



MMSD<sub>SA</sub> Research Topic 2 Draft Report

HIV/AIDS, THE MINING AND MINERALS SECTOR AND SUSTAINABLE  
DEVELOPMENT IN SOUTHERN AFRICA

The effect of HIV/AIDS on the mining and minerals sector and recommendations for  
management of the pandemic in alignment with sustainable development in the  
mining and minerals sector

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## Abbreviations Used<sup>1</sup>

ABC	Abstain, Be Faithful and Condomise
ACHAP	African Comprehensive HIV/AIDS Partnerships
AIDS	Acquired Immunodeficiency Syndrome
AidsCAP	AIDS Control and Prevention [Project]
ANC	Antenatal Clinic
ART	Antiretroviral Therapy
AZT	Zidovudine cf. ZDV (antiretroviral drug)
BOCAIP	Botswana Christian AIDS Intervention Programme
BOFWA	Botswana Family Welfare Association
BONELA	Botswana Network on Ethics, Law and HIV/AIDS
CBO	Community Based Organisation
CD4	Also known as T helper cells
CDC	Centre for Disease Control (Atlanta, USA)
CHBC	Community Home-Based Care
CHEP	Copperbelt Health Education Project
DfID	Department for International Development (UK)
DOTS	Directly Observed Treatment Short Course (TB intervention strategy)
ELISA	Enzyme-Linked Immunosorbent Assay
GDP	Gross Domestic Product
GHI	Global Health Initiative (of the World Economic Forum)
GMI	Global Mining Initiative
GPS	Global Positioning System
GUD	Genital Ulcer Disease
HAART	Highly Active Antiretroviral Therapy
HDI	Human Development Index
HIV	Human Immunodeficiency Virus
HSV	<i>Herpes Simplex Virus</i>
IAVI	International AIDS Vaccine Institute
IDV	Idinavir
IEC	Information, Education and Communication
IFC	International Finance Corporation
IIED	International Institute for Environment and Development
INH	Isoniazid (TB treatment drug)
KAB	Knowledge, Attitudes and Behaviour
KAP	Knowledge, Attitudes and Practices
KS	Kaposi's Sarcoma
L.E.	Life Expectancy
LSHTM	London School of Hygiene and Tropical Medicine
MAC	<i>Mycobacterium avium</i> complex
MAP	Multi-country HIV/AIDS Programme
MDR	Multidrug-Resistant
MIASA	Mining Industry Association of southern Africa
MIGA	Multilateral Investment Guarantee Agency
MMSD	Mining, Minerals and Sustainable Development
MMSDSA	MMSD southern Africa
MMWR	Morbidity and Mortality Weekly Report

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<sup>1</sup> An extremely useful glossary of HIV/AIDS-Related terms is available at: <http://www.hivatis.org/glossary/>

MTCT	Mother to Child Transmission
NGO	Non-Governmental Organisation
NIAID	National Institute of Allergy and Infectious Diseases
NUM	National Union of Mineworkers (of South Africa)
PCP	Pneumocystis Carinii Pneumonia
PEP	Pre-emptive prophylaxis
PLA	Participatory Learning and Action
PLWA	People Living with HIV/AIDS
PPT	Periodic Presumptive Treatment
PRA	Participatory Rural Assessment
RH	Reproductive Health
RTI	Reproductive Tract Infections
SADC	Southern African Development Community
SD	Sustainable Development
SIV	Simian Immunodeficiency Virus
SME	Small and Medium-Sized Enterprises
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
STI	Sexually Transmitted Infection
STI	Structured Treatment Interruptions
TB	Tuberculosis
TBPT	Tuberculosis Preventative Treatment
TEBA	The Employment Bureau of Africa
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organisation
UNFPA	United Nations Family Planning Agency
UNFPA	United Nations Population Fund
VCT	Voluntary HIV Counselling and Testing
WB	World Bank
WEF	World Economic Forum
WHO	World Health Organisation
ZDV	Zidovudine cf. AZT (antiretroviral drug)

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In conclusion we would like to acknowledge all those individuals in the Southern African region and internationally who, often for little or no reward, are making their contribution towards managing and one day ending the epidemic.

# 1 INTRODUCTION

Africa in general, and Eastern and southern Africa in particular, continues to dwarf the rest of the world in terms of HIV prevalence,<sup>2</sup> HIV incidence and AIDS deaths<sup>3</sup>. Each year, in Africa, there are millions of new cases of HIV as well as AIDS deaths. No country, sector or individual is unaffected and certain groups are particularly hard hit, especially children and the elderly living in AIDS-affected households. Almost all countries will see the epidemic worsen.

The Mining, Minerals and Sustainable Development (southern Africa) Project commissioned this report on "HIV/AIDS, The Mining and Minerals Sector and Sustainable Development in southern Africa". It forms part of an exercise aimed at identifying how the mining and minerals sector can contribute to the global transition to sustainable development. The terms of reference were to use readily available information and interviews with key role players in the mining and minerals sector to:

- Determine the extent of HIV/AIDS in the mining and minerals sector and compare it with similar data from other key sectors in the southern African region.
- Document approaches and strategies used by various role players in the mining and minerals sector to cope with HIV/AIDS, along with restrictions or constraints that have prevented better management, and assess the effectiveness of these approaches and strategies.
- Identify the key success factors, driving principles and guidelines that could be used in the mining and minerals sector to manage the pandemic in line with sustainable development in the southern African region.

Interviews and information were collected in Botswana, South Africa, Zambia and Zimbabwe, with additional input from groups based in Belgium, Great Britain, Switzerland and the United States of America. Most other information was obtained from secondary sources.

## 1.1 Limitations

The main difficulties that were encountered in preparing this report were:

- **Time constraints:** The southern African Development Community (SADC) has 14 member states of which nine have active mining sectors.<sup>4</sup> It was not practical to thoroughly review this number within the 11-week time frame.
- **Access to information:** Some groups, primarily those in the private sector, were reluctant to be interviewed or to provide information, even on general HIV/AIDS-related issues.
- **Quantity and quality of information:** HIV/AIDS is one of the world's most intensively discussed topics. The quantity of information in the public domain is growing exponentially,<sup>5</sup> as are the numbers of unpublished surveys and reports.

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<sup>2</sup> Prevalence refers to the proportion of a given population that is HIV-positive in percent.

<sup>3</sup> UNAIDS (1998) AIDS in Africa. <http://www.unaids.org/publications/documents/epidemiology/determinants/saepap98.html>

<sup>4</sup> <http://www.sadc.int/>

- **Coordination of information:** Very few of the locations that were surveyed had a system capable of providing structured access to their HIV/AIDS-related resources, resulting in useful information being lost.
- **Scope:** In preparing this report the breadth of the terms of reference has had to be balanced against the need for depth.

We hope that the report will provide a tool that each reader can use to make a real contribution to ending the HIV/AIDS epidemic, since this is the only goal that is truly consistent with sustainable development.

## 1.2 Structure of the Report

Section 2 briefly sets out the background of the Mining, Minerals and Sustainable Development project to provide a context for the report. Section 3 reviews the HIV/AIDS epidemic, its extent, the factors driving it and the impact that it is likely to have on key stakeholders in the mining and minerals sector. Section 4 looks at how key stakeholders, in particular those directly involved in the mining and minerals sector, are dealing with HIV/AIDS. This section also examines the factors that are motivating these stakeholders and the resources that are available to them. Particular emphasis is placed on a critical evaluation of the initiatives that are in place and the problems and successes that have been encountered. Section 5 summarises the key elements required in order for sustainable manage of the HIV/AIDS epidemic, concluding with recommendations for ways in which the mining and minerals sector can address HIV/AIDS in the context of sustainable development.

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<sup>5</sup> From 6 May 2001 to 4 July 2001 the number of websites on HIV and AIDS increased by 36% to 1.27 million and the number on HIV, AIDS, mining and Africa increased by 7% to 11000 (using the Google® search engine, <http://www.google.com>).

