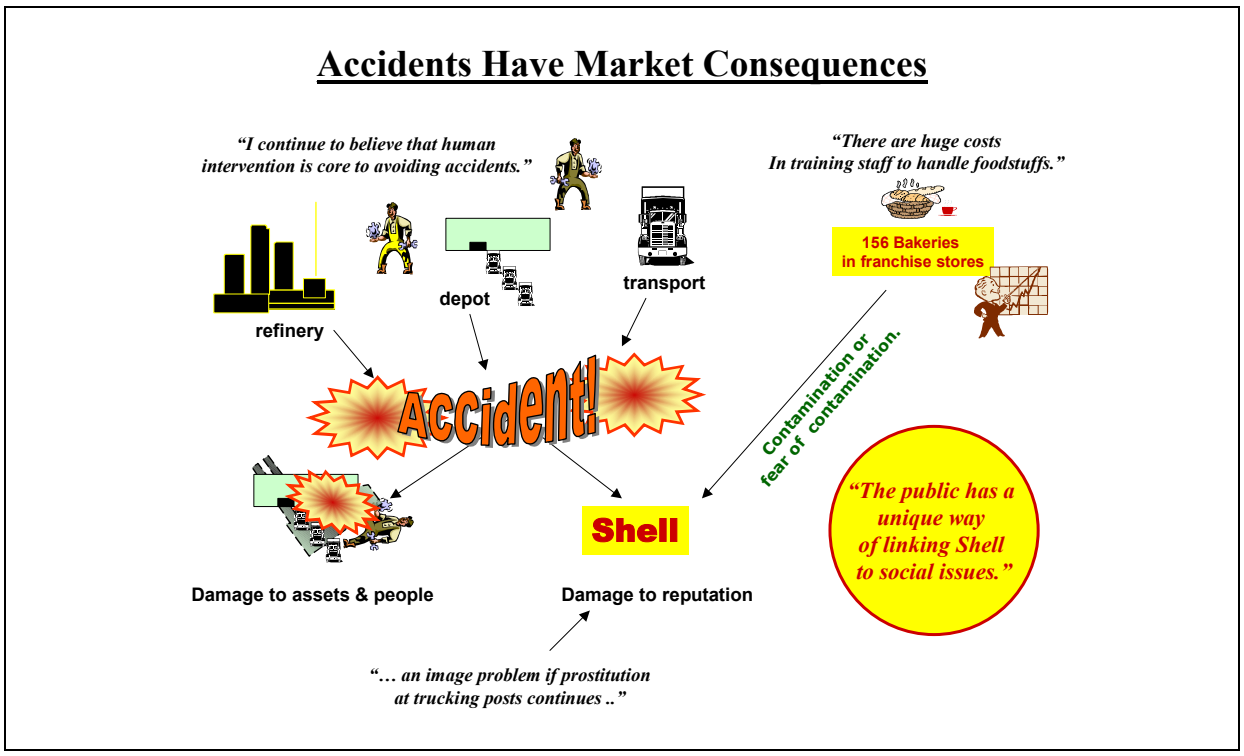


Figure 8: There was also concern that increased illness in Shell's workforce could increase the risk of accidents that would affect Shell's reputation.

On the commercial side, there were fears that rising employment costs due to AIDS would cause commercial customers to squeeze Shell as a supplier. More positively, other customers (e.g. mining and some agricultural operations) might mechanise, which would increase Shell's sales of lubricants and other products. For the LPG and illuminating paraffin market segments there were fears that the customer numbers & disposable income would decline, but there was also speculation that lower incomes would mean people could not switch out of these fuels into more expensive alternatives such as electricity. There were also fears that AIDS could contribute to a slow down in the economy and higher unemployment at the same time that the government needed to increase its spending on health care, creating inflationary pressures. The combination of high unemployment and high inflation is potentially explosive.

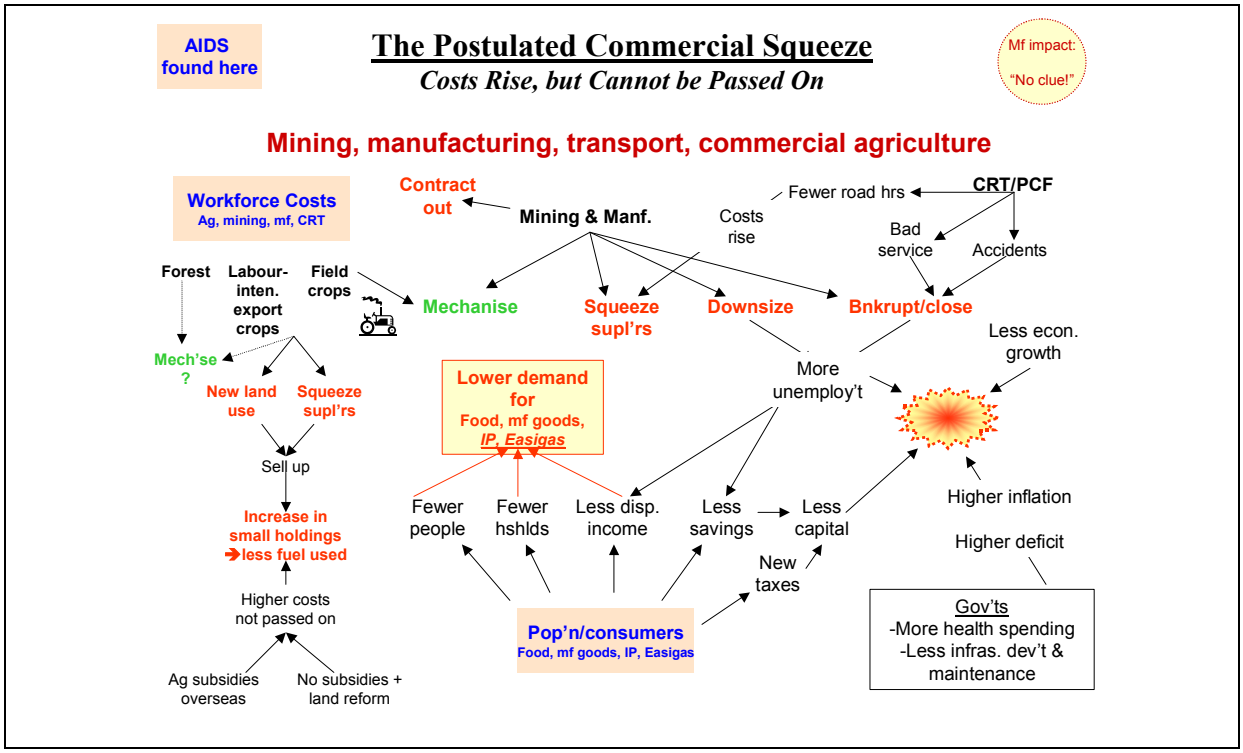


Figure 9: On the commercial side, illness in the workforce could force commercial customers to mechanise. However, customers might also try to squeeze suppliers such as Shell or simply shut down.

While developing 'cause and effect' models for the future impact of the HIV/AIDS epidemic, as illustrated in Figures 7, 8 and 9, it became apparent that there are a vast number of decision points in the models. A myriad of future decisions by individuals, businesses, NGO's and Government will all influence the way in which the future impact of the epidemic unfolds. The study team realized that this meant that the future impact of HIV/AIDS could not be simply and deterministically calculated.

How Shell Is, or Might Respond

Because it is still unclear exactly how the AIDS epidemic will affect Shell's markets, the study recommended that Shell "Monitor, monitor, monitor" any signal which helps indicate what is happening in their markets. This is especially important because, although the evidence of impact is still slight, there is a strong feeling that this epidemic could have important consequences in coming years, beginning perhaps in 3-5 years' time. There was also a shared view, with strong operational support, that Shell has to respond in two directions: 1) improve its own internal management of the disease, and 2) take a public lead. As one interviewee stated, people will choose Shell in ten years' time because "Shell faces challenges publicly."

More immediately, the study team was asked to prepare scenarios of the HIV/AIDS impact.

Peeling the Skin off Society

Three scenarios of illness, death & recovery in the age of AIDS

By the 8th of October 2001, the study team and Shell's management had concluded that the future impact of HIV/AIDS could not be simply and deterministically calculated. For this reason, all agreed to develop scenarios of AIDS in Southern Africa which would describe the range of uncertainties surrounding the disease and its consequences. However, before imagining how the future might unfold, the study team worked to identify three critical elements of any good scenario set:

1. What is driving this epidemic? Why has it spread so far so quickly in Southern Africa?
2. What is inescapable? What will we have to face with this disease, whether we like it or not?
3. What is still uncertain about the future of HIV/AIDS in Southern Africa?

The answers to these three questions then became the basis on which three scenario stories were constructed:

1. **"New Schisms"** describes a future in which a successful western-style economy grows up in Southern Africa, while the HIV/AIDS epidemic continues to spread, forcing the economy in later years to slow down.
2. **"Silence is Deadly …"** describes a future in which AIDS is unmentionable in every day life, although the rhetoric surrounding the disease is polarized and angry. This, combined with a global economic slowdown, helps to send the region into a self-destructive spiral.
3. **"Communities of Survival"** describes a future in which people on all sides make serious efforts to respond compassionately to the predations of the disease. Their efforts create a stronger set of social foundations that have wider benefits in society and the economy, but only in the longer term.

Because the bulk of Shell's business in Southern Africa is in South Africa, these scenarios reflect the particular conditions of South Africa itself. However, many of the insights have wider applicability.

What is driving the HIV/AIDS epidemic?

Fifteen years ago, there were few signs that HIV had entered South and Southern Africa. Most countries did not even begin compiling systematic HIV data until the early or mid-1990s. There seemed to be no need to do so. And yet, by 2001, Southern Africa had the highest HIV infection rates in the world. How and why had this happened? What was driving the spread of this disease? The study team had three interlocking answers to this question:

1. the autonomy of disease;
2. societies of high wealth but low social cohesion;
3. the tension of two worlds: African and European.

The Autonomy of Disease

The autonomy of disease is something that has existed throughout human history. At various times, societies have been overcome with epidemics, including the Black Death of the 14th century, syphilis in the 15th century, cholera in the 19th century and now AIDS in the late 20th and early 21st centuries. Moreover, there are a number new and re-emerging diseases appearing around the world, of which AIDS is only one.

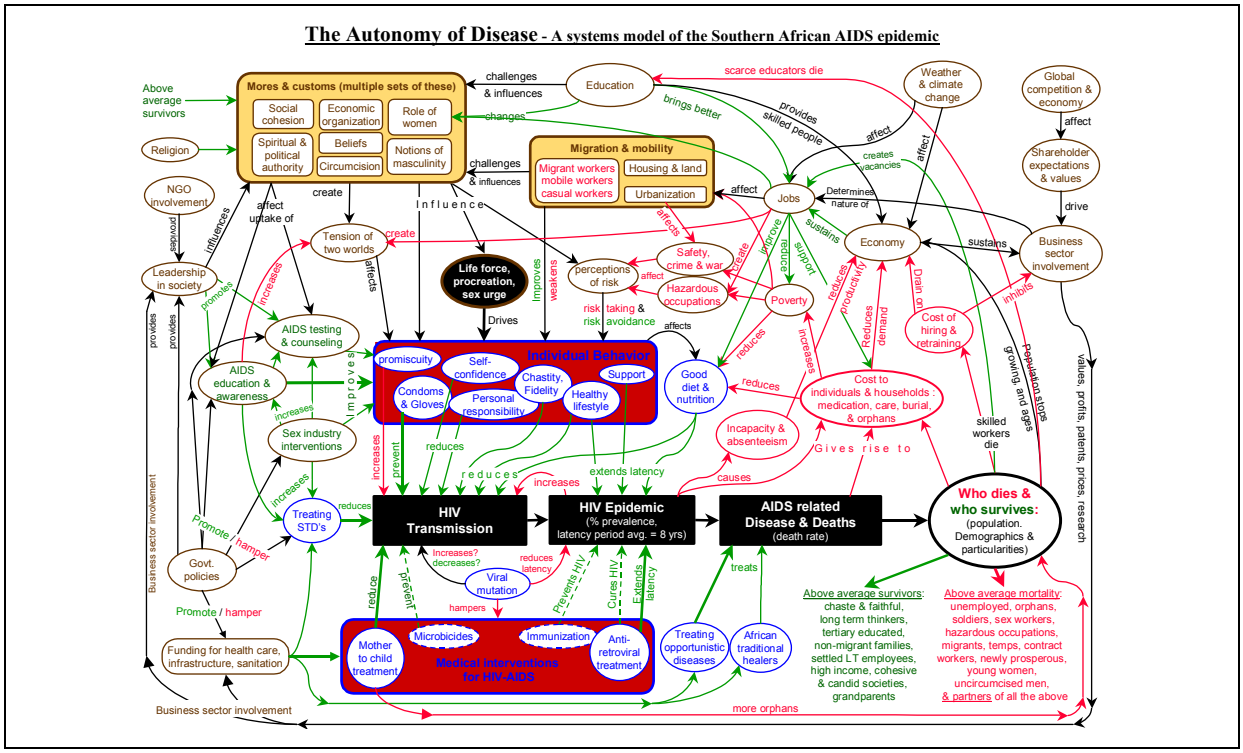


Figure 10: HIV/AIDS is nested in a web of complex relationships which allow it to function autonomously, a living organism with a life of its own.

HIV/AIDS is particularly hard to control because the virus mutates very quickly, producing new sub-types within existing sub-types and even within every infected person. It is also hard to control because it circulates through our most private and intimate behaviours – our sexual lives. Our sexuality, in turn, is shaped by thousands customs and circumstances which nest HIV/AIDS securely, as one extraordinary element, amidst all the complexity of our societies and economies. This complexity means that the spread of the disease is often affected by factors beyond human control. Like many other diseases, HIV/AIDS has, in effect, an autonomous life of its own.

The autonomy of disease is, therefore, the first reason why HIV/AIDS has spread so rapidly in Southern Africa.

The Jaiphur Paradigm

The second reason HIV/AIDS has spread in the region is that the societies of Southern Africa are relatively wealthy, but not very socially cohesive. Alan Whiteside and Tony Barnett argue that the shape of an HIV epidemic curve, i.e. how many people are infected and how rapidly the epidemic spreads, is determined by two key variables:

- the degree of social cohesion in society, and
- the overall level of wealth of society.

Social cohesion is derived from a nation's political and cultural system and consists of the capacity to agree and respect shared norms of behaviour. These norms may be relatively voluntary (as in many European societies) or relatively coercive (as in Chinese society), but they create an ability to respond effectively to shared concerns. Wealth is the level of income per head and needs no further explanation. Income inequality results from the combination of low social cohesion and high wealth since, without social cohesion, those with money see no reason to share their wealth with other members of society.

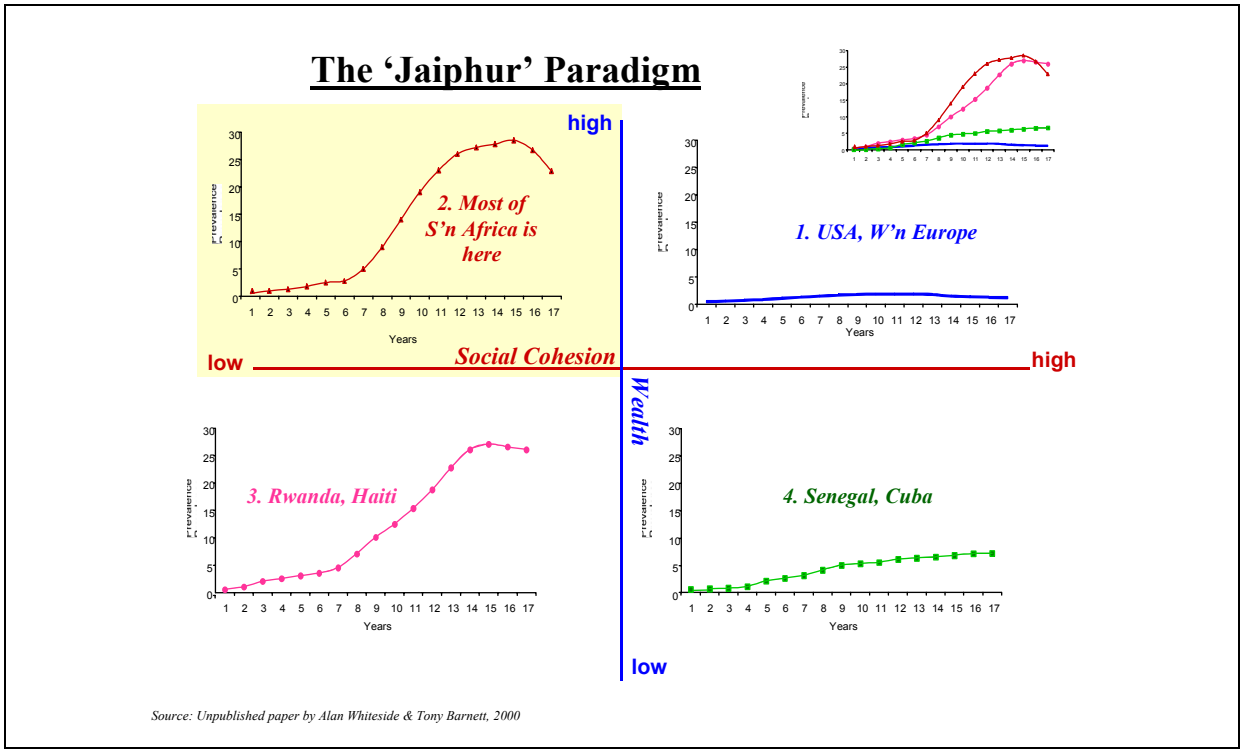


Figure 11: The Jaiphur Paradigm argues that the severity of HIV/AIDS epidemics is determined by two variables: a society's wealth and its social cohesion.