## **2 MINING, MINERALS AND SUSTAINABLE DEVELOPMENT**

The most widely accepted concept of sustainable development is that of the Brundtland Commission, namely: “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”<sup>6</sup>

For the foreseeable future, the mining and minerals sector will remain critical to the southern Africa, driving economic growth and impacting directly and indirectly on the income, health and living conditions of the region’s people. In order to achieve sustainability the sector must therefore exert a positive influence on the social, economic and natural systems within which it operates.<sup>7</sup> An integrated and holistic approach is needed, but the complexity and variety of issues that need to be tackled make sustainable development a daunting goal. For the purpose of this report, sustainable development for the mining and minerals sector in southern Africa will be considered in relation to only one of these issues, namely HIV/AIDS, which because of its unusually rapid and widespread transmission has reached prevalences that are impacting on all aspects of society and taking a growing toll on individuals, communities, businesses and governments throughout the region.

The sheer scale of the pandemic, its dramatic reversal of development indicators such as life-expectancy, public health and poverty and the inability of the region to afford HIV/AIDS interventions in the light of chronic social and economic weaknesses, present major challenges. These will persist until an effective cure is available, which may be decades away. This is why it is impossible to formulate any long-term sustainable development strategy for southern Africa without considering HIV/AIDS.

### **2.1 The Mining, Minerals and Sustainable Development (MMSD) Project**

In 1998, ten large mining companies established the Global Mining Initiative (GMI) to explore how the mining industry could contribute to the global transition to sustainable development.<sup>8</sup> Twenty other mining companies and eight non-commercial sponsors joined with the GMI in 1999 and, through the World Business Council for Sustainable Development,<sup>9</sup> initiated the Mining, Minerals and Sustainable Development (MMSD) project: an independent two-year project to “identify how mining and minerals can best contribute to the global transition to sustainable development” by:<sup>10,11</sup>

- Bringing together some of the issues facing the sector at the global level;

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<sup>6</sup> World Commission on Environment and Development (1987) Our Common Future, Oxford University Press, Oxford.

<sup>7</sup> Hoadley M. (2001) Locating the Mining and Minerals Sector within the southern African Vision for Sustainable Development, unpublished document, MMSDSA.

<sup>8</sup> <http://www.globalmining.com/index.asp>

<sup>9</sup> <http://www.wbcsd.ch/>

<sup>10</sup> MMSDSA (2001) Mining, Minerals and Sustainable Development in southern Africa, unpublished document.

<sup>11</sup> MMSD (2001) The Mining and Minerals Sector: Part of the Puzzle of Global Sustainability, poster.

- Proposing an agenda for change;
- Including as broad a range of stakeholders as possible; and
- Developing relationships and capacity to implement future change.

The MMSD project is coordinated by the United Kingdom based International Institute for Environment and Development (IIED),<sup>12</sup> with regional partners in North America, Chile, Uruguay, southern Africa and Australia together with scoping activities in Europe, Russia, Kazakhstan, the Philippines, Indonesia and Papua New Guinea. In addition to reviewing the social, economic and natural aspects of mining and minerals around these geographical centres, additional studies were commissioned on:<sup>13</sup>

- Managing mineral wealth
- Business assessment of current corporate practice
- Management of large volume waste
- Long-run minerals availability
- Life cycle analysis
- Financial institutions and sustainability
- Small-scale mining
- Access to information in the mining and minerals sector

The MMSD project is meant to benefit not only its sponsors, but also the wider range of stakeholders involved in the mining and minerals sector.

## **2.2 MMSD in southern Africa**

From August 2000 to March 2001 a series of meetings and a survey were conducted amongst sectoral stakeholders in order to formalise the structure and outcomes for the MMSD project in the southern African region. MMSD southern Africa (MMSDSA) was established and tasked with creating a working definition for sustainable development in the region's mining and minerals sector. To achieve this reports were commissioning on:

- Small scale mining and sustainable development in southern Africa;
- HIV/AIDS, the mining and minerals sector and sustainable development in southern Africa;
- Mining, minerals and society and the transition to sustainable development in southern Africa;
- Mining, minerals, the biophysical environment and the transition to sustainable development in southern Africa;
- Mining, minerals and economic development and the transition to sustainable development in southern Africa; and

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<sup>12</sup> <http://www.iied.org/>

<sup>13</sup> MMSDSA (2001) Mining, Minerals and Sustainable Development in southern Africa, unpublished document.

- Baseline assessment.

Research teams were appointed in April 2001 to submit reports in August 2001. The MMSDSA project will be concluded in December 2001 by a workshop on strategies, policies and mechanisms for the implementation of sustainable development and the production of its regional report.

### 3 A REVIEW OF THE HIV/AIDS EPIDEMIC

In June 1981, five homosexual men in Los Angeles, USA fell ill with rare symptoms suggestive of immunological problems. At the same time women, suffering from untreatable anaerobic ulcers of the groin and anus in Mugana, Tanzania were seen by a German doctor.<sup>14</sup> Both the American and African outbreaks were associated with the same new pathogen. The condition of immune collapse was named AIDS (Acquired Immune Deficiency Syndrome) and was later found to be associated with the Human Immunodeficiency Virus (HIV). The disease is now commonly known as HIV/AIDS.

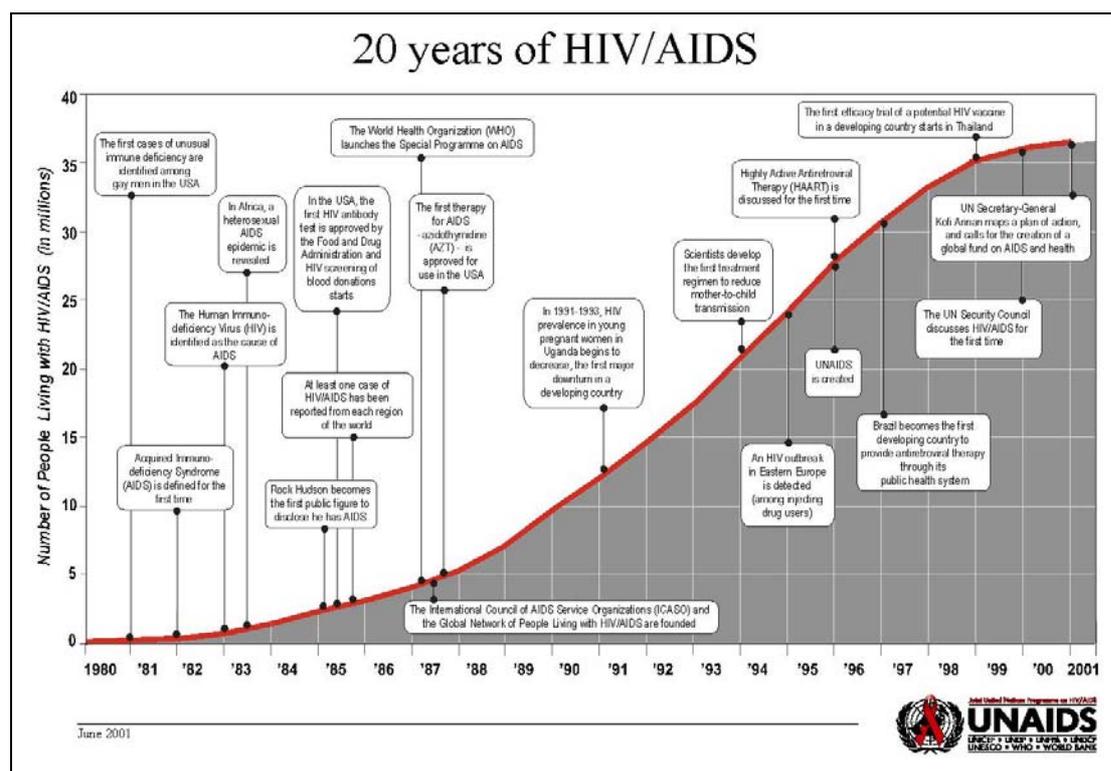


Figure 1 Milestones in the HIV/AIDS pandemic.<sup>15</sup>

A decade ago, HIV/AIDS was regarded primarily as a health crisis. Today, it is clear that HIV/AIDS is a development crisis and is fast becoming a global crisis.<sup>16</sup> From 25-27 June 2001 the United Nations General Assembly held Special Session on HIV/AIDS at which a 103-point declaration “to secure a global commitment to enhancing coordination and intensification of national, regional and international efforts to combat it [HIV/AIDS] in a comprehensive manner” was released.<sup>17</sup>

Since its appearance in the early 1980s, HIV/AIDS has arguably become the most severe epidemic to affect the world, because of its magnitude and far-reaching consequences in society and no other disease has generated such a large-scale and global response. In this regard, it is heartening to note that key players across the

<sup>14</sup> Hooper E. (2000) How did AIDS get started? South African Journal of Science, V96(6), pp265-267.

<sup>15</sup> UNAIDS (2001) Graphical representation of 20 years of HIV/AIDS, Joint United Nations Programme on HIV/AIDS publication, Geneva, Switzerland.

<sup>16</sup> UNAIDS (2000) Report on the global HIV/AIDS epidemic, Geneva, Switzerland, 136pp

<sup>17</sup> [http://www.unaids.org/whatsnew/others/un\\_special/Declaration2706\\_en.htm](http://www.unaids.org/whatsnew/others/un_special/Declaration2706_en.htm)

spectrum have picked up the cause as one requiring urgent and unprecedented action.

### 3.1 Extent of the HIV/AIDS Epidemic

The human immunodeficiency virus (HIV), which causes AIDS, has resulted in a global pandemic. In 1991, UNAIDS and the WHO's Global Programme on AIDS estimated that by 2000 some 9 million people would be living with HIV/AIDS and that 5 million would have died. By the time the December 2000 UNAIDS report was released the true figures were considerably worse (Figure 2):<sup>18</sup>

- 36.1 million living with HIV/AIDS, of which 1.4 million are children under 15 years; and
- 21.8 million deaths comprising 17.5 million were adults (9 million of whom were women) and 4.3 million children.

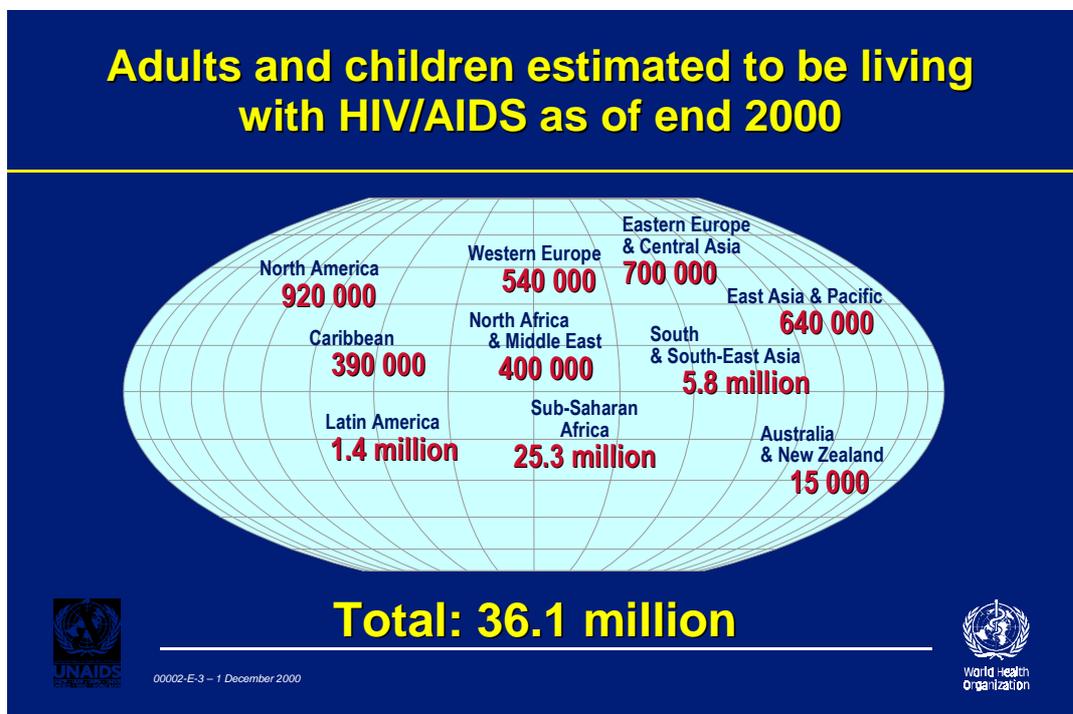


Figure 2 People living with HIV/AIDS as of end 2000.<sup>19</sup>

In 2000 alone, 5.3 million people were newly infected with HIV (including 2.2 million women, who are likely to pass on the virus to any children they may bear, and 600 000 children) and 3 million died (including 1.3 million women and 500 000 children). Although the pandemic has stabilised and even decreased in some countries the general trend is still increasing.

Globally, there is a great deal of variability in the trend of infections (increasing, stabilised, decreasing), mode of transmission and the extent of the spread of the pandemic in the general population. In Africa, and increasingly in South and South-East Asia and Latin America the epidemic is becoming generalised, i.e. most

<sup>18</sup> UNAIDS (2000) Report on the Global HIV/AIDS epidemic, *ibid.*

<sup>19</sup> UNAIDS (2000) World AIDS day presentation slides <http://www.unaids.org/wac/2000/wad00/files/wad2000Master/index.htm>.

infections are due to heterosexual and mother-to-child transmission. In parts of Latin America, Eastern Europe and high-income countries the epidemic is still concentrated in sub-populations, in particular intravenous drug users (IDU) and homosexual men (also known as male sex with male or MSM).

The developing countries are by far the worst affected, with Sub-Saharan Africa having the highest prevalence. This region has accounted for 83% of all deaths since the epidemic began (a quarter of which were children), although it only contains 10% of the world's population. Other than in Senegal and Uganda, this situation is still worsening. Although prevalence elsewhere in Africa is lower, especially in West Africa, indications from countries such as Cote d'Ivoire and Nigeria suggest the infection rate is also increasing there.

**Table 1 Global HIV/AIDS statistics, end of 2000.<sup>20</sup>**

Region	Epidemic started	People living with HI/AIDS	People newly infected with HIV/AIDS	Adult prevalence rate	% of HIV-positive adults who are women	Main modes of transmission of HIV <sup>21</sup>
<b>Sub-Saharan Africa</b>	Late 70s/early 80s	25.3 million	3.8 million	8.8%	55%	Hetero
<b>N. Africa &amp; Mid. East</b>	Late 80s	400 000	80 000	0.2%	40%	Hetero, IDU
<b>S. &amp; SE Asia</b>	Late 80s	5.8 million	780 000	0.56%	35%	Hetero, IDU
<b>E. Asia &amp; Pacific</b>	Late 80s	640 000	130 000	0.07%	13%	IDU, hetero, MSM
<b>Latin America</b>	Late 70s/early 80s	1.4 million	150 000	0.5%	25%	MSM, IDU, hetero
<b>Caribbean</b>	Late 70s/early 80s	390 000	60 000	2.3%	35%	Hetero, MSM
<b>E. Europe &amp; Central Asia</b>	Early 90s	700 000	250 000	0.35%	25%	IDU
<b>W. Europe</b>	Late 70s	540 000	30 000	0.24%	25%	MSM, IDU, hetero
<b>N. America</b>	Late 70s/early 80s	920 000	45 000	0.6%	20%	MSM, hetero, IDU
<b>Australia &amp; NZ</b>	Late 70s/early 80s	15 000	500	0.13%	10%	MSM
<b>TOTAL</b>		36.1 million	5.3 million	1.1%	47%	

It is within the countries of the southern Africa Development Community (SADC) that HIV/AIDS is at its worst:

<sup>20</sup> UNAIDS (2000) AIDS Epidemic Update: December 2000, New York, UN, 28p.

<sup>21</sup> Hetero = heterosexual transmission; IDU = transmission through injecting drug use; MSM = sexual transmission through homosexuality.

**Box 1 The United States National Institute of Allergy and Infectious Diseases (NIAID) AIDS definition.<sup>22</sup>**

The CDC<sup>23</sup> currently defines AIDS in an adult or adolescent age 13 years or older as the presence of one of 25 AIDS-indicator conditions, such as KS, PCP or disseminated MAC. In children younger than 13 years, the definition of AIDS is similar to that in adolescents and adults, except that lymphoid interstitial pneumonitis and recurrent bacterial infections are included in the list of AIDS-defining conditions. The case definition in adults and adolescents was expanded in 1993 to include HIV infection in an individual with a CD4 T cell count less than 200 cells per cubic millimeter [sic] (mm<sup>3</sup>) of blood. The current surveillance definition replaced criteria published in 1987 that were based on clinical conditions and evidence of HIV infection but not on CD4 T cell determinations.