Using this paradigm, Whiteside and Barnett argue that societies with high levels of social cohesion and high incomes will not experience a serious epidemic (the USA, UK and France). Countries with a high social cohesion and low incomes will have a slow growing epidemic (Senegal, Cuba and North Africa). Where there is both low social cohesion and low incomes, severe epidemics will take time to develop, as happened in Uganda and Rwanda. The Ugandan example is particularly interesting, because it appears that in responding to the AIDS epidemic, Ugandans created stronger social cohesion that brought down the levels of infection and strengthened society at large.

It is countries with low social cohesion and relatively high incomes that face the most rapidly growing epidemics and the highest levels of infection. Much of Southern Africa falls into this last category. While South Africa epitomizes this pattern, with a Gini index of 59.6, it is not the only unequal society in the region. Similar inequalities exist in Swaziland and Lesotho (Gini indexes of 60.9 and 56, respectively), while 59% of the population of Botswana are estimated to be below the poverty line, in spite of that country's wealth. Where HIV/AIDS is concerned, income inequality means that (relatively) rich people – usually men – are in a position to buy sex from poorer people – usually women. The 'purchase' of sex may not involve money, but presents or food. The relative wealth is important; a long haul South African-based truck driver traveling through Mozambique will be wealthy compared to those living in roadside communities. In the long term, this wealth can also be an advantage – allowing society to respond more quickly to the epidemic, helping to bring it under control.

This, then, is our second strong driver: high wealth and low social cohesion.

The Tension of Two Worlds

The "tension of two worlds" is a concept first introduced in Shell's *Africa Scenarios* of 2001. It describes the tension between the legacy of the colonial state and the many legacies of African

molecular society. The tension of these two legacies persists today and is inescapable. This tension has also been a major driver of the HIV/AIDS epidemic in Southern Africa, particularly in South Africa, where two very different social, cultural and economic systems have been living together in an unhealthy dialectic for decades, if not centuries. One system we have labelled the 'African system', while the other has been called the 'European capitalist system'. At the heart of the capitalist system is a desire to use financial capital to invest in production, while at the heart of the African system is the commitment to maintain the lineage as an investment in life. In the European system, success is measured in money and things. In the African system, the "vital force [of life] is preserved through procreation."[6]

Each system has been altered by the necessity of living with the other, but each has also retained many of its own values, languages and concepts. "Mosaic rights", for example, describes the Sahelian West African system whereby, on the same hectare of land, women have the rights to the food crops, men have the rights to the tree crops, herders have rights to graze their animals after the harvest, while the man who digs a well holds the rights to the water he finds. These competing rights seem to have helped ensure the resilience of land in a region of unpredictable climate. "Column rights", on the other hand, refer to the European system in which the person who owns any given hectare of land also owns the rights to the airspace above it, to everything that is on the surface, and to the minerals underneath it. This system of column rights supports the high production levels of the capitalist economic system which further increases production through a reliance on the efficiency of labour.

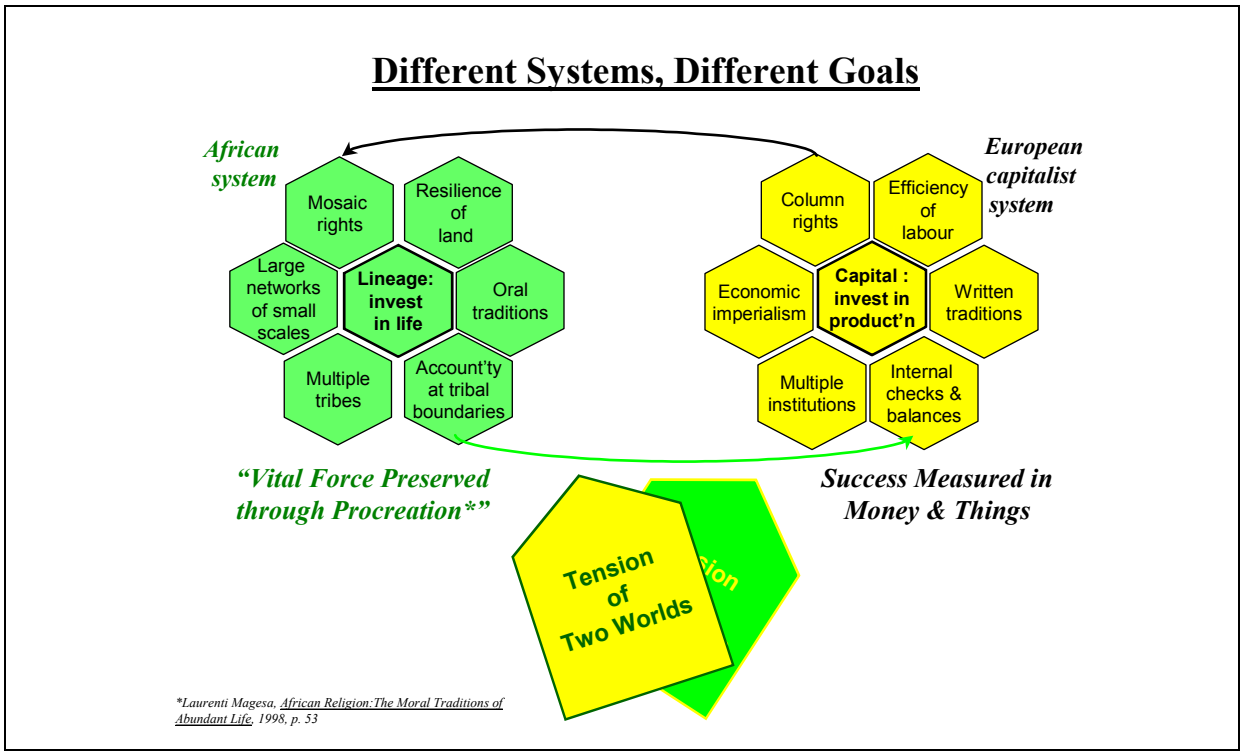


Figure 12: The African and European capitalist systems in Africa are descended from two radically different traditions. The tension of living with both systems in Africa shapes many features of life today, including the spread of HIV/AIDS.

The two systems, as described here, are archetypes, but they have both been sufficiently durable to have created a complicated set of relationships, or dialectic, between the societies of Southern

[6] See Laurenti Magesa's book, *African Religion: The moral traditions of abundant life*, 1998.

Africa. This dialectic has been another major driver of the HIV/AIDS epidemic, as Africans have been pulled between the need to survive in the modern, European economy while also needing to maintain the strength of the homeland society and economy as a form of insurance and identity. South Africa's apartheid system formalized and radicalized the tension of these two worlds, but it is a tension that exists in every part of Africa once subject to European colonial rule or aspiring towards Western levels of economic development. The many personal attempts to straddle both worlds have accelerated migration and mobility, separated husbands and wives, and increased the risks of transmitting HIV from one person to another. These risks increased again with the ending of apartheid, as more and more people went looking for better jobs in a large, spontaneous movement of peoples. This internal reorganization of the population began at the same time in the 1990s as the opening of the South African economy to the rest of the world. Greater economic openness, however, increased competition and decreased the jobs that were available, leading to more unemployment and more risky sexual behaviour, just when more people were on the move.

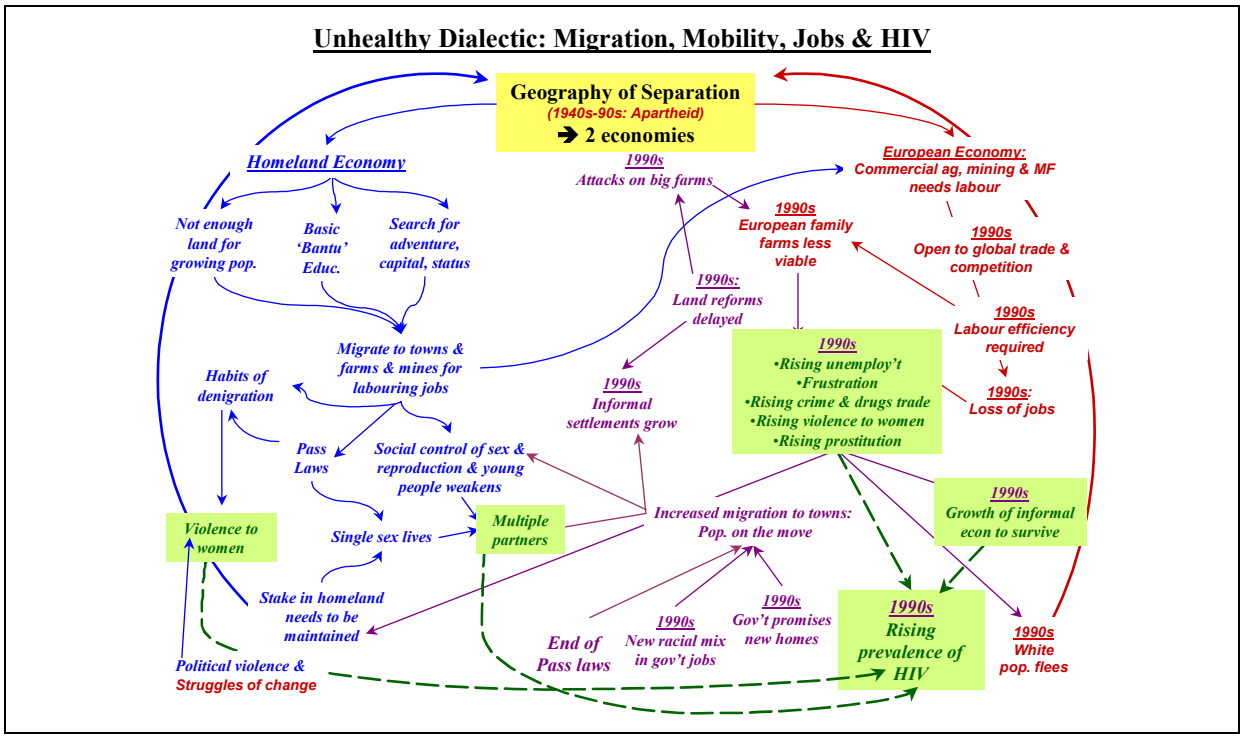


Figure 13: Migration and the separation of families is a defining feature of the interaction of the African and European systems in this part of the world. It also helps to spread HIV/AIDS.

For all of these reasons, the unhealthy dialectic between the African and European systems has also been one of the principal drivers of the AIDS epidemic. It has also exacerbated social and economic inequalities and given the rapidly mutating AIDS virus the conditions it needed to spread. This is why the Southern African societies can meet, so disastrously, all the requirements for creating the worst epidemic curve in the Jaiphur paradigm.

What Is Inescapable?

To the best of our knowledge, there will be no affordable, acceptable cure for AIDS or any vaccine capable of controlling HIV for another 10-15 years. (See Appendix 1 for details). Nor do we believe that human behaviour in the region will change rapidly enough to slow down the spread of

HIV significantly over the next five years,. The disease will therefore continue to find new hosts over the next five years, raising the overall prevalence of HIV infection between now and 2005-7.

The already high prevalence of HIV in Southern Africa also means that it is inescapable that 8-10 millions adults in the study region will die prematurely of AIDS during the next twenty years. The death rate has already started to climb in some areas and will not fall until 7-10 years after the HIV prevalence starts to fall. We also know that some populations are already experiencing higher levels of infection than others, with people in particular areas and particular occupation groups at high risk. Newly prosperous people are often at risk, as are sex workers, mobile workers, soldiers, miners and others in hazardous occupations, as well as the unemployed and those who habitually think only in the short-term. People who live in Botswana, Swaziland, KwaZulu Natal, Mpumalanga, Northern Namibia and several other regions are also at higher risk simply due to their geographic location.

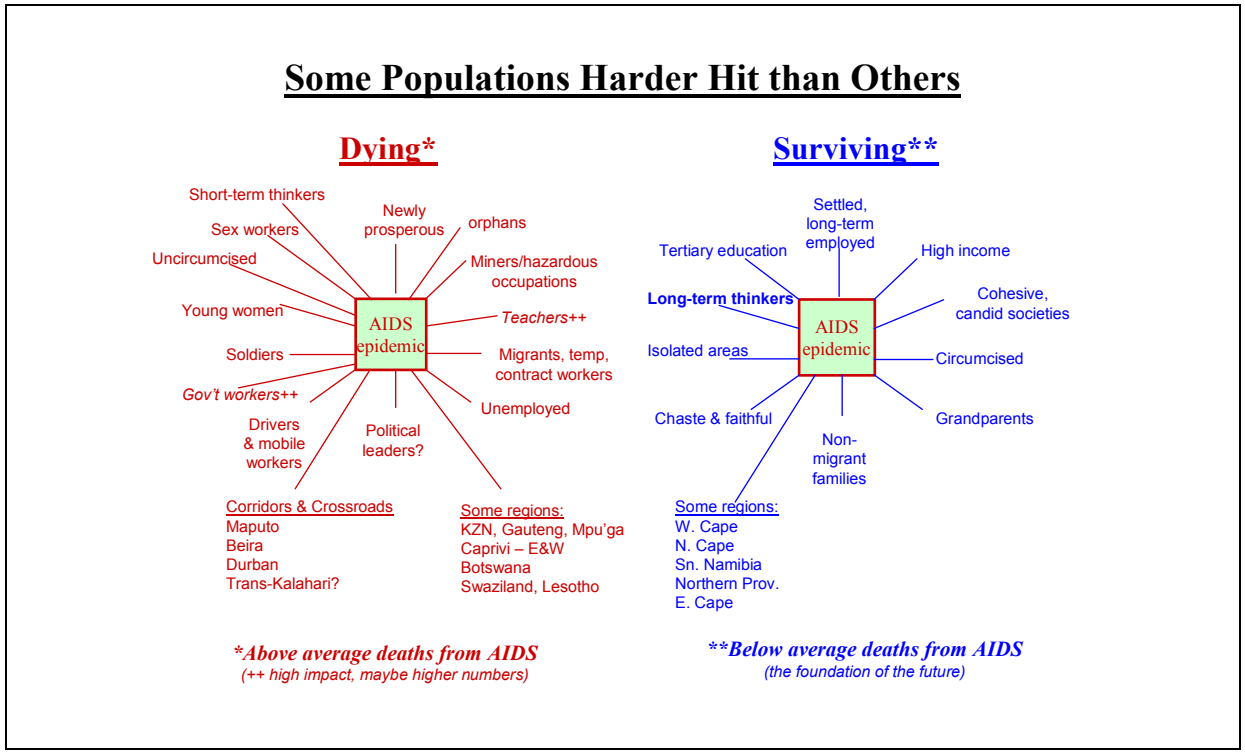


Figure 14: The impact of AIDS will be determined as much by those who survive, as by those who die prematurely of the disease.

The future, however, will be created by those who survive the epidemic without infection. These people are likely to be in settled, long term employment, or to live in cohesive, candid societies, with little migration. They will also include many of those with tertiary education and those able to think long-term when making their plans rather than just coping day to day.

All Believe Growth in S. Africa Will Fall

***Impact mostly due to*:**

• reduced productivity and increased costs for companies

• reduction in household income due to increased AIDS-related expenditure

• increase in government budget deficit due to increased health spending

	HIV assumptions			% point difference in GDP growth rates/yr		% difference in Real GDP level	
	Start'g Prev	Peak Date	Peak Prev.	2010	2015	2010	2015
ING Barings*				-0.3	-0.3	-2.0	-2.8
Channing & Lewis	*Not highlighted in studies*			*-1.6*		*-17*	
ABSA*				-0.7	-0.8	-5.9	-9.6
Abt Assoc.*				-0.4 to -0.2		-5.4 to -2.1	

GDP per capita seen to increase in some studies

Source: Chris Desmond, HEARD

Figure 15: The current models of economic impact of AIDS in South Africa show a modest fall in the annual rate of economic growth. Models of the impact elsewhere in Africa have similar results.

We also know that in all scenarios and all societies of Southern Africa, premature adult illness and death due to AIDS will cause great grief and stress and economic strain. In companies, governments and other organisations there will be lower productivity, a shortage of skills, and higher employment costs. Households will also see high costs and, with more women than men becoming infected in recent years, there will be an increase in orphans and a fall in social cohesion, much of which is created by women. There will also be a slowdown in population growth. Furthermore, with strains on the family budget we are likely to see a rise in crime, while society in general will have a lower rate of savings and investment, which will in turn create a modestly lower level of economic growth, as predicted by the models.

All of these consequences of the AIDS epidemic are inescapable and will be part of the fabric of the societies of Southern Africa for the next 10-20 years.

What Is Uncertain?

The biggest uncertainty in the region is how societies will respond to the inevitable rise in untimely illness and death among their citizens. This uncertainty is exemplified by comparing Botswana and Zimbabwe, both of which have high levels of HIV prevalence. Between 1990 and 1998, life expectancy in Botswana fell by 18 years, largely due to AIDS. In Zimbabwe between 1993 and 2000, 12 years of life expectancy were lost. Despite this similarity, Shell staff in Botswana were confident during the interviews that this is a manageable crisis, and that the economic costs are bearable. However, Zimbabwe's epidemic has been more neglected and may well have contributed to the chaos of the past few years.

This comparison illustrates the risks that face South and Southern Africa. Together with the results of economic modeling, both Botswana and Uganda encourage us to believe that the economic costs of the AIDS epidemic are bearable. The example of Zimbabwe, however, suggests that the

political risks are high, particularly if stigmatization and denial exacerbate the underlying psychologies of unequal separation in the region for years.

For that reason, the principle uncertainty of AIDS is: Will we fracture a fragile social contract, especially in South Africa, by refusing to accept the demands of the disease? Or will we use AIDS and its challenges to build stronger social foundations for the future? We know that mortality will rise in the coming five to ten years. In some areas it is already rising fast. What choices will we make as individuals, governments and organizations as the death rate climbs? Will we try to ignore the disease and concentrate on economic growth, in hopes that growth will solve everything? Or will AIDS become the new divisive issue, polarizing society into angry extremes again? Or, most optimistically, will we find ourselves able to create communities of survival, new linkages, new languages and new understanding that provide stronger foundations for the future?

The scenario stories that follow take each one of these possibilities to see where they might lead.

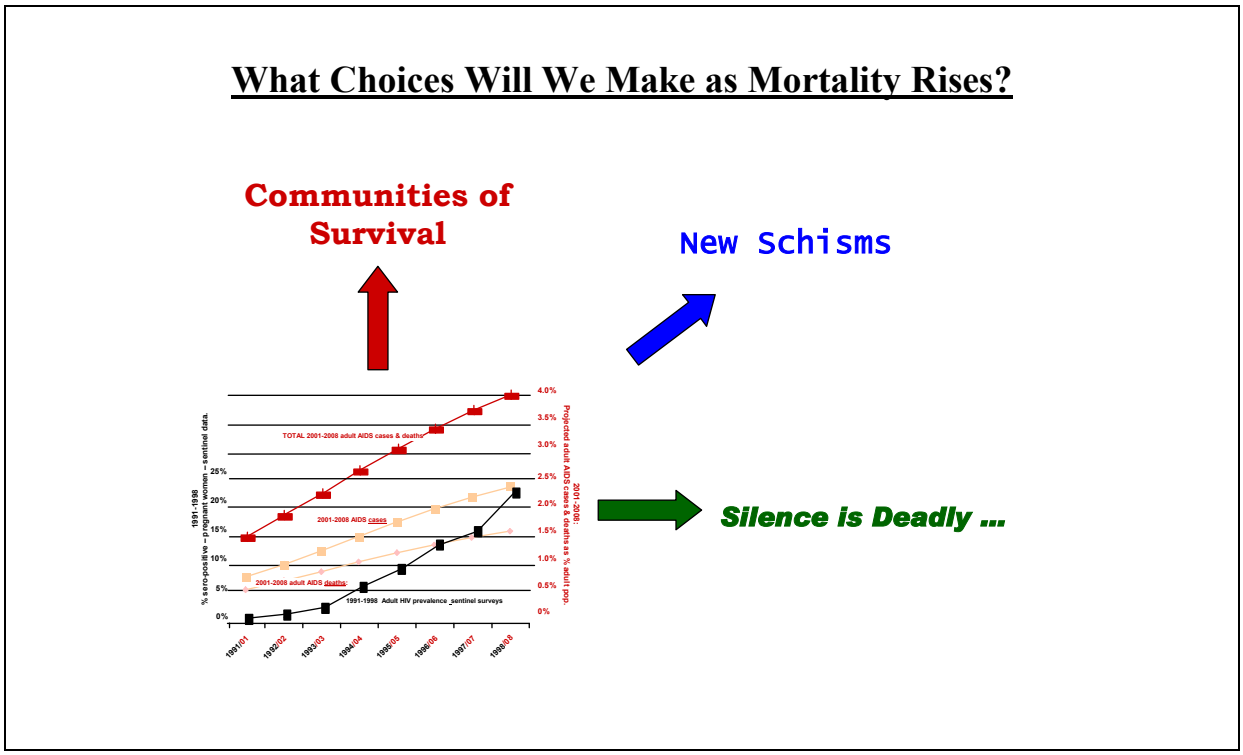


Figure 16: While economic costs are bearable, the political risks are high. The major uncertainty is how societies will respond as illness and death from AIDS rise in the coming years.

New Schisms

Our first story is one of new schisms. This is a world in which the capitalist system rules, where success is measured in money and things, rather than human relationships. Here the government provides strong leadership with respect to a business-friendly economy: tackling corruption, encouraging privatisation and working to attract overseas investors by maintaining a balanced budget in government. In the process of creating this economy, African values are subsumed in favour of European-style capitalist ideals. African beliefs do not disappear, but they move underground, influencing private behaviours while the economy remains in capable African hands.

In the world of AIDS, African perceptions of disease also move underground, as the debate and confusion surrounding Governments AIDS policies grow and intensify. Throughout 2002 and 2003, there is frequent scorn and derision from activists and the international press. Esteem for government is eroding, both at home and abroad. Realising that outside investors are standing back because they believe the South African government is mismanaging AIDS, official policy quietly begins to change. As the death rate continues rising, particularly in KwaZulu Natal, Gauteng and Mpumalanga, the arguments over HIV as the cause of AIDS are dropped. By the end of 2004, a new policy is ready to be announced.

As the global economy picks up in 2003 and 2004, the government's new policies on AIDS are announced. Rights to treatment for people who are HIV-positive are included, but this is hedged in order to avoid raising government costs. More effort will be put into new public information campaigns, but the greatest publicity is given to the government's economic initiatives that are expected to reduce poverty and thereby reduce the spread of AIDS.

Despite the government's emphasis on financial prudence and its new willingness to accept the link between HIV and AIDS, international investors do not recognise the government's good management. Investment flows remain sluggish and global electronic traders continue to plunder local currencies. There are some successes, but growth in South Africa's trade with rest of the world falls far short of expectations. As trade talks with the EU fail, the South Africa government begins to voice its disillusionment very openly. Tariffs and non-tariff barriers do not disappear in the EU or indeed in most of the G8. By 2005 it is clear that the region cannot expect free or fair access to global markets, although global producers continue to have access to Africa.

As a consequence the focus is shifted to consolidating the region into a single market bloc with a critical mass capable of engaging in competitive trade with other world regions. A new resolve that Africans find solutions to their own problems arises. The level of effort devoted to the world stage is cut dramatically and African oriented initiatives move from the back burner to the limelight. The Millennium Africa Plan (MAP) with its clear acceptance of responsibility by national leaders, and New Africa Initiative (NAI), renamed to New Partnership for African Development (NEPAD), are rejuvenated. The result is increased co-operation and regional growth. This begins to bear fruit from 2005. The international financial institutions in Washington and Brussels are unhappy that their prescriptions for African states are being critically challenged, but they recognise the good aspects of MAP and NEPAD.

Although the new Africanist economic policies gain wide support, the campaign to slow the spread of AIDS is not very effective. It fails by relying too heavily on European bio-medical explanations of AIDS that dismiss all explanations of the disease offered by traditional healers. This bio-medical approach, in turn, has little impact on many in the African community who have always turned to traditional healers first for the treatment of sexually transmitted diseases (STDs). Lacking confidence in Western explanations of the disease, but horrified by the rising number of deaths among those infected in the late 1980s and early '90s,leaders in KwaZulu-Natal call for a return to traditional values, in line with the 'Africanist' rhetoric of the government's economic policies. This return to strict tradition gains no support from a government looking to create a modern African economy in capable African hands. So, after a confused argument that no one wins, the IFP government in KwaZulu Natal withdraws from the coalition government in Pretoria. They decide to address the AIDS epidemic through stronger paternal authority and a return to 'tradition'. 'Virginity testing' is promoted as a revived traditional practice, while bride prices rise as uninfected women become valued in financial terms. KwaZulu Natal also calls for greater autonomy and control of finances, but this is abhorrent to Pretoria and leads to a general withdrawal of power, finance and authority from the provinces. This gains momentum with the second budget of the new government in 2006, which increases central government's funds by cutting back on provincial allocations more generally.

One of the keystones of the new Africanist economic policies is an emphasis on public-private partnership designed to accelerate a massive investment in transport infrastructures able to link the economies of Southern Africa. Between 2005 and 2010, new roads are built and old ones are upgraded. The result is increased mobility both within South Africa and across the borders of the region. While initially good for economic growth, which helps to keep unemployment down, these new roads also help HIV to move around.

Even as HIV continues spreading along the new roads, the European doctors and African traditional healers continue to talk past each other, with the average citizen caught between them. Most of the public service messages use the European medical model: "Treat STDs!" "Condomise!" "Test yourself", assuming that improved knowledge will change behaviour. Meanwhile, many people, including those most at risk of contracting HIV, continue listening to traditional healers and their peers for advice. The healers, particularly those in towns, frequently give contradictory or bogus advice, unable to create a clear, shared view on the causes and treatments for AIDS. Not surprisingly, a number of rumours circulate to explain the origins of AIDS. None is convincing, but none ever really disappears. "Where does this HIV come from?" continues to be a question that puzzles many. Meanwhile, AIDS remains a disease that is feared and ignored in equal measure. Many treat its symptoms energetically, at great expense, but these treatments are not always effective.

The sad result of this confusion of messages, is that the formal campaigns about changing behaviour miss their mark. By 2006 the HIV prevalence among ante-natal clinic attenders has reached 42% in KwaZulu-Natal and is over 35% nationally in South Africa. By 2010, it has risen even higher, with 42% of all pregnant women testing positive in the ante-natal clinics.

Figure 17: A soft signal of the *New Schisms* scenario will be the continued isolation and mutual distrust of the Western and African medical traditions.

The steady rise in HIV infections is particularly damaging to government for most of the scenario period to 2020. The roots of this damage go back to the new AIDS policies announced in 2004. At that time, the civil service trade unions had pressed for the government to offer anti-retrovirals to all civil servants and insisted that government continue to respect the medical boarding rules that made it an offence to dismiss anyone who was HIV-positive. The revelation in 2005 that over 50 parliamentarians were receiving anti-retrovirals (ARVs), as were many senior members of the armed and security forces had added weight to the unions' case. Trapped, the government found itself unable to respond and by 2010 government is still keeping people in post long after they should have been sent home because of ill health. The desks are empty, but the posts are full. Not having sufficient money to duplicate staffing levels, the overall efficiency and credibility of government steadily declines, even as the cost of government continues to rise.

By 2010-2015, society is increasingly divided between have and have-nots. Many have prospered with the growth brought about by the open borders policy, but there are two other effects. First, there is an increased movement of people. Migration is chaotic, churning backwards and forwards in a rapidly-growing, but uneven economy. Much of this perpetuates the migrant labour system which continues to fracture families, increase inequality, and fuel the spread of HIV/AIDS.

Secondly, the new infrastructure and open borders have increased the movement of goods which compete with those of local producers. In response, companies turn up overnight, produce new goods and sources of employment, but then often fold just as quickly. Older and more durable firms struggle to stay in business. They cut their costs by laying off workers, a move that also reduces their exposure to the costs of AIDS which had added 5-10% to the employment bill in the previous ten years. With increased competition, the open borders that had once encouraged growth and kept unemployment in check are now forcing unemployment to rise, further fuelling the spread of HIV.

By 2020, South Africa is a highly divided society. Its economy has grown strongly, but that growth has been very unevenly distributed. Skilled workers live in gated communities and are paid handsomely to stay in the country, stay healthy, and stay out of trouble. As illness is seen to spread among the less fortunate in society, these beneficiaries of the new economy remain aloof. They are unaware of those suffering in nearby towns and communities and often do not even know that some of their immediate neighbours are hiding the disease behind a heavy regime of expensive treatment. Some say to each other that "AIDS solves everything …", by reducing the number of people who are poor and unemployed, but it is not something they want to publish out loud.

Sadly, in the government's pursuit of growth through infrastructure, little has been done to bridge the skills divide and the unemployed are left behind. These are the people who missed the opportunities of growth. Among them, the trauma of early death is compounded by poverty and the chronic struggle to keep their families together. Everyday coping is increasingly hard, and they increasingly rely on the comfort of family and friends. Many find themselves unexpectedly alone as social and economic divides widen in unforeseen ways. The most casual observer begins to wonder, "What common future can be shared?"

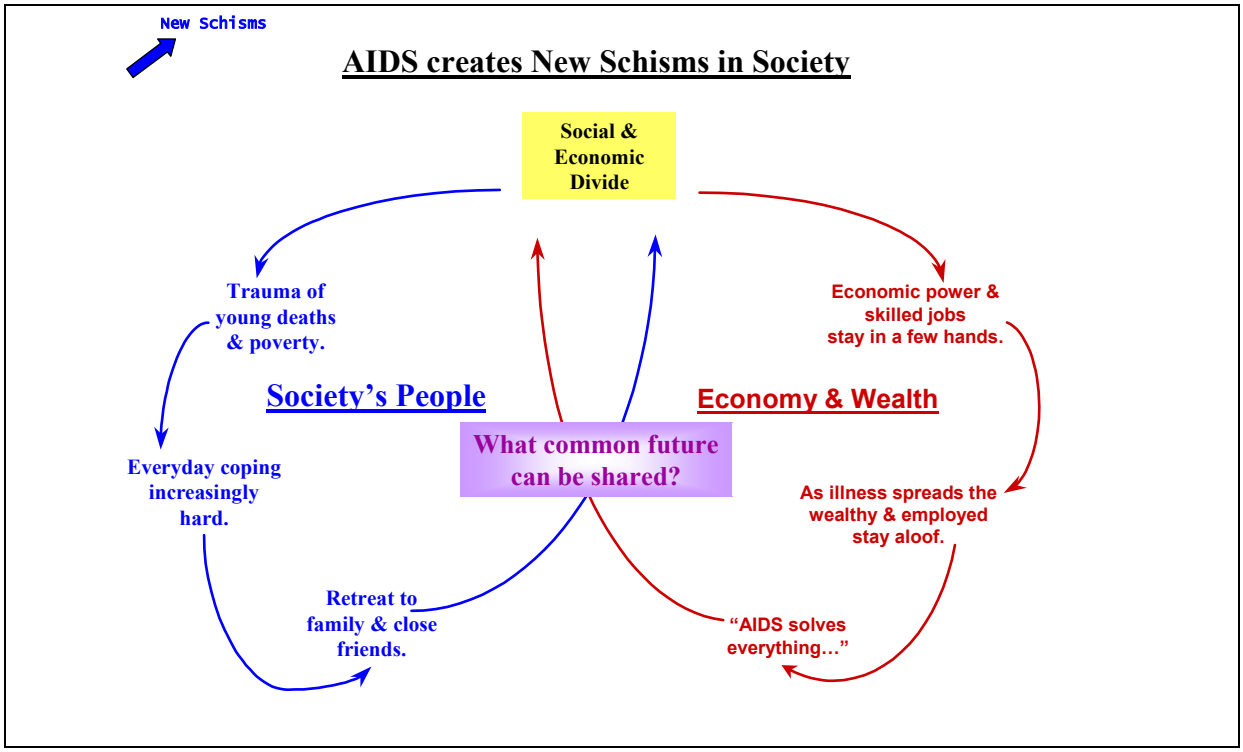


Figure 18: New Schisms is a world in which many of society's people never benefit from increased wealth and economic growth. AIDS only increases their isolation and sense of exclusion.