In many developing countries, where diagnostic facilities may be minimal, epidemiologists employ a case definition based on the presence of various clinical symptoms associated with immune deficiency and the exclusion of other known causes of immunosuppression, such as cancer or malnutrition.<sup>24</sup>

- In seven countries more than one in five adults is HIV-positive (Botswana, Lesotho, Namibia, South Africa, Swaziland, Zambia and Zimbabwe);
- Botswana has the world's highest adult prevalence (35.8%);
- South Africa is the nation with the largest HIV-positive population (4.2 million) and the largest fraction of global new infections (50%); and
- Without preventive therapy, around 30% of all babies born in the region will be HIV-positive and will die by the age of 8.

The epidemic is worsening faster than humanity can mobilise action against it and two decades after its discovery, some would argue that we have not yet reached the peak of the epidemic. Certainly, we have not felt the full consequences of an epidemic that is slow in taking its toll. Many people continue to be frustrated by the apparent lack of action and success in dealing with HIV/AIDS. This is attributed to a number of factors including:

- Lack of political will and commitment;
- Lack of resources and infrastructure;
- Limitations in our understanding of the virus and biomedical technologies;
- Hidden agendas preventing effective action;
- The stigma and shame still attached to HIV/AIDS;
- Lack of knowledge and education; and
- People having limited options for prevention and management.

### **3.2 Overview of HIV/AIDS**

Doubts remain about when and how the AIDS pandemic began.<sup>25</sup> Some researchers claim that HIV/AIDS evolved from simian immunodeficiency virus (SIV), others claim

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<sup>22</sup> <http://www.niaid.nih.gov/>

<sup>23</sup> Centre for Disease Control, Atlanta, United States of America. <http://www.cdc.gov/default.htm>

<sup>24</sup> NIH (1995) The Relationship between the Human Immunodeficiency Virus and the Acquired Immunodeficiency Syndrome, <http://www.niaid.nih.gov/publications/hiv aids/all.htm>

that HIV/AIDS may be man-made, linked to polio vaccine development. In reality, the answers to these questions, if they are ever forthcoming, will have little relevance to the control or management of the disease.

The virus affects mainly two systems of the body, the immune system and the central nervous system, and disease manifestations result from damage to these two systems. Whilst the precise mechanisms leading to the destruction of the immune system have not yet been fully delineated, abundant epidemiologic, virologic and immunologic data support the conclusion that infection with HIV is the underlying cause of AIDS.<sup>26</sup> HIV is found in body fluids such as blood, semen, vaginal fluids and breast-milk and the main transmission routes are:<sup>27</sup>

- Unsafe sexual contact between a man and a women or between two men;
- Contaminated blood transfusions or bodily contact involving open bleeding wounds during accidents;
- Intravenous drug use with infected needles; and
- From an infected mother to her baby.

Data on the relative risk of HIV-infection for the main transmission mechanisms is somewhat misleading (Table 2), as the probability of infection can increase dramatically depending on the volume and viral load of the HIV-infected fluid, the state of the exposed individual's immune system, the length of exposure and, in particular, the integrity of the skin or mucous membranes.<sup>28</sup> For example, STD-induced skin lesions are one of the most crucial risk generators.

**Table 2 Risk of HIV infection for the main transmission mechanisms.**

Transmission Mechanism	Probability of Infection Per 1000 Exposures <sup>29</sup>
Unsafe sex <ul style="list-style-type: none"> <li>• Male passing HIV to female</li> <li>• Female passing HIV to male</li> <li>• Male passing to male</li> </ul>	1 - 2 0.33 - 1 5 - 30
Transmission from mother to child	140 - 480
Intravenous drug use with contaminated needles and occupational needle-stick injuries	3
Use of infected blood or blood products <sup>30</sup>	900 - 1000
Bodily contact with between infected blood and <ul style="list-style-type: none"> <li>• Open bleeding wounds</li> <li>• Mucous membranes</li> <li>• Skin</li> </ul>	3 1 <1

<sup>25</sup> Van Rensburg J.E. (2000) The origin of HIV in South African Journal of Science Vol.96 No. 6 pp267-269

<sup>26</sup> NIH (1995), *ibid.*

<sup>27</sup> Schoub B.D. (1999) AIDS and HIV in perspective: A guide to understanding the virus and its consequences, Cambridge University Press, 2<sup>nd</sup> edition, 274pp.

<sup>28</sup> This increases if injury to recipient is deep, if there is visible blood on the device causing the injury, if an artery or vein has been exposed, or what stage of infection the HIV-positive party is at.

<sup>29</sup> World Bank (1997) Confronting AIDS, Oxford University Press, New York, 59p.

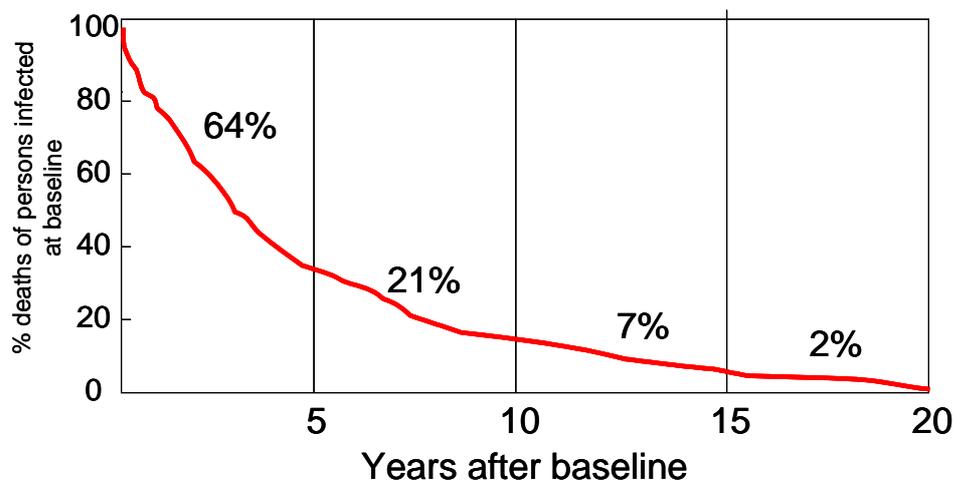
<sup>30</sup> This is becoming very rare in countries where blood is screened for HIV antibodies.

Sexual contact is likely to remain the main mode of transmission in southern Africa in general, and within the mining sector in particular, but the risk of occupational exposure will rise as prevalence within the workforce increases.

Some, if not most of the confusion surrounding HIV/AIDS is due to the diverse biomedical conditions that can cause morbidity and mortality in infected individuals. Social, economic and environmental factors also play fundamental roles in the prevalence and incidence of these conditions and will influence the course of morbidity and the specific condition that eventually leads to death. The same social, economic, environmental and biomedical factors also impact on the epidemiology of HIV. However, they do not alter the fundamental connection between HIV and AIDS or the certainty that AIDS results in premature death. Some groups disagree with this conclusion,<sup>31</sup> most famously South Africa's president Thabo Mbeki, but it remains the established view of the international scientific community that underpins global intervention strategies. The only conclusion worth drawing from the complex interaction of factors is that HIV/AIDS can be addressed effectively only by multidisciplinary multi-stakeholder approaches.

### 3.2.1 The Course of HIV-Infection

Like any other virus, HIV enters the body and begins to replicate. Many people show no signs of illness directly after infection, but some exhibit flu-like symptoms a month or two after exposure to the virus, e.g. fever, headache, malaise and enlarged lymph nodes.<sup>32</sup> These symptoms usually disappear after a week or more.



**Figure 3** Cumulative probability of survival in Africa following initial HIV infection in baseline year 0.<sup>33</sup>

A person infected with HIV may experience a 'silent' incubation period during which there is little disease manifestation. The length of this period is very variable and depends on a number of factors including the age and health status of the individual. Without any form of management it can take 2-10 years after infection before AIDS

<sup>31</sup> <http://www.virusmyth.com> is the main site of the so-called AIDS dissidents.

<sup>32</sup> NIAID (1999) Basic information about HIV diseases and AIDS, <http://www.niaid.nih.gov/publications/aids.htm>

<sup>33</sup> Whiteside A. (ed.) (1998) Implications of AIDS for demography and policy in southern Africa, University of Natal Press.

develops. During this time the individual can continue to participate normally in society and may appear healthy, but will be infectious and able to transmit HIV to other people.

The median period of time between infection with HIV and death is approximately 14-20 years in the developed world. In Africa, it is only 6-8 years and around 64% of deaths occur within 5 years or less (Figure 3). The difference is due to a combination of a more aggressive strain of HIV and greater numbers of opportunistic infections and other immune system depressing factors. Untreated, death occurs 12-24 months after the onset of AIDS. Occasionally, HIV-positive persons develop AIDS and die within months and there a very small number of individuals who have yet to develop AIDS 12 or more years after becoming HIV-positive.

Considerable challenges face stakeholders wishing to undertake long-term HIV/AIDS planning. Determining who is HIV infected, establishing what stage of the disease they are in and predicting when mortality will occur, are all difficult. The lag time between HIV infection and AIDS mortality has led to many stakeholders adopting a wait-and-see approach, because the impacts of HIV/AIDS on morbidity and mortality are yet to manifest themselves, despite high HIV prevalence. Unfortunately, the best management interventions must be instituted well before this stage is reached. With the seemingly dormant state of the disease, many companies underestimate the future impacts of the disease and may be unprepared to deal with the repercussions.

### **3.2.2 HIV/AIDS Epidemiology with Reference to southern Africa**

Epidemics typically follow a path where the number of infections rises slowly at first and then rapidly once the pool of infected individuals exceeds a certain threshold. Prevalence levels off once the majority of susceptible individuals have become infected and, ultimately, begins to fall either because of the development of natural resistance, changes in behaviour, rising mortalities or the appearance of a cure.

The development of a threshold population of HIV-positive individuals and the subsequent rapid increase in HIV prevalence is extremely likely, because the time lag between the epidemic curves for HIV and AIDS is several years. In the southern African context the epidemic is therefore largely unstoppable. Any persistent large-scale variations in prevalence tend to reflect factors such as geographic isolation<sup>34</sup> or differences in sexual practices, youth behaviour, stigma, the nature and effectiveness of prevention and treatment initiatives and, possibly, reporting errors.

Evidence based on interviews with early HIV cases suggests that the epidemic has spread southwards through southern Africa.<sup>35</sup> The first infections tended to occur as a result of sexual contact between sex workers and “foreigners”, who are often truck drivers plying international routes. Once established within groups of high-risk women, the virus is then transmitted to local clients, including mineworkers who are predominantly migrant single men, who subsequently transferred the virus into rural and urban communities via their partners and families. The speed of this spread is largely a function of the quality of transport infrastructure, which is very good

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<sup>34</sup> Madagascar has a significantly lower prevalence largely due to its geographical isolation, *ibid.* 3.

<sup>35</sup> La Grange M.A.C. (2000) HIV/AIDS: The Situation in southern Africa, unpublished discussion document, MIASA, 7p.

throughout much of the region. Cultural practices, including a predilection amongst older men for younger women, if further accelerating intergenerational transmission.

Prevalence varies significantly between southern African countries that, with the exception of Mauritius, all have significant HIV-infected populations (Table 3). Countries are mainly in the rapid growth phase of the HIV epidemic or approaching a plateau, but several more years of monitoring will be required before it will be possible to establish the levels at which prevalence will ultimately peak. Based on the most highly affected countries, i.e. Botswana, Swaziland and Zimbabwe, it is likely that at least 25%-35% of the entire adult population of SADC will eventually become infected, although in places prevalence may well reach 40%-50%.<sup>36</sup>

**Table 3 Selected prevalence data for SADC member states - 2000.**<sup>37</sup>

	Adult prevalence (%)	Estimated number of infected people	Adults and children	Women (15-19)	Children (0-14)
Angola	2.78	160 000	150 000	82 000	7900
Botswana	35.8	290 000	280 000	150 000	10 000
DRC	5.07	1 100 000	1 100 000	600 000	53 000
Lesotho	23.57	240 000	240 000	130 000	8200
Malawi	15.96	800 000	760 000	420 000	40 000
Mauritius	0.08		500		
Mozambique	13.22	1 200 000	1 100 000	630 000	52 000
Namibia	19.54	160 000	150 000	85 000	6600
South Africa	19.94	4 200 000	4 100 000	2 300 000	95 000
Swaziland	25.25	130 000	120 000	67 000	3800
Tanzania	8.09	1 300 000	1 200 000	670 000	59 000
Zambia	19.95	870 000	830 000	450 000	40 000
Zimbabwe	25.06	1 500 000	1 400 000	800 000	56 000

Regional AIDS data in Table 4 provides further insights, although it is incomplete and in some cases doubtful (e.g. DRC in 1999). AIDS cases take about 5 years to begin rising significantly and by analogy the initial phase of the HIV-epidemic must also take about as long. A crude estimate of the time needed for the epidemic to begin to plateau can be made using the year in which the number of AIDS cases exceeds 0.1% of the adult population. In Zimbabwe, Botswana and Swaziland (which for argument's sake are assumed to be close to their prevalence plateaus) this occurred in 1992, 1993 and 1996, respectively. The corresponding point in HIV prevalence would have been reached 4-7 years earlier, i.e. in 1985-88, 1986-1989 and 1989-1992, respectively.<sup>38</sup>

Countries in southern Africa therefore have no more than 15 years and perhaps as little as 8 years after the onset of rapid prevalence growth before the epidemic has affected the bulk of the susceptible adult populations. As the former point was

<sup>36</sup> Antenatal HIV seroprevalence in Francistown, Botswana's second city, was constant at 43% from 1996-1999. Ministry of Health, AIDS/STD Unit, Sentinel Surveillance Report (1992-1999), Gaborone, Botswana.

<sup>37</sup> Table compiled from June 2000 UNAIDS Epidemiological Fact Sheets, [http://www.unaids.org/hivaidsinfo/statistics/june00/fact\\_sheets/](http://www.unaids.org/hivaidsinfo/statistics/june00/fact_sheets/)

<sup>38</sup> Based on 1-2 years from AIDS diagnosis to death and 6-8 years from initial HIV infection to death, respectively.

passed by the mid-1990s in most countries, the region's HIV epidemic is likely to peak around 2005 and AIDS mortalities around 2010.

**Table 4 AIDS cases in SADC countries - 1982-1999.**<sup>39</sup>

	1982	1983	1984	1985	1986	1987	1988	1989	1990
Angola				4	8	34	74	78	93
Botswana							21	14	133
DRC					440	1988	4556	5609	3916
Lesotho					1	1	3	8	10
Malawi				17	127	858	3034	4966	5859
Moz.					1	3	23	37	98
Namibia					4	15	43	127	122
S. Africa	2	4	8	8	34	51	98	184	345
Swaziland						1	2	7	20
Tanzania		3	106	295	1121	2937	4839	5096	11106
Zambia			1	3	1584	3862	4477	4638	4702
Zimbabwe						119	202	1311	4362

	1991	1992	1993	1994	1995	1996	1997	1998	1999	Total
Angola	130	147	135	157	321	416	507			2433
Botswana	320	590	870	968	535	1364	2335	2992		10142
DRC	4482	2070	4215	1707	4689	5159	4948	3746	22	47557
Lesotho	29	139	166	238	341	936	2203	3242		7317
Malawi	7439	4655	4916	4732	5209	5406	3705			50975
Moz.	178	322	164	534	1380	2086	1661	4376		10863
Namibia	46	46	355	768	1836	2615	807			6784
S. Africa	549	887	1882	3816	4219	738				12825
Swaziland	31	216	165	120	154	613	1466	733		3528
Tanzania	18692	15871	13506	5873	4722	8426	10592	8867		112052
Zambia	5264	3376	2894	1963	5950	4552	1676			44942
Zimbabwe	4557	8180	9174	10647	13356	12029	6732	4113		74782

Preventative measures have the potential to reduce the prevalence at which the HIV epidemic plateaus, but there is little time left for southern African countries to achieve major successes during this period. Long-term HIV/AIDS prevention strategies will almost inevitably be conducted during the post-plateau period. The preceding discussion allows the identification of three critical performance indicators for such programmes:

- The time that it will take for preventative programmes and other factors to reduce HIV prevalence
- The extent to which prevalence can be reduced from peak levels
- The sustainability of such decreases