In 2010, the economic growth rate is at its highest level, 3.2% per year, but it begins to decline in the following years due to a shortage of skills, the rising costs of AIDS and a failure to meet the challenge of international competition.

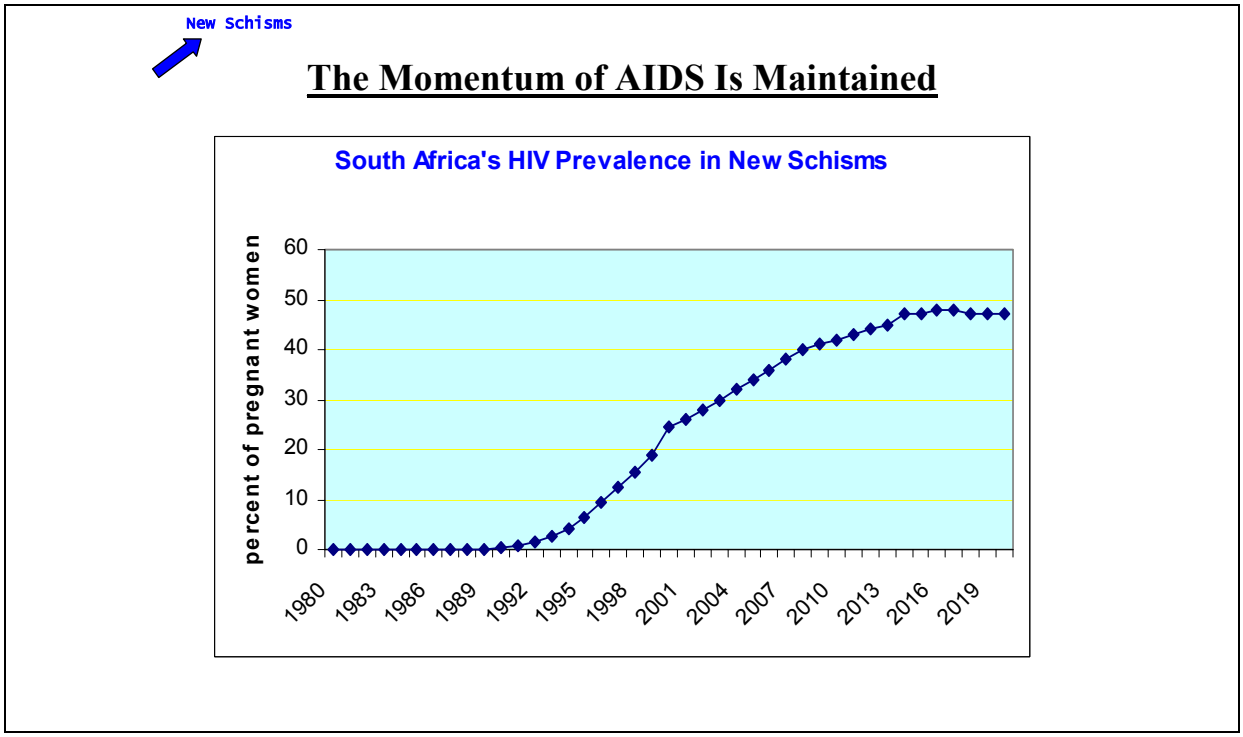


Figure 19: New roads, the lack of social cohesion and the dominance of the European medical model, all conspire to maintain the momentum of AIDS in New Schisms.

Increased regional competition, also affects Lesotho and Swaziland. Both countries lose industry and their governments become less and less legitimate as their economies contract. Employment in South Africa is the only livelihood strategy available to the citizens of these countries, further encouraging mobility in the region. Botswana and Namibia benefit from the South African government's policies and experience economic growth as infrastructure improves. Botswana deals with the epidemic through a mixture of innovative campaigns and treatment, but cannot bring down prevalence as much as had been hoped, due to the high levels of migration in the region. Namibia follows the South African pattern. Mozambique is the major beneficiary of the new infrastructure policies and sees strong economic growth. Here, too, however, HIV spreads more rapidly as transport links improve and people move to find work and new opportunities.

The scenario of New Schisms, however, is inherently unstable. Few societies can long survive with such harsh divisions of wealth and well-being. For that reason, if AIDS becomes the focus of wider discontent in which the stigma of disease echoes the stigmas of the apartheid past, society could slip into a new scenario in which *Silence is Deadly …*

Silence is Deadly …

This scenario begins with a global economic slowdown and Government beset by demands for solutions to a multitude of problems. As the value of the South African Rand falls, inflation and unemployment rise. The rising death rate becomes more evident but the issues around AIDS policies are simply too difficult for Government to resolve. Among ordinary people, there is a real and growing sense of hopelessness, compounded by the lack of clear leadership on all sides. As HIV continues to spread over the next few years, and the death rate continues to rise, those who are wealthy and infected receive private, state of the art medication, but others are dying more quickly without nourishment or hope.

Increasingly, the language of AIDS reflects a sense of exclusion from the benefits of a new South Africa. "What did the struggle achieve?" ask many people. A sense of desperation grows. Street demonstrations multiply from people who are demanding drugs, believing these will cure an illness that cannot be cured. "Give me AIDS drugs or I will hijack your car!" Violence and crime increase, as desperate people look for any way to raise the money to treat their disease. There is a growing division in society as the wealthy retreat behind razor-wired walls or leave the country. Privately, people who have been asking themselves where this HIV comes from, revive the apartheid-era stories that AIDS is spread by white men who want to kill off the black population. Arguments are more and more violently polarized.

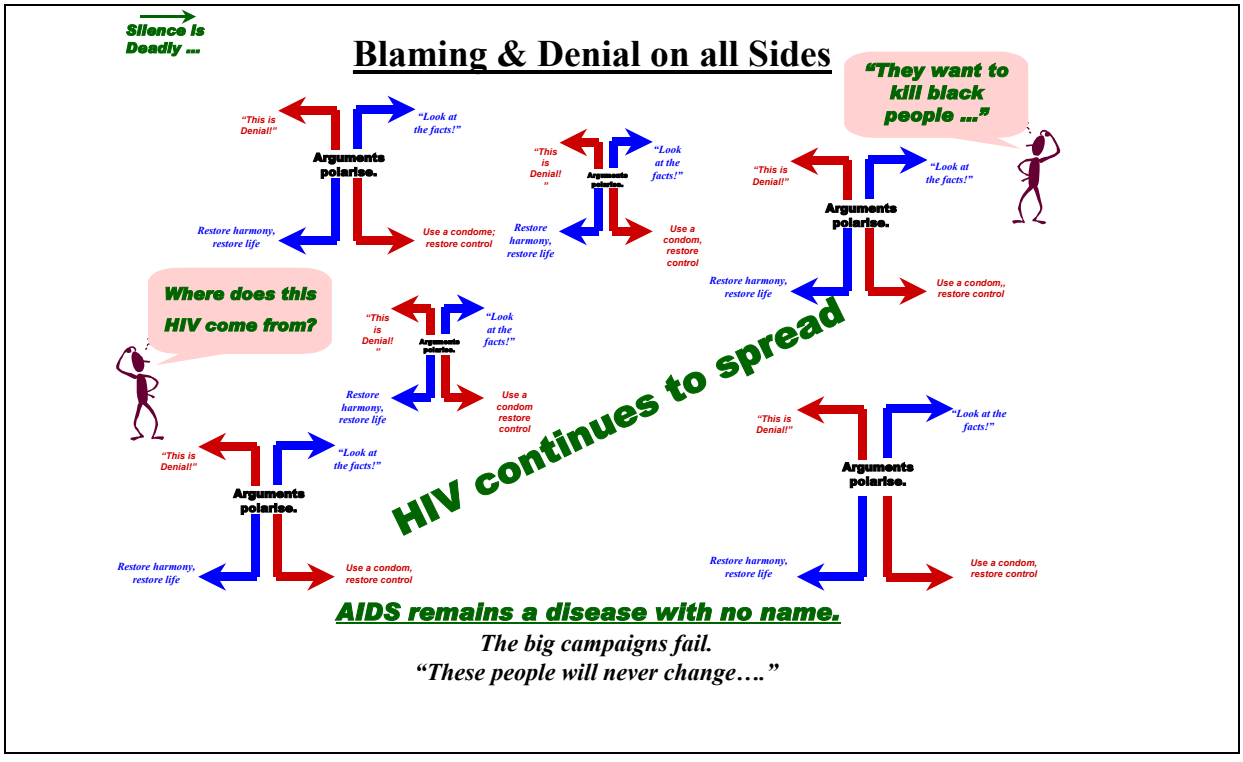


Figure 20: The soft signal of *Silence is Deadly* … is continued shouting, blaming and radicalized arguments over HIV/AIDS, while privately the disease remains undiscussable.

Despite the noise, few are ready to accept the disease. There is continued denial and blame on all sides. In communities everywhere AIDS is still not given a name, even when young people are dying of the disease. "It was double pneumonia," they say, or simply hold up three fingers and a zero

formed by index finger and thumb. Activists, whipped up by the press, blame the government for not taking the lead. The Government blames poverty rather than any invisible virus

With all the shouting, little attention is paid to the impact AIDS is having on the education of the next generation. As AIDS hits families, children are withdrawn from school. Not only can families not afford to educate their children if any financial contribution is required, they increasingly need the children's labour at home. Orphans have little incentive to attend school, and their numbers grow as their parents die of AIDS. However even those children who manage to get to school are getting a lower quality of education. Teachers are falling ill and leaving their classrooms for long periods. Nor can they be easily replaced as government conditions of service allow for lengthy periods of sick leave and medical boarding that can take months to resolve. Things are made even worse because the epidemic also cuts a swathe through the private sector workforce. In order to replace staff, teachers are poached by the private sector (a chemistry teacher can be turned into an industrial chemist, a mathematician into an accountant). The result is that education deteriorates further and, with jobs hard to find, people question its value. By 2010, every school, as well as all the state funded universities are battling to keep staff and attract students, while HIV prevalence among pregnant women rises to 40%.

The lack of education and employment fuels the epidemic further. Intense competition for jobs undermines trust in society, while illiterate people are less able to take prevention messages on board. Over and over again, being out of school and unemployed increases the sense of hopelessness; for many men sex and machismo are one of the few ways of showing they have value. Public health workers watch in dismay as the age of first intercourse falls, and the number of partners increases along with coercive sex and rape. As a result, high HIV prevalence is maintained.

As the general economic situation worsens, the quality of government declines. This is particularly the case after the 2004 election. Due to disorganised opposition parties the government majority is little reduced but the biggest gain is in apathy. It seems that South Africans are not politically engaged, and will not hold the government or state bureaucracy to account. They have come to expect and accept poor service along with the need to pay bribes for ordinary government services. With little employment available, there is an increase in government patronage jobs, causing a further decline in the quality of government service. Worse, with the lack of any clear policy on the treatment of AIDS, there is a growing black market in anti-retroviral drugs. This market is often based on illegal import licences obtained through bribery. In many cases these drugs are sub-standard or fake. Even legal drugs are often used improperly, or shared with others, reducing their efficacy. The result is a virus that mutates quickly. Soon there is no effective treatment available for the strains of HIV in South Africa.

In this climate, many health professionals find they are unable to work in the government system. There is little they can offer their patients and they say they want to do more than count bodies and counsel the dying. The public health system begins to collapse while in society at large many people are 'just hanging on'. They hope that things will improve but have little expectation of this happening. Their vision narrows as they seek to protect and support their immediate families. Society factures into interest groups or coalesces around powerful people including criminals and war lords. This is clearly evident by 2006, and results in further economic stagnation. When the impact of AIDS is added, the numbers show that economic activity has actually declined. By 2007 skills flight is at an all time high and investors choose to avoid the region. A loose, downward spiral takes hold, as South Africa takes the road to Harare.

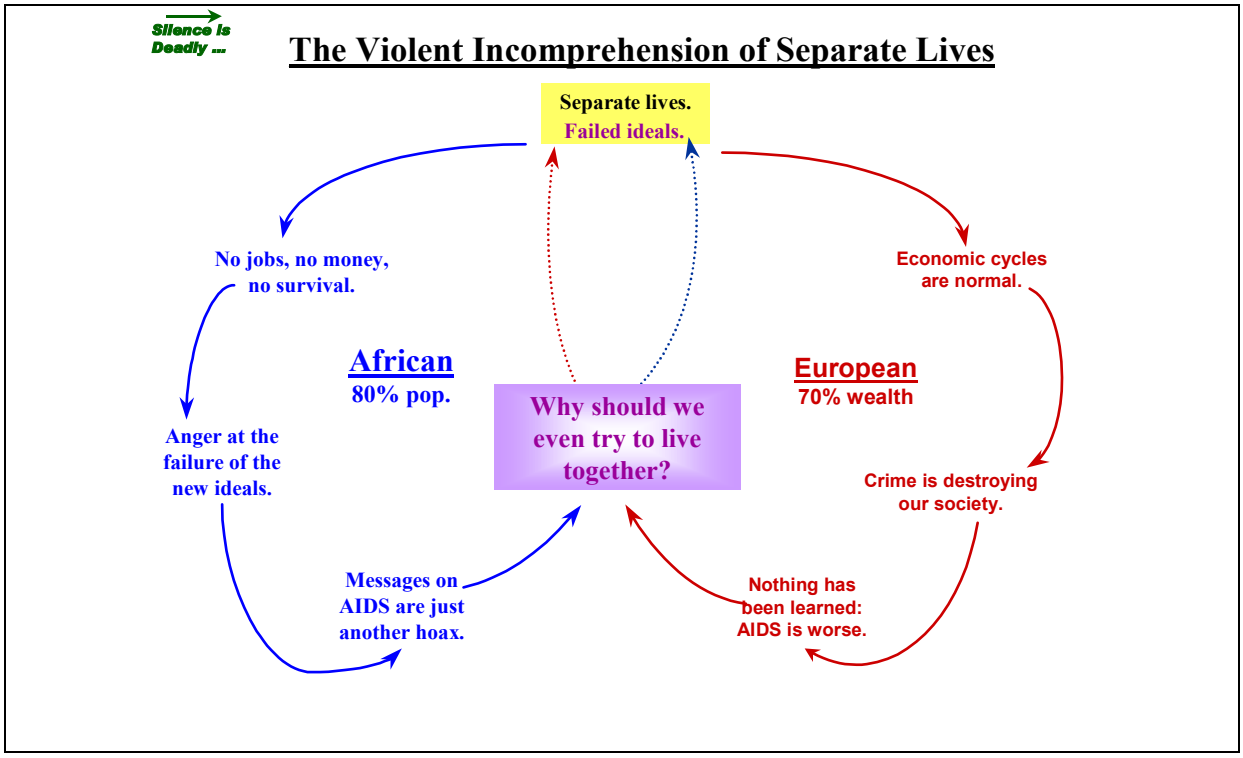


Figure 21: In *Silence is Deadly* … polarization and mutual mistrust are encouraged by the failure of all sides to recognize and respond to AIDS. Social cohesion degenerates further year by year.

With no jobs, no money, and the threat of death all around, many people are angry at the failure of the ideals which once ended apartheid. Feeling both tricked and bewildered, they treat the messages about AIDS as just another hoax, dreamed up to keep them under control. For their part, the wealthier members of society, assume that economic cycles are normal, but worry about crime, which they say is destroying society. They fail to understand why HIV has continued to spread, when the messages about safe sex have been around for years. "These people are hopeless," they say. "Nothing has been learned." People on all sides wonder what happened to the ideals that brought an end to apartheid but see no way to rekindle that earlier hope. In short, this is a story of failed ideals and the violent incomprehension of separate lives. On all sides, one hears the question: "Why should we even try to live together?" but there is no clear reply.

As things deteriorate, HIV prevalence continues to rise, then plateaus around 40% between 2015 and 2020. Those who die are replaced by people with new infections, one for one, year after year. It seems to be a disease that will never go away.