Evidence collected between 1990 and 1996 in Uganda indicates that HIV-prevalence can begin showing significant reductions within 3 years of the epidemic reaching its peak. For example, during this period HIV prevalence fell from 45% to 35% among

<sup>39</sup> UNAIDS (2000) Epidemiological fact sheets, *ibid.*

**Box 2 The potential impact of HIV/AIDS at the individual level.**

The father is typically the first to fall ill, and when this occurs, farm tools and animals may be sold to pay for his care. As he grows weaker, he will become unable to farm at all; nor will his wife be able to farm, since she will be devoting her time to nursing him. The family will be unable to pay school fees, and in any event, children will likely be kept out of school to perform added chores at home. Should the mother also become ill, children may be forced to shoulder responsibility for the full time care of their parents, particularly since rural clinics in some countries are reportedly short-staffed because of AIDS. The economic consequences of the disruption of rural life can be severe and the link between migrant miners and their rural or peri-urban communities is something that needs exploring.

male attendees at STD clinics in Kampala and from 21% to 5% among pregnant women aged 15-19 in Jinja.<sup>40</sup> Similar experiences have been noted in Thailand.<sup>41</sup>

### 3.3 Impacts of the Epidemic in southern Africa

HIV/AIDS is a major threat to the developmental aspirations of this region, because it primarily wipes out the most productive members of society: the farmers, the industrial workers and, of course, the miners. Already, sharp declines in the production of various crops in Zimbabwe have been blamed on widespread illness and death from AIDS among farmers.<sup>42</sup>

**Table 5 Miscellaneous indicators for SADC member states.**<sup>43,44</sup>

SADC Country	Population In 2000 (Millions)	Per Capita GDP In 1999 (US\$)	HIV/AIDS Prevalence <sup>45</sup> (%)	1995		1999-2000 <sup>46</sup>	
				L.E. (Years)	HDI Rank	L.E. (Years)	HDI Rank
Angola	12.903	336	2.8	50	157	47	160
Botswana	1.639	2,904	35.8	60	71	39	122
D. R. Congo	52.046	110	5.1	53	142	48	149
Lesotho	2.156	502	23.6	58	137	46	142
Malawi	10.778	132	16.0	46	157	39	159
Mozambique	19.980	92	13.2	52	166	43	169
Namibia	1.739	1,969	20.0	56	116	50	115
South Africa	43.265	3,281	22.6	60	100	48	101
Swaziland	0.928	1,255	25.3	58	110	46	114
Tanzania	33.744	124	8.1	50	149	45	156
Zambia	9.191	431	20.0	49	136	39	151
Zimbabwe	13.109	579	25.1	50	124	40	151

<sup>40</sup> UNAIDS (1998) A Measure of Success in Uganda, UNAIDS Best Practice Collection, UNAIDS/98.8. <http://www.unaids.org/publications/documents/epidemiology/determinants/una98e8.pdf>

<sup>41</sup> UNAIDS (25 June 2001) Update on AIDS Epidemic by UNAIDS [http://www.un.org/News/briefings/docs/2001/UNAIDS\\_Update.doc.htm](http://www.un.org/News/briefings/docs/2001/UNAIDS_Update.doc.htm)

<sup>42</sup> *Washington Post*, December 12, 1999.

<sup>43</sup> Ashton P and Ramasar V (2001) Water and HIV/AIDS: Some strategic considerations in southern Africa in Turton A and Henwood R. (eds.) *Hydropolitics in the Developing World: A southern African perspective*, Pretoria.

<sup>44</sup> GDP = Gross Domestic Product, L.E. = life expectancy, HDI = United Nations Human Development Index.

<sup>45</sup> The data for Angola and D.R. Congo is unreliable on account of civil war.

<sup>46</sup> Latest data available were for different years, either 1999 or 2000.

According to the World Bank, HIV/AIDS and the impending death of up to 25% of all adults in some African countries will have an enormous impact on national productivity and earnings. Labour productivity is likely to drop, the benefits of education will be lost, and resources that would have been used for investments will be used for health care, orphan care, and funerals.<sup>47</sup> Savings rates will decline, and the loss of human capital will affect production and the quality of life for years to come.<sup>48</sup> USAID estimates that Kenya's GNP will be 14.4% smaller in 2005 than it would have been without AIDS. The disease is similarly expected to hinder growth prospects throughout southern Africa as well.

The following are just some of the demographic impacts of HIV/AIDS:<sup>49</sup>

- In South Africa, by 2020, mortality for women and men will peak in the 30-34 and 40-44 age groups, respectively.
- By 2000, the population growth Zimbabwe has been reduced to nearly zero.
- By 2003, Botswana, South Africa and Zimbabwe will be experiencing negative population growth.
- AIDS mortality will result in population pyramids of a previously unknown kind, characterised by a dramatic decline in the 30-50 year age group (which will also contain fewer women than men).
- Five southern African countries: Botswana, Malawi, Mozambique, Zambia and Zimbabwe have life expectancies below 40 years of age, down from levels of 50 or higher. By 2010, many countries in southern Africa will see life expectancies falling to around 30.
- Mortality rates will increase, for example between 2000 and 2010 death rates (per 1000 all causes) will rise from 22.8 to 36.0 in Botswana, from 14.7 to 30.3 in South Africa and from 22.4 to 31.6 in Zimbabwe.
- Child mortality rates will rise, for example in Zimbabwe and Botswana, where they were below 30 (per 1000 all causes) prior to the pandemic, to over 150 of which 80% will be AIDS-related. In many of the other countries in southern Africa, over 50% of childhood deaths will be due to AIDS.

A research report by ING Barings on the effects of the AIDS epidemic on the South African economy concluded that the sector that will be most hit by AIDS is mining, followed closely by transportation and storage. Indeed, the research shows that about 27% of all mineworkers and 22% of all transport and storage workers will die of AIDS in 2005.<sup>50</sup>

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<sup>47</sup> Interview with John Chanda, SADC Mining Sector Co-ordinating Unit, Lusaka, May 14, 2001.

<sup>48</sup> World Bank (1999) Intensifying Action Against HIV/AIDS in Africa: Responding to a Development Crisis, <http://www.worldbank.org/html/extpb/abshtml/14572.htm>.

<sup>49</sup> Stanecki K.A. (2000) The AIDS Pandemic in the 21<sup>st</sup> Century: The demographic impact in developing countries, XIIIth International AIDS Conference, Durban, South Africa.

<sup>50</sup> Business Day, Johannesburg, 28 December 1999.

## 3.4 Risk Factors Contributing to the Epidemic

### 3.4.1 Migration

One of the characteristics of the southern African region that is linked to the high prevalence rates is the pattern of circulatory migration prevalent in the region. In several parts of the world, geographic mobility, migration and widespread population displacement have been identified as significant risk factors in the transmission of HIV.<sup>51</sup> The mining sector is closely tied to this form of employment and over 80% of the South African industry's black employees are migrants. The vast majority live in single-sex hostels and visit their rural families only occasionally.<sup>52</sup> Early estimates within the mining industry placed levels of HIV infection at between 20% and 30%.<sup>53</sup> The high prevalence rates around the mining sector and the role of the mining sector as a major employer in the region make this sector a focal area for HIV/AIDS interventions.

Women can be badly affected by men's lack of sexual responsibility. Men in Zambia are less likely than women to tell their partners if they have a sexually transmitted infection. A survey in 1996 showed that 90% of women with sexually transmitted infections (STIs) told their partners, while only two in three men in the same situation told their partners. This difference may reflect the fact that men have more casual sexual partners than women, and that they do not feel responsibility for those partners, particularly when they pay for sex.

### 3.4.2 Poverty

As is well known, the African continent is in a precarious position economically. The HIV/AIDS epidemic occurs within a context of falling living standards across the board. Health services have been severely affected by economic decline and structural adjustment programmes. Acute shortages of essential drugs are increasingly common and more and more hospital beds have to be set aside for AIDS patients. In Zambia for instance, HIV positive patients now occupy up to half of all hospital beds. Figures for the region suggest that the cost of caring for each AIDS patient is up to US\$900. About US\$3.4 million was spent on AIDS related illness in 1989 in Zambia and by 2004 that is expected to reach US\$18.3 million.

A review of one Community Home Based Care program in Zimbabwe shows that most home care programs are more expensive than hospital care. The cost of one home care visit equals to between 1 and 3 days in the hospital. The average health cost in 1994 was US \$309.50, 1995 was US \$492.80, and 1996 was US \$722 dollars.

Families, businesses and communities now have to cope with the extra burden caused by the epidemic – they are further impoverished by the costs of widespread illness and death from AIDS. Worsening economic conditions make it more difficult to care for the ill, more difficult to mount effective education campaigns and more

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<sup>51</sup> Decosas J. and Adrien A. (1997) Migration and HIV, AIDS 11 (Supplement A), pp77-84.

<sup>52</sup> Crush J. (1995) Mine migrancy in the contemporary era in Crossing Boundaries, in Mine, Migrancy in a Democratic South Africa, eds. J Crush and W. James. IDASA/IDRC, Cape Town.

<sup>53</sup> Campbell C and Williams B (1999) Beyond the biomedical and behavioural: Towards an integrated approach to HIV prevention in the southern African mining industry, Soc. Sci. Med., Vol.48 pp1625-1639.

likely that some women and a few men exchange sex for money, food or shelter, thus increasing the likelihood of further HIV transmission.

At the same time, mass poverty stimulates increased migration, with large amounts of people moving from rural to urban areas in search of work. In many circumstances, traditional community relations and social networks are undermined or broken in the process. This helps create an environment where behavioural patterns favourable to the spread of HIV/AIDS develop (see below). Equally however, the reality of serious capital flight from Africa must be acknowledged. According to the Economic Commission for Africa, much of the capital meant to help develop Africa ends up in overseas bank accounts. The capital held by Africans overseas is equivalent to 39 percent of GDP, compared with six percent for Asia. If all the capital kept by Africans overseas were repatriated, the continent would move halfway towards meeting its external resource requirements. Certainly, between 1982 and 1991, capital flight from the severely indebted, low-income countries in sub-Saharan Africa was about 22 billion U.S. dollars.<sup>54</sup>

### 3.4.3 Gender Issues

Of the 34.7 million adults living with HIV/AIDS, 47% - or 16.4 million - are women. A number of telling statistics indicate the ongoing situation vis-à-vis women and HIV/AIDS:

- 46% of adults newly infected with HIV in 2000 were women
- 52% (1.3 million) of all AIDS deaths in 2000 were women
- Since the beginning of the epidemic, over 9 million women have died from HIV/AIDS-related illnesses
- The percentage of women infected in 1997 was 41%; in 2000, it had risen to 47%
- 55% of all HIV-positive adults in Sub-Saharan Africa are women. Teenage girls are infected at a rate 5 or 6 times greater than their male counterparts
- In one Kenyan study, over one quarter of teenage girls interviewed had had sex before 15, of whom, one in 12 was already infected
- A Zambian study confirmed that less than 25% of women believe that a married woman can refuse to have sex with her husband. Only 11% thought they could ask their husband to use a condom

The issue of gender and the spread of the epidemic is vital to understand. It is likely that if women had control over their bodies and were able to negotiate safe sex, the epidemic would not have reached such vast proportions. Obviously, HIV/AIDS itself is a health issue, but the epidemic is not: knowledge on how the virus is transmitted and who is most vulnerable is widespread, but this knowledge does not seem to stop practices that increase the rate of infection, particularly among women. Why this is so relates largely to how values and traditions often prevent women and girls from being able to resist unwanted and unprotected sex.

Aside from such cultural issues, which we will return to below, women are both socially and biologically more vulnerable than men for a number of reasons:

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<sup>54</sup> Mail and Guardian, Johannesburg, May 19, 1999.

- Semen has a far higher viral load than vaginal fluid;
- Semen remain in the vagina for hours after intercourse;
- Women have a larger mucosal surface exposed to abrasions during sexual intercourse; and
- Women have a high rate of STDs, especially genital ulcers, which allows for easier transmission of the virus.

Many men often believe that their own wives are faithful, but that most other women have many sexual partners and that women in general are therefore "responsible" for spreading HIV. In fact, on average men have more sexual partners than women. Surveys in Zambia reveal that one in four men in Zambia, but only one in twenty women, say they have had at least one casual partner in the last twelve months.<sup>55</sup>

Many boys grow up believing they have a "right" to have sex whenever they want it. Many girls grow up socialised into accepting that it is their "duty" to satisfy men's sexual needs. For instance, in Swaziland, the multiplicity of sexual partners for men is culturally supported. A man who engages in multiple sexual encounters is called "Ingwanwa", a positive term, and widely accepted. The female equivalent is called "Ingwandla", which is derogatory. Because they have more sexual partners, men have more opportunity to transmit HIV to women than the other way round. That is one of the reasons why women contract HIV at a faster rate than men. Many of these facts are compounded or even caused by ongoing cultural issues that in turn drive behavioural practices.

#### **3.4.4 Culture and Sexuality**

Thus far, many African political and religious leaders have failed to acknowledge the deep cultural crisis at the root of the AIDS epidemic. International experts, afraid of sounding judgmental or "racist", tread lightly on the epidemic's behavioural undercurrents. Consequently, behaviour has been narrowly limited as simply practising safe sex. But as effective as condoms are in stopping the transmission of HIV, they do not stop epidemics and there are deep cultural issues that need to be addressed. Obviously the mining sector cannot be expected to solve these, but they must be aware of the implications of them. Certainly, without addressing behaviour, the response to prevention strategies will always be limited.

Contrary to what infection rates in sub-Saharan Africa suggest, HIV is not easy to contract. In a stable and healthy environment, the probability that an infected man will transmit the virus to an unprotected woman is less than 2 in 1,000. But it is easy for that risk to rise. A person afflicted by other STDs, which are rampant across the region, is two to nine times more likely to contract HIV if exposed to it. And if a man has 10 partners, and the partners have each had 10 partners, he's potentially been exposed to 100 people. According to one report:

"Among the factors fanning the AIDS epidemic, migrant labour and gender inequities have perhaps been the most damaging. Throughout the century, men from around the region were drawn or conscripted to work in distant gold, mineral, and diamond mines. They left their families behind in rural villages, lived in squalid all-male labour

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<sup>55</sup> Foreman M. (2000) Informing the Response to HIV: Men and HIV in Zambia, Panos/UNAIDS, <http://www.oneworld.org/panos/aids/zambia.htm>

camps, and returned home maybe once a year. Lacking education and recreation, the men relied on little else but home-brewed alcohol and sex for leisure. A man who makes his living deep inside a South African gold mine has a 1 in 40 chance of being crushed by falling rock, so the delayed risks of HIV seem comparatively remote. Mining companies pay out \$18 million a year in wages to 88,000 workers in the pits of Carletonville, the centre of South Africa's gold industry. The wages buy, among other things, sex. Some 22 percent of adults in Carletonville were HIV-positive in 1998, according to UNAIDS, a rate two-thirds higher than the national average."<sup>56</sup>

A working example of behavioural change and cultural practices in Africa can be found in Tanzania with the "Fleet of Hope" campaign, which refers to the image of three boats afloat in the rising tide. Each bears a different name: Abstinence, Fidelity, and Condom. People adrift in the deluge (i.e. the epidemic) are urged to board the boat of their choice and save themselves from drowning in the dangerous seas of HIV infection. This extended metaphor has become one of the most popular and effective ways to get the message across that individuals have options in how they protect themselves from HIV/AIDS — but that they must act before they drown in the waters of the epidemic.

Since its first appearance, the "Fleet of Hope" has been used to reach every sector of the population with the message of HIV/AIDS prevention. It has become the theme for a video, a popular calendar, a radio program, posters, a behaviour change communication (BCC) handbook and other materials and has been adapted for similar use in Rwanda, Ethiopia and Haiti. This simple, inclusive concept helps bridge the gap between religious positions which may disapprove of condom use, and standard prevention programming, which strongly promotes condom use.