AIDS Contributes to a Vicious Cycle of Decline

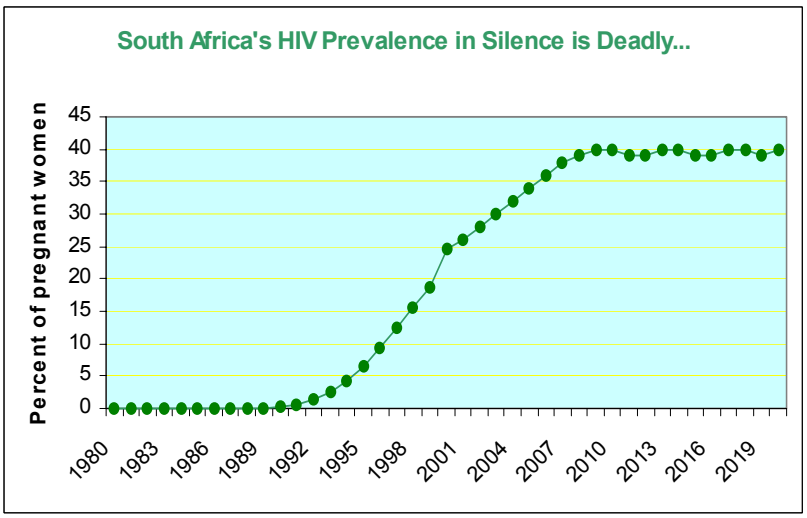


Figure 22: HIV continues to spread, but slower economic growth and less mobility keep prevalence rates around 40%. This plateau means that each time a person dies of AIDS, another is infected with HIV.

This story is reflected in events in Swaziland, Lesotho and Namibia. In Swaziland and Lesotho events move more swiftly as they are so much poorer at the start; by 2007 the countries seem to be in terminal meltdown. Mozambique manages to keep HIV prevalence lower, which is attributed to its poverty, Catholicism and poor infrastructure. But the 'bad neighbour' effects of being located next to South Africa slow growth there. Botswana is the exception in this story. Here powerful government leadership, the willingness to import labour and the fact that it is the global test case for response to the epidemic encourages massive inflows of aid, helping the economy to grow, even when diamond sales drop off. A major new economic activity is health care and the country attracts medical 'tourists' and medical refugees from as far away as Kenya and Nigeria. However the proximity to South Africa, Namibia and Zimbabwe (which went through complete collapse in 2002 and is only slowly rebuilding) is detrimental to economic growth and development efforts.

"Silence is Deadly …" is a scenario that can be easily imagined, but it is not the only plausible future. There is still one more possibility: a future in which AIDS becomes the crisis that forces all cultures to recognize their failures and learn from each other. Together people create new **Communities of Survival** based on mutual strength and common respect.

Communities of Survival

This is a story of positive change, of candour, dialogue and new commitments. It is a story in which the response to HIV/AIDS contributes to the creation of a stronger societies in South Africa and the region.

It is a story that begins slowly as the current situation continues much as before. However, subtle changes are taking place. Over the next few years, people are increasingly shocked by the many deaths among young adults. It seems as if every weekend there is another funeral, each one creating new orphans who need love and care. After years of refusing even to name the disease, more and more people speak openly about the AIDS crisis. They ask themselves and each other: 'Where did we go wrong? Why is this happening here and now? What can we do?" A new candour and honesty takes hold as people begin to accept that AIDS will not go away and requires a new response from everyone.

With their early high rate of infection, the people of KwaZulu-Natal are the first to change course. In late 2003, a delegation from the province approaches Government, asking for a change of policy and the adoption policies similar to those in Botswana. This suggestion is rejected as too expensive, but the ANC recognises that the growing death toll affects an ever wider portion of the population. They are also forced to acknowledge that public support for their AIDS policies is waning visibly as the 2004 elections loom. Facing the dilemma of saving face while changing its stance, the central government side-steps and devolves responsibility for dealing with the HIV/AIDS epidemic to the provincial and local authorities, allocating what money it can to sub-contract the management of the disease to other bodies, both inside and outside government agencies.

Quite independently, the business sector also begins to respond, driven by enlightened self-interest. Human resource managers have begun to realise that the talent pipelines are starting to run dry. Either companies will have to become more capital intensive (a risky strategy when skills are in short supply), or they must find ways to educate and protect their workforces. A number of innovative solutions are developed. Recognising that AIDS is not a competitive issue, industry associations like SAPIA (South African Petroleum Industry Association) expands on work begun in 2001 to share the costs of HIV/AIDS campaigns and training programmes. There is also more emphasis inside individual companies on hiring women and ensuring that the workforce is trained in multiple skills. Looser labour laws support these changes with the end result that unemployment is dented in many areas. As broader employment rises, however, many new recruits arrive with lower educational qualifications, forcing employers to accept that internal training must make up the difference. Little by little, it becomes accepted practice that every skilled person is now a teacher and the general level of skills begins to rise in the population.

While agreeing a clear cap on medical costs with the trade unions, businesses accept the need to treat AIDS-related opportunistic infections, and offer this treatment openly. These efforts are supported by the deployment of a range of generic drugs, whose cost falls to 400 Rand per month per person, prolonging the life of labour and parents. The establishment of the ARV delivery services provided by government, NGOs and private services leads to improvement in many other basic health and welfare services.

The willingness to treat people with AIDS encourages many HIV-positive people to declare their status and coincidently helps to reduce the stigma of having HIV. Little by little, in the years running up to 2010, AIDS becomes a normal disease. It is still frightening, but no longer a cause of personal shame. For reasons no one can fully explain, this acceptance of the need to care for people with AIDS spreads broadly in society, encouraging changes in behaviour not seen before.

Over time, the new government policy of sub-contracting its response to AIDS combines with the independent lead from businesses to stimulate a number of innovative local responses to the epidemic. This is supported by a broad acceptance there are some urgent social issues, such as HIV/AIDS, which governments cannot manage effectively on their own. As had already begun to happen in other countries in the region, public–private-voluntary sector partnerships multiply. The ability to work with new partners does not come easily to anyone. In the early years, between 2003-2008, a variety of misunderstandings slow progress, but new social and political skills begin to take shape on all sides of society.

The process of accepting new responsibilities and learning new skills is much facilitated by old apartheid negotiators and activists. These people had once sat across the table from each other and worked to change the future of South Africa, but lost touch in the intervening years as everyone worked to find his place in the new society. As individuals from that earlier time reconnect, they realize that, if the political violence of the 1990s could be reduced by working together, it should also be possible to meet the crisis of AIDS. Many are stimulated to open these discussions by the rape of children and infants by men who believe 'this will cure AIDS'. These rapes have horrified people in every culture, forcing everyone to realize that both the European and African approaches to AIDS are failing. New language is needed, new partnerships, new understandings.

Some of the most creative dialogues begin in KwaZulu Natal where the Traditional Healers Council was formed around 2001. This Council begins meeting with people from the European medical tradition to create a new language that is able to build on African insights and European science. Despite years of intense competition among traditional healers, and worries about protecting their intellectual property, the National Council of Traditional Healers agrees on a common name for AIDS, a consistent explanation of its origins, and a shared message that helps slow down the spread of HIV. Those trained in the European traditions and the African traditions are both satisfied with the result, proud of the mutual respect that has been achieved.

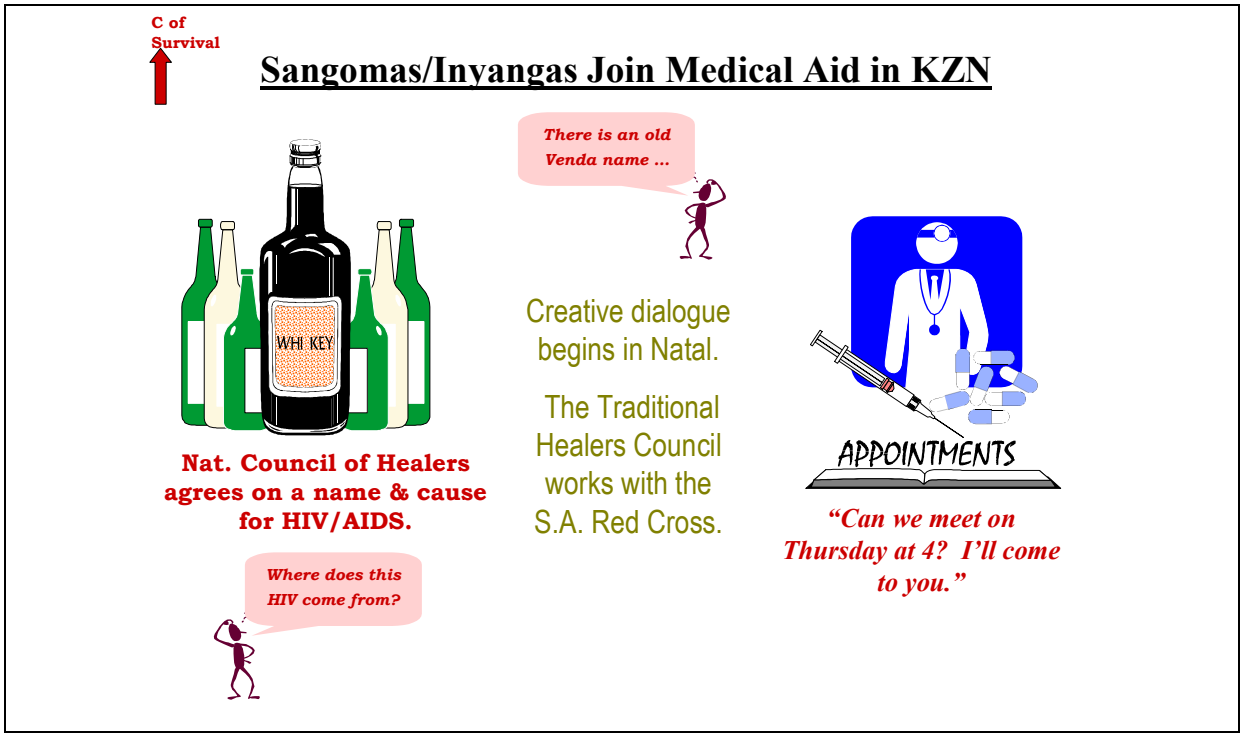


Figure 23: The soft signal of change towards *Communities of Survival* comes as traditional healers gain respect and prominence in all South African societies. Joint activities between Western and African trained professionals increase and an African name for AIDS comes into wide use.

This fruitful dialogue encourages the Medical Aid schemes to accept the contribution of traditional healers. By 2006, new procedures are developed to admit qualified *sangomas* and *inyangas* into Medical Aid schemes. Many universities develop a new qualification in traditional medicine and all European-style medical schools include an elective on traditional medicine. By this one change alone, more people are treated successfully for STDs than had ever been treated before. The public language of intervention also broadens to include African beliefs about the causes of disease. "AIDS is a disease of bad blood. Use a condom to avoid contact with bad blood." "Sexual restraint is a matter of self-respect." Slowly, African-based and European-trained doctors become partners in providing health care, with each sector recognising the strengths of the other. Company medical advisors take note and begin working more closely with traditional healers to ensure that their entire work force is covered.

By 2010, new groups and new initiatives have multiplied, encouraged by small victories, like those of the Treatment Action Campaign and the Traditional Healers Council. There is an increase in community action and support, as AIDS becomes a normal disease. People start to notice how much the language around AIDS has changed. During the worst years of 2001-2004, when HIV-positive people had said " I will not die alone," it meant they would spread the HIV so that others would accompany them to the grave. Now, barely ten years later, HIV-positive people would hear others say: "You will not die alone, because we are all here with you". This language had begun to change in mid decade, somewhere around 2005, when the rapid climb of the HIV prevalence rate first began to slow down. The highest HIV prevalence, 34% of pregnant women, is reached by 2007, when the rate finally begins to fall.

In the business world, there is a clear financial cost to this progress. Those firms who had responded early and effectively to the epidemic had lobbied for tax breaks to help them pay for increased health care and training. They had also succeeded in opening the way for greater immigration of skilled workers. Nonetheless, throughout the scenario period, corporate profits are repeatedly hit by the need to respond to AIDS. Managers find themselves caught in a dilemma. On the one hand, there is a clear social crisis that requires their response. On the other, are the foreign and local shareholders who complain about poor earnings, assuming that AIDS is a government problem, not a business responsibility. Little by little, these managers make the case to the financial markets that a healthy profit can only come with a healthy workforce in a healthy society, but financial perceptions on AIDS do not completely change until sometime around 2010.

Despite the fall in HIV prevalence after 2007, the death rate during the following years continues to rise, as those who were infected in the 1990s fall ill and die. Women are hit particularly hard, having been infected in their earliest adult years. They worry above all about the future of their children. They do not want to leave them in institutions, but want to know who is going to care for them after they have died. As early as 2002-3, personal requests for help multiply in all directions – to family, friends, neighbours, bosses and organizations located near by. Everyone is asked to take children in or at least support their education. Companies are also expected to help, not just as organizations, but as communities of individuals who have personal resources to share.

Home based care organisations multiply rapidly and get both local and international resources. Other groups imitate the initiatives taken by the Nelson Mandela Children's Fund. Schemes for surrogate mothers are also developed. These are women in local communities who are hired to care for orphans in their own homes. They supervise the children, make sure they are clean, cared for and attend school, and act as their champions when necessary. These cost-effective schemes keep children in their own neighbourhoods, and provide women with an income they might not otherwise have had. Such schemes, along with many other projects, work to create new networks of friendship, mutual dependence and achievement, all of which help to build the social cohesion that reduces the spread of AIDS.

There is a larger benefit as well. When the government decided to sub-contract the responsibility for managing AIDS to local governments, businesses and voluntary organizations it was a short-term crisis measure. But the new civil connections that were created stimulated greater confidence in society at large, which in turn strengthened confidence in government itself. By the end of the scenario period, government is smaller, but more effective. Tax structures have been redesigned to support civic organisations, while the government's own cost of managing AIDS has been met through new taxes and a clearer set of rules allowing the early release of people who are ill with AIDS.

The real achievement has been the growing social engagement in South Africa and across the region. South Africans have recaptured the spirit of public responsibility that struggled with apartheid for four decades. The unions actively support the burgeoning civil society initiatives. There is a growth in NGOs, tribal support associations, women's groups and other civil organisations, strongly supported by business, labour and a few farsighted donors.

This important change is cultural more than it is economic. Throughout the region, people have learned to ask all sorts of tough questions, critically evaluating in a pragmatic way, their own cultural traditions and practices to see what is and is not helpful for themselves as individuals and as a society. In learning to respond to AIDS, the two worlds that co-habit South Africa have learned that they are fated to live together, and can do so creatively, not just passively or antagonistically. They learn to discover, not just what makes them different, but also what brings them together.

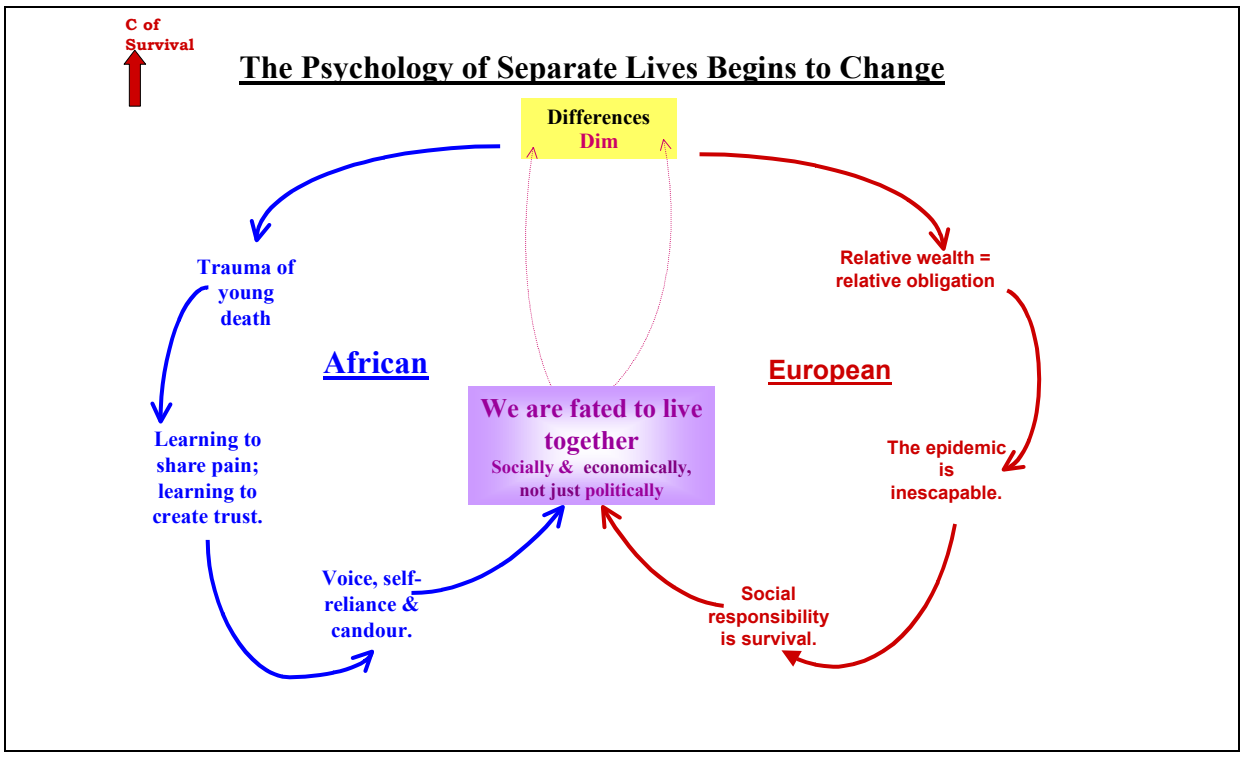


Figure 24: In *Communities of Survival* there is a new recognition that both African and European cultures have to change in order to meet the challenges of AIDS.

For those who have experienced the trauma of the death of young people, it has been necessary to learn how to speak openly about hard, personal issues, to be candid and willing to learn the skills of self-reliance and broader trust. For those who have been wealthy enough, stable enough or lucky enough to escape the disease itself, it has been necessary to recognize that relative well-being carries with it an obligation, a recognition that social responsibility helps to ensures personal survival.

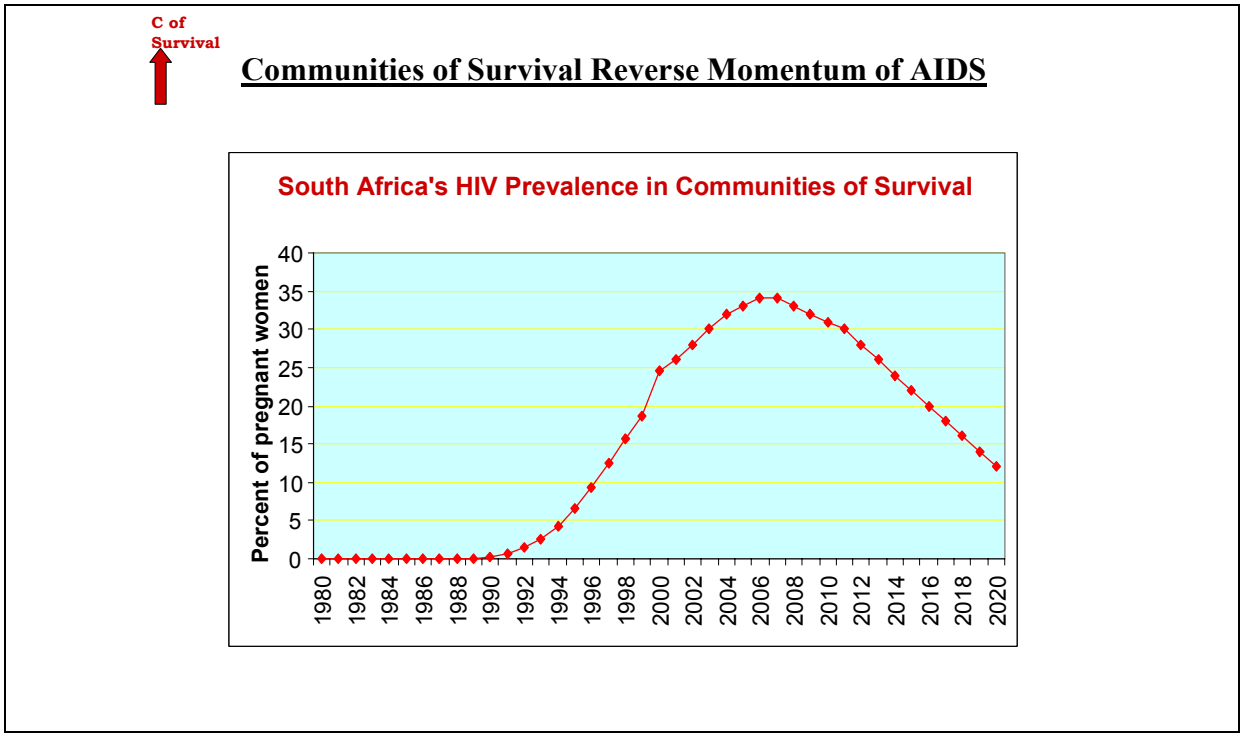


Figure 25: In *Communities of Survival* multiple responses from organizations working at the local and national level help to increase social cohesion and bring down the prevalence of HIV.

In this story of Communities of Survival, it has been necessary for all competing cultures of South Africa to accept that the epidemic is inescapable. Everyone has had to face the autonomy of disease and necessity to meet it together. The prevalence of HIV falls as the psychology of different lives begins to change and people realise 'we are only people because of other people', the true meaning of 'ubuntu'.

A similar picture is seen in Namibia, Botswana and Mozambique. Swaziland and Lesotho lag behind but eventually South African organisations feel that they have to intervene in these countries, spreading the ethos that has created new Communities of Survival.

Comparing the Scenarios

When we compare the HIV prevalence for all three scenarios, several lessons can be learned. Because we have assumed that there will be no effective and affordable medical interventions for the next 10-15 years, and because the skills of social development take time to develop, we expect that HIV prevalence will continue to rise in Southern Africa for at least the next 5-7 years. Prevalence will only decline after that time in the Communities of Survival scenario. This means that in all scenarios the death rate will continue to rise for most of the next twenty years. The death rate from AIDS will only begin to slow down towards the end of the scenario period in the Communities of Survival scenario. Otherwise it will not decrease until after the end of our time horizon. The continued rise of HIV prevalence and of illness and death from AIDS represent the inescapable autonomy of this disease – a deadly illness that will be with us for the next 20 years, in one way or another.

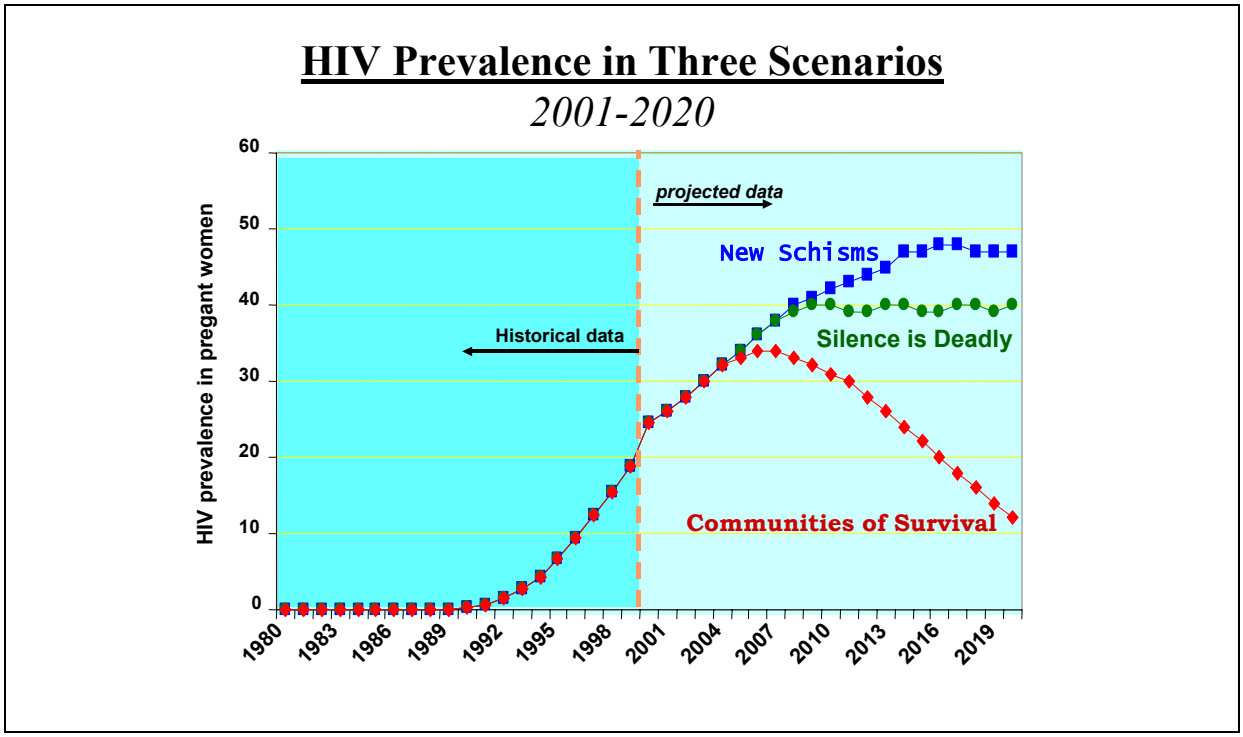


Figure 26: *Communities of Survival* is the only scenario in which HIV prevalence falls. In both of the other two, it continues to climb before stabilizing at a high plateau, with the high mobility of *New Schisms* producing the highest level of HIV.

The most surprising outcome of comparing scenarios, is that the scenario of good economic growth and regional integration, New Schisms, is also the scenario in which HIV spreads farthest. This is driven by two factors: first, economic growth and the new regional road infrastructure increase the mobility of labour. Second, behaviour change has not occurred because of the over-reliance on the European, bio-medical explanation of disease which are simply not credible. At a time when many Africans feel disadvantaged by rising unemployment due to competition, this explanation is simply not credible. Eventually, long-term growth suffers from the high HIV prevalence and chronic AIDS epidemic. This is the least stable path and at any point could slip into the 'Silence is Deadly' scenario or move to Communities of Survival. The main message here is that economic growth without appropriate social investment is not sustainable.

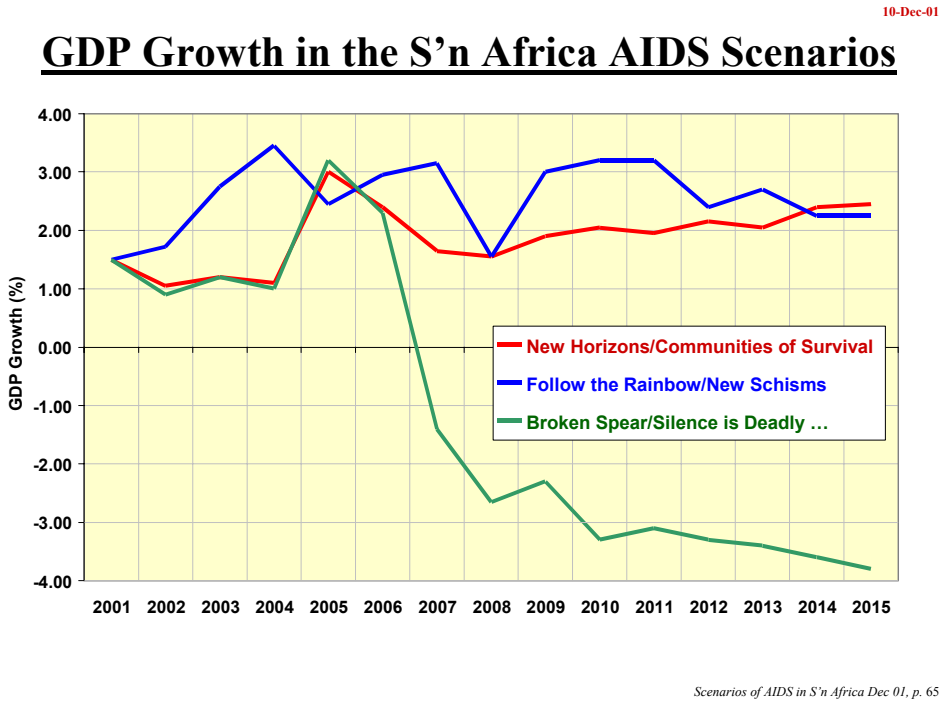


Figure 27: Growth is slow in all scenarios, partly due to AIDS, but also thanks to other factors. These complications are particularly important in the scenario of the Broken Spear/Silence is Deadly…

In the Silence is Deadly scenario, HIV prevalence eventually levels off because there is no new infrastructure, so the economic slow down cuts population movement and hence sexual mixing. "Leveling off" is not necessarily good news; it means that as people with HIV die they are replaced by new infections. What makes this scenario particularly bleak, however, is not just the lack of strong economic growth: it is the fact that the language of stigma and exclusion around AIDS is extremely destructive of social cohesion because it resonates in South Africa with earlier experiences of apartheid and rejection. This is the scenario of the greatest political risk, and can therefore most quickly affect the economy.

The last scenario is Communities of Survival. This is the only one where we expect HIV prevalence to fall as communities of all kinds mobilise. In the short term, economic growth is low and many of the necessary actions and arguments appear to be unfriendly to capital and business. In the longer term, this scenario is the only one that creates sustained economic growth in a healthy social and political system. In this scenario, all cultures are valued, but all need to change. Moreover, leadership can, and must, come from all sectors and cultures if the epidemic is to slow down.

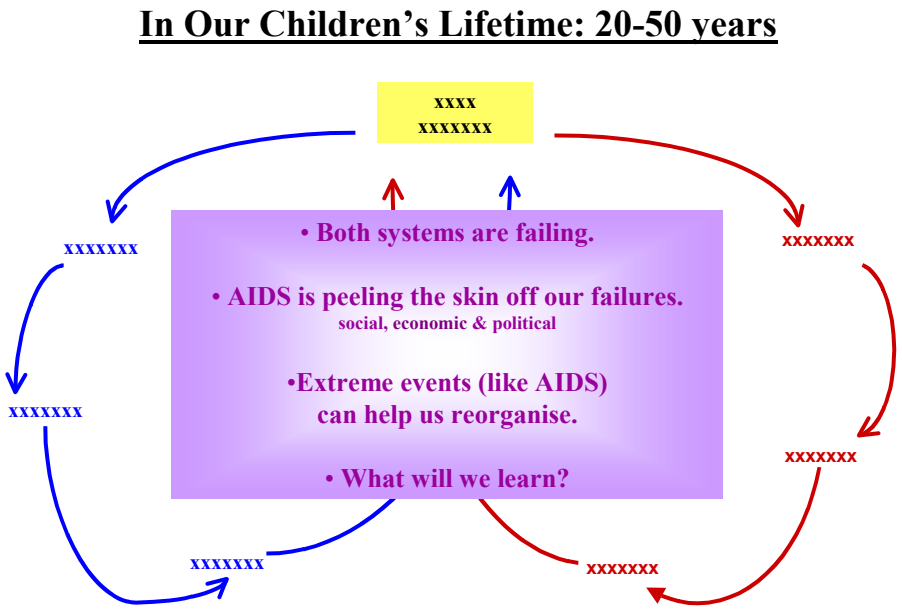


Figure 28: AIDS shows us that our cultures are failing. In responding to the crisis, we can learn new ways of living together, or reinforce destructive patterns of the past.

Riding the Storm: Recommendations & Dilemmas

Recommendations for Shell Staff and Partners

Shell staff and partners include not only those people directly paid by the company but also anyone who is linked with the company directly through franchises or indirectly through contractors and suppliers. These are the people linked to the company in the eyes of the public. The message of the best practice guidelines which are provided separately on the CD/Rom, is simple and summed up in three words:

- Monitor
- Minimise
- Manage.

"*Monitoring*" includes a profile of the workforce and its health, keeping track of employment costs and benefits, and a profile of community health activities. "*Minimising*" involves activities such as peer education, provision of condoms, and other simple measures to minimise the spread of HIV. Shell's recent work in helping to provide mobile health clinics in their truck ports is a good example of minimising the spread of HIV. However, Shell may also need to redesign some jobs to reduce the risk of infection; for example, trying to avoid drivers being away from their home base over night.

In order to "*Manage*" the impact of ill health when it hits, Shell needs to have a clear corporate policy in place, based on consultation and a clear understanding of the cost implications of sickness and disability at work. This will need to include consideration of provision of MCTC (mother-to-child transmission) and ARV (anti retro-viral) therapy and careful thought as to who will be eligible and for how long. (Shell can learn from other companies who have done this). Monitoring, minimizing and managing are all helped by encouraging staff to know their HIV status.

In working with the oil industry, Shell needs to help establish contractor compliance, common standards and cost-sharing of any activities that can be done collectively – in monitoring, minimising or managing HIV/AIDS. AIDS is not a competitive issue and there is much to be gained by industry collaboration, an activity that has already begun in SAPIA.

In taking all of these actions – with staff, associates and others in the industry – it is important to encourage the sense that Shell is a community that cares about its employees and associates. This recommendation is based on the fact that although AIDS is a medical issue, social interventions will make the most difference.

Many of these actions are already in place or are being addressed by the CHESS department, HR department or public affairs. However, a number of issues are still outstanding, e.g.:

- How and what should be monitored?
- How can jobs be redesigned to reduce risk?
- How can staff be encouraged to know their HIV status?
- What role can and should Shell play in providing drug treatment for staff – MTCT or ARV?

Shell and the Broader Community

Shell has an important role as a corporate citizen in the oil industry, in South Africa's business community, and in the region. AIDS is a long term problem and as a business that routinely has long

term horizons, Shell should play a long game as "**The Caring Innovator**". This might, for example, include support for education projects that help maintain or improve the level of skills in society.

Shell should also encourage **staff to engage** with their communities or others in providing leadership locally through projects of care, support for orphans, education or any other useful activity. The company could formally allow staff time off for these efforts, while insisting that people bring the learning from such activities back inside Shell.

There is also an urgent need to learn a new language around HIV/AIDS to bridge the gap between the traditional and the scientific. One innovative way would be to create a post for **a company *sangoma***, who would play a role in the care of patients, treatment of STDs and counselling. Working with someone in this post would help cross deep cultural boundaries in South Africa and would provide Shell with a link to encourage other *sangomas* and *inyangas* to develop new ideas for addressing AIDS in language that everyone can understand and respect.

Finally, carrying out this exercise has been extremely illuminating for all engaged in it. We believe that it can also be influential publicly in promoting constructive dialogue about the epidemic, in the same way as the 1980s' Anglo American company's 'Low Road/High Road' scenario presentations. We therefore suggest that Shell develop an **AIDS scenario road show** based on this material. If "Silence is Deadly", then we all need to learn how to "Speak out and Survive."

While all of these are useful ideas, they represent a new role for Shell. Two questions therefore need to be debated in Shell:

- What role will Shell play in providing leadership in business and society at large?
- What role will Shell play in presenting AIDS messages that are meaningful to all?

Business Performance

There is consensus that HIV/AIDS will have business implications and although some are already apparent, others will become more important in the years ahead. These issues need to be monitored, perhaps using the Retail and Commercial impact diagrams from Report 2 to identify key indicators to trace. Monitoring is not enough, however, and several critical questions should be discussed in advance to avoid being taken by surprise; for example:

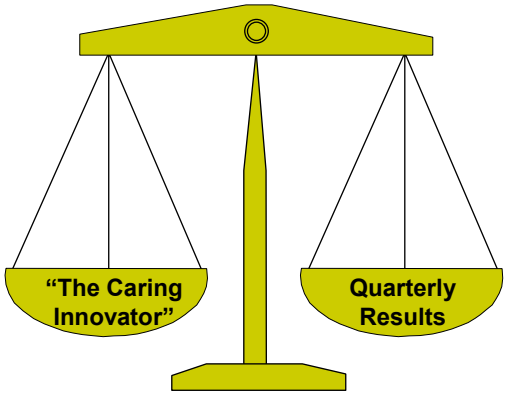
- How can Shell cope with a decade of lower growth and a changing business climate?
- How can Shell manage lower staff productivity and higher risks of accidents due to increased illness in the workforce?
- How can and should Shell manage the shortage of BVO (Big vehicle operators) in the region?

Dilemmas

Finally, while all these recommendations are good and worthy things to do, the company will face two important dilemmas in developing its response to AIDS. First, if it is important to recognise that Shell is a community that cares, what are the boundaries of Shell's community? **"Who is us?",** in the words of Arie de Geus. It is clear that the company should educate and provide condoms for employees, but what responsibilities does it have to franchisees? Should it also take greater responsibility for educating customers? Similarly, if ARVs are to be provided should they be given to all staff at all levels, to spouses, to dependents and if so for how long? These are issues that need to be debated.

The second dilemma concerns the opposing requirements of **'The Caring Innovator' and the stock market's expectations** for the next quarter. The recommendations made in this report mean taking a long term view of the situation. These may not maximise profits in the short term. How can these conflicting demands be met, when each is clearly important? How can the case be made to financial markets that they also have a responsibility in meeting the demands of AIDS?

AIDS in Southern Africa: Shell's Dilemma



How to balance being "the Caring Innovator" with the stock market's expectations for the next quarter?

Figure 29: AIDS is another issue that forces Shell to balance is broader ideals against the requirements of financial markets for steady performance.

In the scenarios we argue that our responses to increased illness and death in the coming years will determine the course of political economic and social development over the next several decades. Decisions made in the next few years will be particularly crucial. The least stable path is that of **New Schisms** where an open competitive economy increases mobility and unemployment, helping to drive the spread of HIV. From this scenario the region could slip into the chaos **of Silence is Deadly** or choose to move to **Communities of Survival**. The choice is ours. What will we choose?

The peoples of South and Southern Africa faced similar stark challenges in the mid-1980s and made many inspired individual choices that helped achieve a remarkable transition. It is our hope that similar individual, corporate and government decisions will reverse the spread of HIV in our society today.

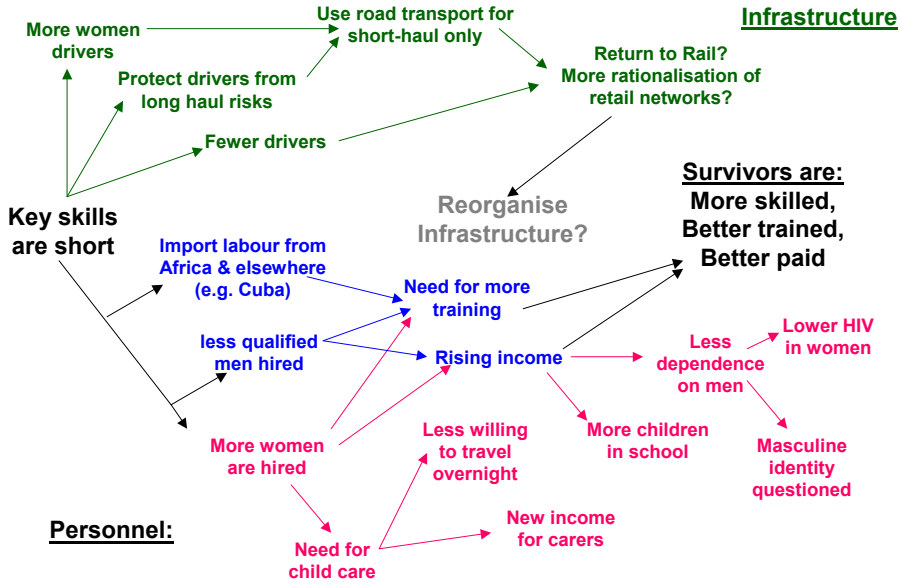
Appendix 1 – Assumptions about Medical Interventions

	Disease Prevention **a. *vaccination against HIV*** ***b. prevention of mother to child transmission***	**Disease Management** ***a. treatment of opportunistic infections*** ***b. anti-retroviral therapy for late stage HIV infection***	**Disease Cure** ***ridding the body of HIV***
Medical Science	Vaccine available in 2010 to 2015 time frame. Mother-to-Child (MTCT) prevention available now.	Opportunistic infection treatment is available now. ARVs (anti retro virals) became available in 2001, but coping with mutations in HIV is a constant battle which consumes resources. We assume that new HIV mutants do not become more virulent in coming years.	No current drugs available for this. May be invented through genetically engineered agents customised for an individual's genes. May be available in 2015 to 2030 time frame.
Affordable?	MTCT affordable in South Africa, Namibia and Botswana Vaccine affordable in 2010 to 2015 time frame.	Opportunistic infection treatment affordable now. ARVs will not be not generally affordable outside private sector in next 20 years, except in Botswana where they are made available through government and donors as a 'national pilot project' from 2002 onwards.	Not affordable for next 20 years.
Deliverable?	The same for both MTCT and vaccine, but scenario dependant: Good in "Communities of Survival" fair in "New Schisms" and poor in "Silence is deadly".	Infrastructure not adequate for delivery for the next 10 years, except perhaps in Botswana.	An entirely new infrastructure will be required. Not available for 20 years.
Acceptability	High	Opportunistic infection treatment is acceptable. Acceptability of ARVs is limited by side-effects.	Dubious
Effectiveness	High	Effectiveness of ARVs is influenced by nutrition, discipline and hygiene, as well as HIV mutations.	Unknown

Appendix 2 – Commercial Road Transport

Because there already a growing problem with bulk vehicle operators and commercial road transport, the study team looked at possible consequences and potential responses.

Shortage of CRT Skills – Possible Consequences



Given the possible consequences shown in the diagram, future policies may need to:

- Recruit and train more women drivers;
- reduce long haul drives;
- import skilled drivers from outside Africa;
- allow drivers to travel with family partners;
- return more traffic to the rail network and reorganise the infrastructure;
- return distribution to Shell as an in-house operation.

The first step, however, is to establish best practice for all drivers and insist on contractor compliance.

Appendix 3 – Glossary

AIDS	Acquired Immune Deficiency Syndrome – A syndrome (collection of diseases) that results from infection with HIV.
Antibodies	Substances produced by cells in the body's immune system in response to foreign substances that have entered the body.
Asymtomatic	Infected by a disease agent but exhibiting no medical symptoms
Epidemic	A disease, usually infectious, that spreads quickly through a population.
Epidemic Curve	The shape of the curve resulting from the rise (and hopefully subsequent fall) in the number of infections.
Epidemiology	The study of the distribution and determinants of disease in human populations
HIV	Human immunodeficiency virus – the name of the virus which undermines the immune system and leads to AIDS
Immune System	A complex system of cells and cell substances that protect the body from infection and disease.
Incidence of HIV	The number of new cases of HIV in a given time period, often expressed as a percentage of the susceptible population
Opportunistic infections	Infections that occur because a person's immune system is so weak that it cannot fight off the infections
Pandemic	An epidemic occurring simultaneously in many countries
Pre and post test counselling	A process of counselling which facilitates an understanding of the nature and purpose of the HIV test. It examines what advantages and disadvantages the test holds for the person and the influence of the result, positive or negative, will have on them.
Prevalence of HIV	The number of people with HIV at a point in time, often expressed as a percentage of the total population.
Seroconversion	The point at which the immune system produces antibodies and at which time the HIV antibody test can register an HIV infection
Sero-survey	Testing of blood to establish the level of infection.
Window period	The period between infection and HIV and seroconversion (when HIV antibodies can be detected by the HIV antibody test)

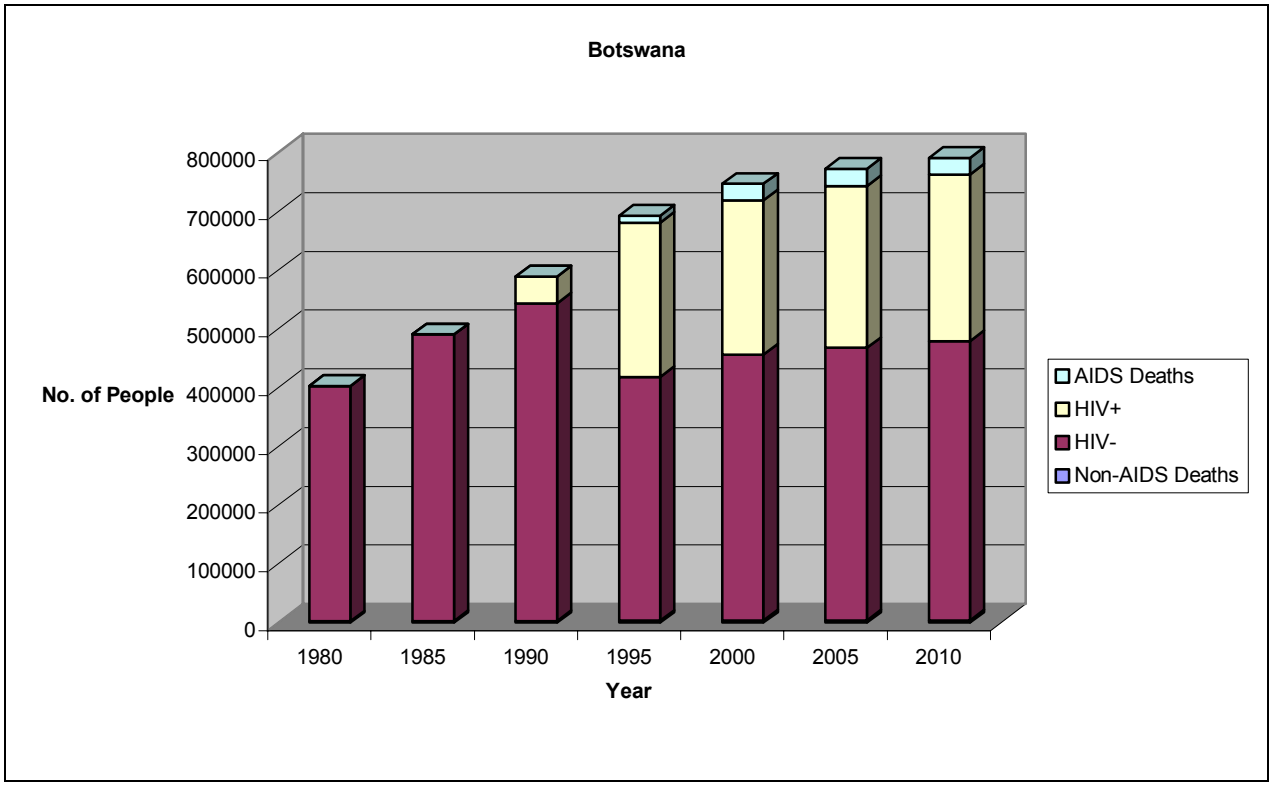
Appendix 4: Projected HIV Prevalence among Pregnant Women

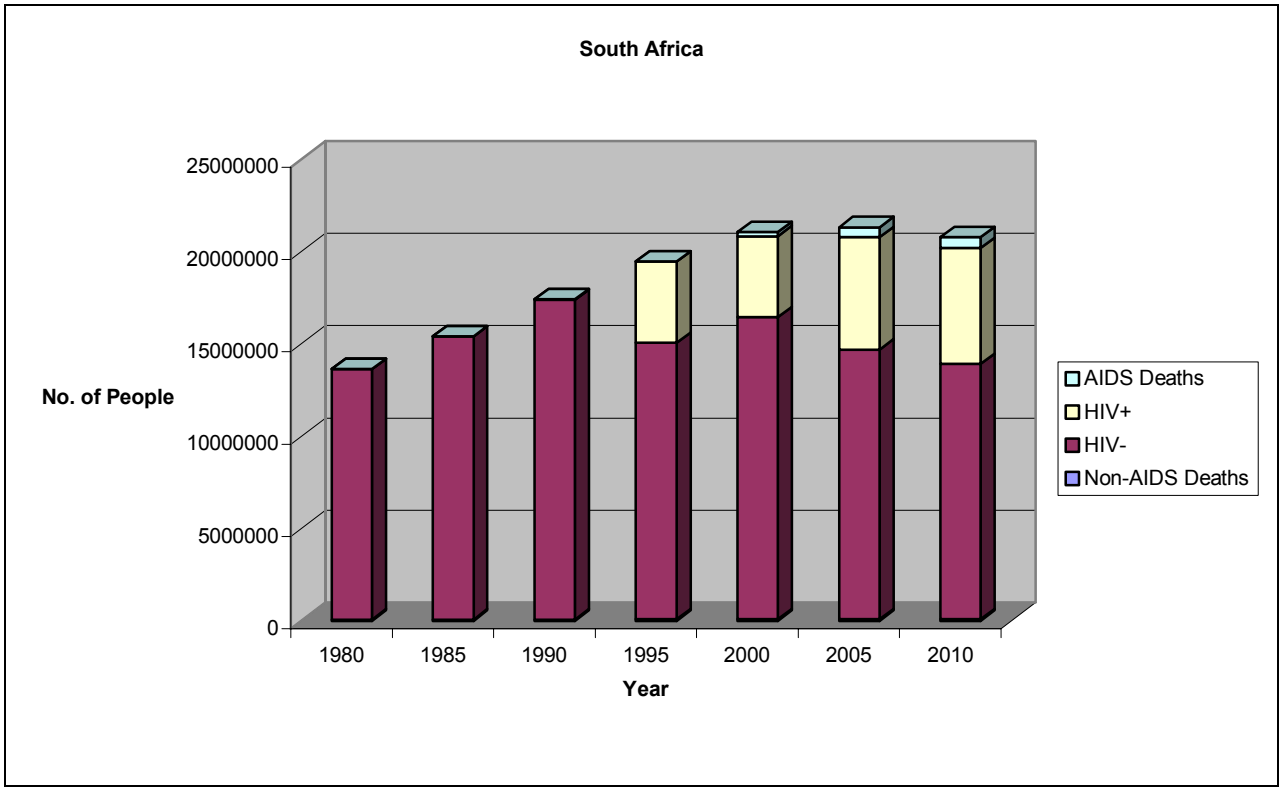
(See CD/Rom for spreadsheet of prevalence from 1980-2020)

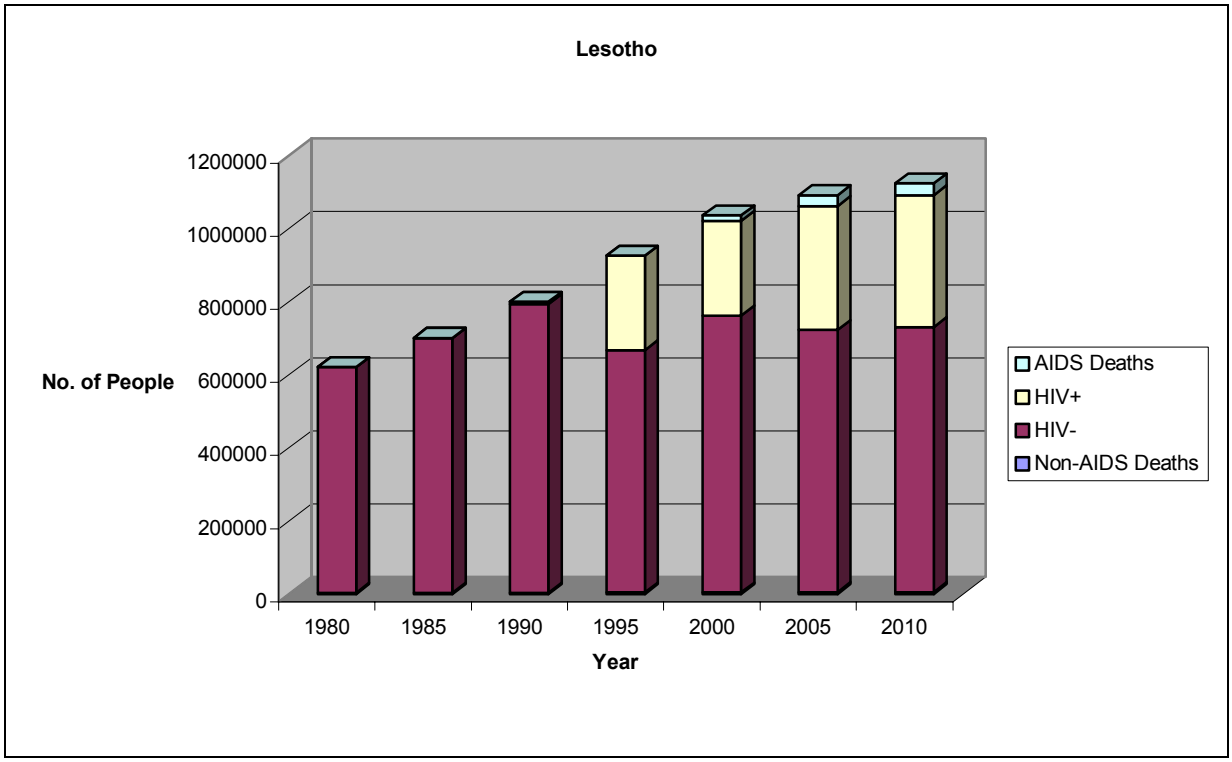
Year	New Schisms	Silence is Deadly…	Communities of Survival
2000 real data	**24.5**	**24.5**	**24.5**
2001 projections	26	26	26
2002	28	28	28
2003	30	30	30
2004	32	32	32
2005	34	34	33
2006	36	36	34
2007	38	38	34
2008	40	39	33
2009	41	40	32
2010	42	40	31
2011	43	39	30
2012	44	39	28
2013	45	40	26
2014	47	40	24
2015	47	39	22
2016	48	39	20
2017	48	40	18
2018	47	40	16
2019	47	39	14
2020	47	40	12

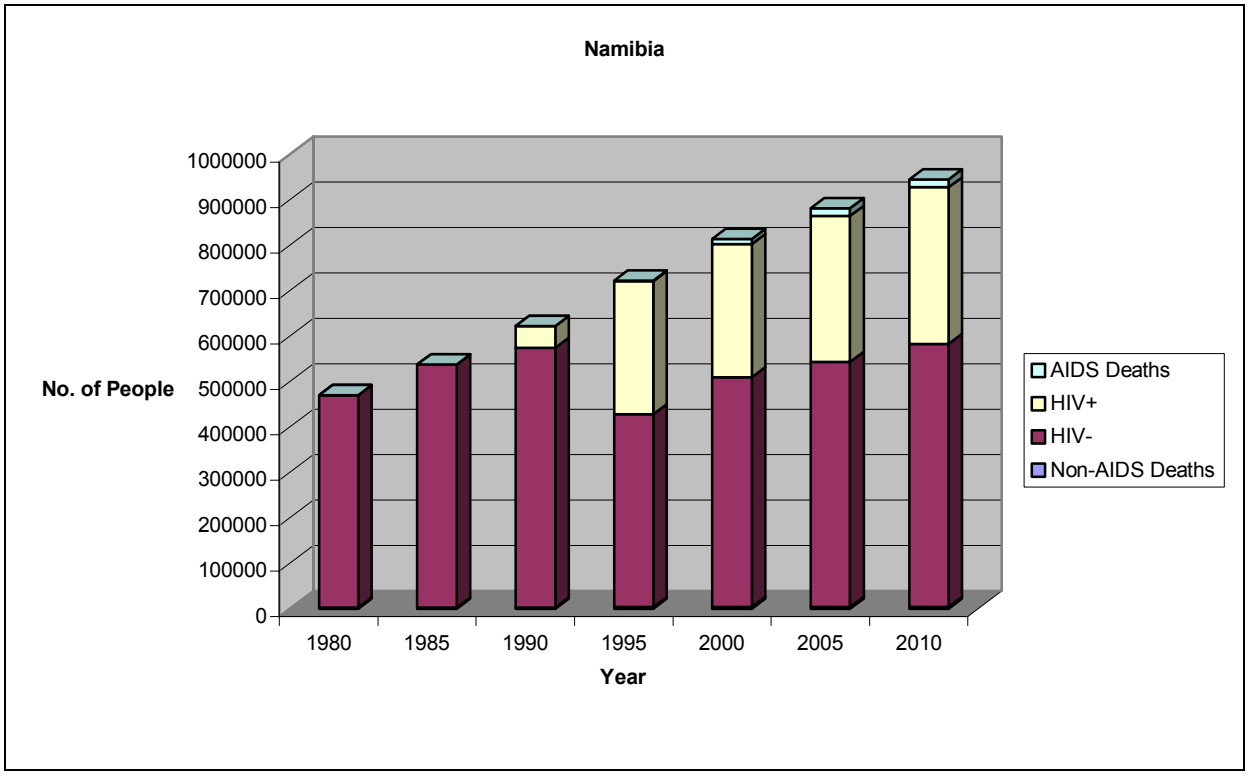
Appendix 5 – Projected Illness & Death by Country

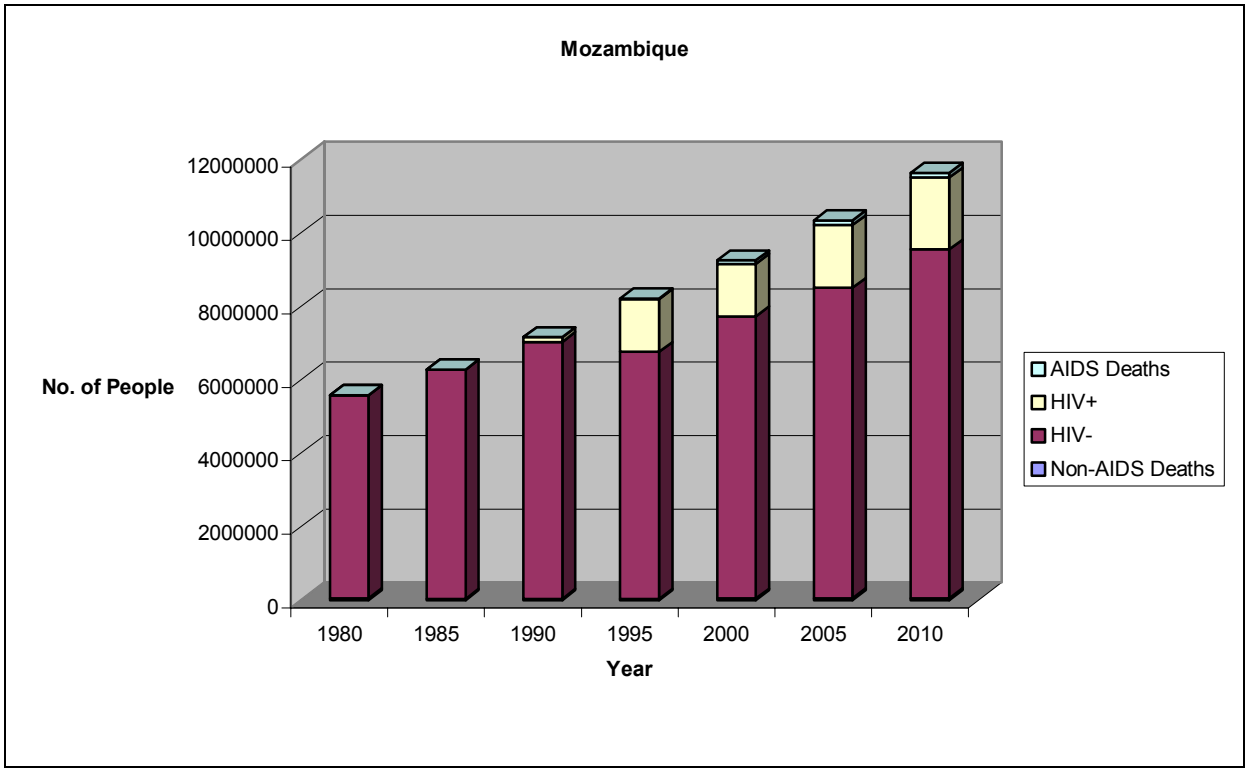
The following graphs are based on estimates of HIV prevalence from the Futures Group, which were then used in a Spectrum Model to estimate future illness and death from AIDS. They do not reflect the scenario stories. See note below.

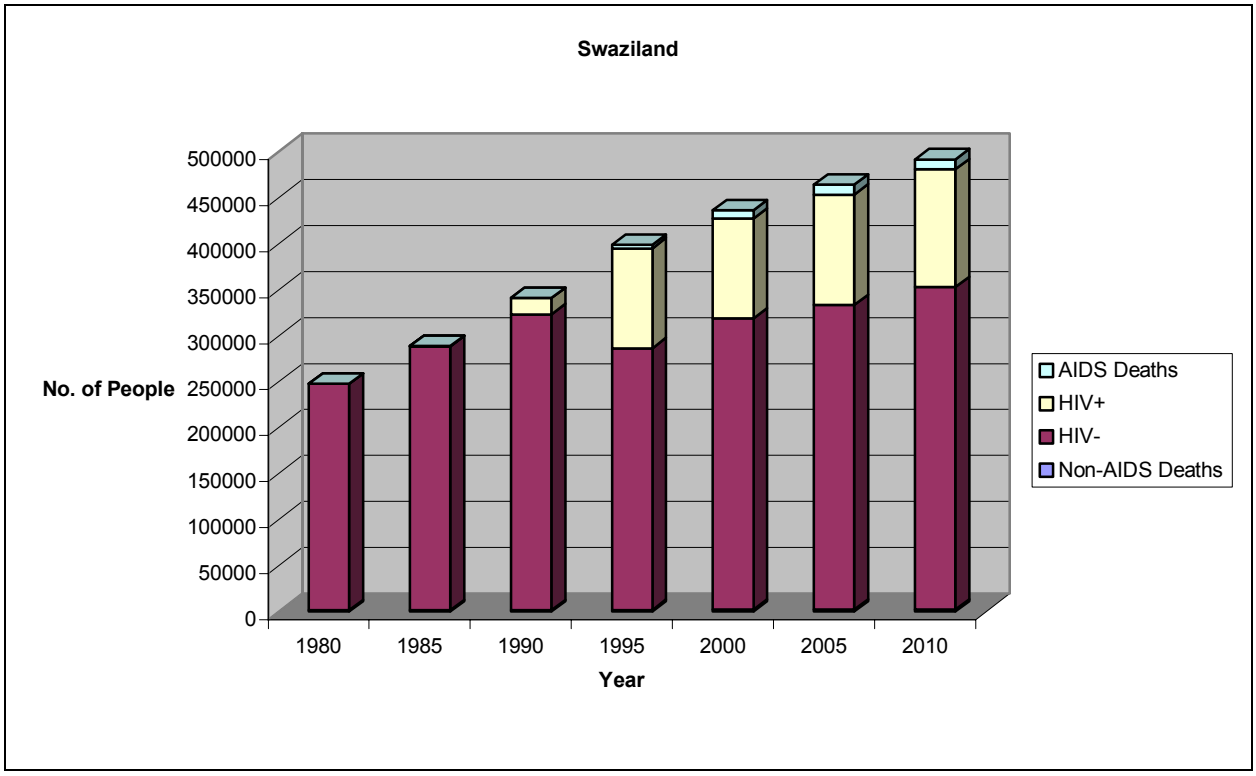



South Africa
No. of People
25000000
20000000
15000000
10000000
5000000
0
1980
1985
1990
1995
2000
2005
2010
Year
AIDS Deaths
HIV+
HIV-
Non-AIDS Deaths


Lesotho
No. of People
1200000
1000000
800000
600000
400000
200000
0
1980
1985
1990
1995
2000
2005
2010
Year
AIDS Deaths
HIV+
HIV-
Non-AIDS Deaths


Namibia
No. of People
1000000
900000
800000
700000
600000
500000
400000
300000
200000
100000
0
1980
1985
1990
1995
2000
2005
2010
Year
AIDS Deaths
HIV+
HIV-
Non-AIDS Deaths


Mozambique
No. of People
12000000
10000000
8000000
6000000
4000000
2000000
0
1980
1985
1990
1995
2000
2005
2010
Year
AIDS Deaths
HIV+
HIV-
Non-AIDS Deaths


Swaziland
No. of People
500000
450000
400000
350000
300000
250000
200000
150000
100000
50000
0
1980
1985
1990
1995
2000
2005
2010
Year
AIDS Deaths
HIV+
HIV-
Non-AIDS Deaths

Note on projected illness and death from AIDS

Chris Desmond, HEARD

The projections only go up to 2010 because that is as far as we have prevalence projections. We used prevalence projections supplied by the Futures Group because it would have been far too time consuming to do them ourselves. We used these prevalence figures in the Spectrum Model to estimate illness and death. It is possible to project further if we 'make up' prevalence figures, the results will however be very weak, firstly because we have no real grounds to make up figures, and secondly Spectrum has a mathematical fault with the link between the prevalence and incidence curves. This fault does not influence the results in the relatively short term, but complicates the interpretation and use of long term results. This fault has been fixed in the latest version which has just been released but we do not yet have a copy. To obtain the new model, redo the prevalence and the model assumptions would take far too long.

The models are based on a number of assumptions. Firstly the prevalence projections are based on the fitting of curves to existing data. There are three types of models which can be used to project the prevalence of HIV. Curve fitting, behavior models and simulation models. These projections are curve fitted models: epidemics of all descriptions, from alien plant life to flu, follow a similar pattern - the S curve. S curves can themselves vary in a number of ways. What curve fitting does is to find the S curve (of which there are an infinite number) which best fits the available data. This curve is then used to estimate future levels. This works well if you are wanting to predict only a few years out, but becomes very difficult for long term projections, especially when estimates of prevalence beyond the peak of the curve are estimated. The second type of model is where the population is divided into groups, each with a different risk pattern and prevalence is modelled within the groups and based on their interaction. It is easier to include behaviour change in these models as all that is involved is a shift in the population of one group to another with a different risk pattern. Unfortunately these models require far more data and time. If we had used them we would only have been able to attempt South Africa because of data limitations and even then we would have had a problem with the time constraints. Finally prevalence can be projected based on simulation models. These are very complicated and require super computers and were therefore not an option.

As a result of the constraints outlined above we used curve fitting which assumes that the pattern of the past continues – not in the same way as it did in the past but to the end of the best fit curve. Given the time we had, this was the only option and as I said it works well for the next few years (5-10) but is poor after that.