Receiving information and the desire to avoid infection are not sufficient to reduce situations of risk. Many women in Africa, regardless of age and socio-economic circumstances, are not in a position to say 'no' to sex or to negotiate the use of condoms. Thus personal empowerment and self-assertiveness training may not be sufficient to change behaviour.<sup>57</sup>

Cultural resistance to lifetime monogamy and western inspired views of sexuality is strong in Africa (especially but not exclusively among men). Peer pressure among men serves to maintain the 'bar culture' in which drinking leads to sexual adventures and sexual activity is widely regarded as a form of entertainment.<sup>58</sup> Personal identity, self-worth and social power are at stake here for men. Even when men acknowledge that they feel 'responsibility' towards a regular partner, whether wife or girlfriend, this does not extend to limiting 'casual' sexual relationships even when these had led to STDs.<sup>59</sup>

One of the shortcomings of HIV/AIDS prevention campaigns in Africa is that they have failed to convey explicit advice. Many persons at risk are still unaware that they should use condoms for all sexual encounters, including relations with regular

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<sup>56</sup> Boston Globe, October 10, 1999.

<sup>57</sup> Harrison A., Lurie M. and Wilkinson N. (1997) Exploring partner communication and patterns of sexual networking: qualitative research to improve management of sexually transmitted diseases, Health Transition Review, Volume 7, Supplement 3, pp103-107.

<sup>58</sup> Mbatha A.Z. (1999) An Interpretive Study of the work of selected Traditional Healers in the northern Zululand region, unpublished MA thesis, University of Durban-Westville.

<sup>59</sup> Mbatha (1999), *ibid.*

partners. More problems arise from the reinterpretation of risk factors by men who have responded by becoming more selective in their choice of partners, for example by:

- Choosing very young girls
- Choosing women who are plump, since weight loss is a sign of AIDS
- Choosing rural women as urban women are perceived as high risk
- Having sex only with women they already know

Obstacles to condom use among stable couples include:

- Inability of partners to discuss their sexual histories with one another
- Desire for children
- Traditional concepts of sexuality
- The role of males in sexual encounters.

Many informants state that condoms are 'unnatural', not only inhibiting sexual pleasure, but also preventing natural<sup>60</sup> human development.<sup>61</sup> Many believe that semen is a vital life force, which is essential to the continued health, beauty and fertility of women. Most importantly, condoms are associated with prostitution and disease, so proposing the use of a condom signifies mistrust of a partner and is experienced as an insult. Condoms, oral contraceptives and spermicides are also believed to have unwelcome side effects such as vaginal wetness, which is widely held to indicate infidelity in women. These beliefs mean that without a change in value consensus, condom usage is likely to remain low.

Given these beliefs, advice supplied by western-trained doctors and health practitioners is unlikely to be readily accepted. However, traditional healers already give advice to people of all ages and both sexes and are accepted as legitimate interpreters of customary rules of conduct who are also concerned with family and cultural survival.<sup>62</sup> They may therefore be able to play a significant role in prevention, counselling and, in particular, facilitate condom use and reduce the risk of partner infection and perinatal transmission in stable relationships.<sup>63,64</sup>

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<sup>60</sup> There is a widespread belief in Africa that repeated contributions of semen are necessary to 'ripen' a growing foetus.

<sup>61</sup> Green E.C [(1994) *Aids and STDs in Africa: Bridging the Gap Between Traditional Healing and Modern Medicine*, Pietermaritzburg, University of Natal Press] cites McLean P. [(1990) *Swaziland: Perceptions of Men and Women towards Family Planning*, Family Life Association] in noting that both men and women in Swaziland believed that condoms and oral contraceptives weaken or kill babies in the womb, that contraceptives cause STDs and that condoms lead to sterility and impotence.

<sup>62</sup> The herbalist may be compared to the western pharmacist. He (more rarely she) uses a variety of *materia medica* to treat illness and disease. The diviner is more akin to the western psychologist or psychiatrist and is concerned with discovering what is causing the client to become ill and with restoring harmony in the client's family and work environment, usually in consultation with ancestral spirits. Nowadays the traditional healer may combine the functions of herbalist and diviner.

<sup>63</sup> Schoepf B.G. (1992) *Aids, Sex and Condoms: African Healers and the Reinvention of Tradition in Zaire*, *Medical Anthropology* 14, pp225-242.

<sup>64</sup> Green (1994), *ibid*.

However, without ongoing collaboration and training many traditional healers are unlikely to promote the kind of dialogue with their clients that will effect lasting behaviour change. Many healers in southern Africa not only subscribe to popular misconceptions about HIV transmission, but also believe that AIDS is simply a variant of an old African illness, for which some claim to have cures. One of the most serious of which is the belief that AIDS may be got rid of by transmitting it to others in general, or to virgins in particular. This belief is suspected to be responsible for the current upsurge in child abuse.

It is unhelpful to characterize the habit of having multiple sexual partners among men as promiscuity in a western sense.<sup>65</sup> Most men questioned in surveys on sexual partners regarded having more than one sexual partner at a time as part of the traditional African custom of polygamy.<sup>66</sup> Guidance and counselling models must therefore respect such customs and accept that abstinence is very rare. Many males interviewed, particularly on mines, reported that they have sex with a common partner or a strange new partner on an almost daily basis.<sup>67</sup>

Most mineworkers are drawn from rural populations where beliefs in sorcery and witchcraft are still strong, such that serious diseases do not simply happen, but are created and sent by a person of ill will.<sup>68</sup> Another belief is that STDs can be caused by fidelity protecting medicines or that they are African illnesses that western-trained medical practitioners are unable to understand or treat. Moreover, sixty percent of Green's interviewees considered STDs shameful or damaging to one's reputation and gave these as reasons for not seeking treatment and noted that in Swaziland, healers were reporting an increase in STDs and also that men were commonly taking antibiotics before intercourse.

### 3.5 HIV/AIDS and the Mining and Minerals Sector

As we have seen, HIV/AIDS is having and will have a multiplicity of effects on all levels of the economies and societies of southern Africa. Mining is a major sector of most national economies in the region, not so much because of the number of people that it employs, which is relatively small compared to other sectors, but due to the foreign exchange earnings it generates (Table 6).<sup>69,70</sup>

**Table 6 Selected indicators of the mining and minerals sector's contribution to the economies of individual SADC member states in 1999.**<sup>71</sup>

SADC Member	Mining and Minerals Sector Economic Contribution
Botswana	US\$2.0 billion diamond earnings out of a total of US\$2.7 billion exports
Angola	Official diamond exports of 2,132,937 carats valued at US\$296.24 million
D.R.C.	70% of exports and 28% of GDP

<sup>65</sup> Bolton R. (1992) Aids and Promiscuity: Muddles in the Models of HIV Prevention, *Medical Anthropology*, 14(2), pp145-223.

<sup>66</sup> Mbatha (1999), *ibid.*

<sup>67</sup> Mbatha (1999), *ibid.*

<sup>68</sup> Green (1994), *ibid.*

<sup>69</sup> Interview with John Chanda, *ibid.*

<sup>70</sup> Interview with Nelson Chisenga, Trade Economist, Zambia Association of Chambers of Commerce and Industry, Lusaka, May 14, 2001.

<sup>71</sup> MIGA (2000) African Mining 2000 Symposium, London, Mining Journal Ltd.

<b>SADC Member</b>	<b>Mining and Minerals Sector Economic Contribution</b>
Lesotho	Artisanal diamond production to end-March 2000 1053 carats valued at US\$85000; US\$15 million is being invested in rehabilitating former De Beers operations
Malawi	<1% GDP comprising US\$1 million 95% of which was gemstones (informal gemstone exports are thought to exceed US\$2 million
Mozambique	1.4% of exports and <0.25% of GDP; US\$1.34 billion Billiton Mozal aluminium smelter commissioning in 2001 with anticipated operating revenues of US\$400 million annually
Namibia	Mineral exports total 49% of total exports by value, to which diamonds contributed 68%
South Africa	6% of working population, one third of export revenue
Swaziland	2% of GDP with ex-mine revenues contributing US\$20 million to total export earnings of US\$825 million
Tanzania	2.1% of GDP and 14.5% of exports and a sectoral growth rate of 9.1%, with sectoral FDI of US\$720 million in the three years to end-2000
Zambia	Copper mining provided 85% of foreign exchange and 20% of GDP
Zimbabwe	6% of GDP, 7% of the labour force and 40% of foreign exchange <sup>72</sup>

In terms of sustainable development, the mining and minerals sector has a responsibility to address HIV/AIDS not only for the benefit of its workforce, but also with respect to the associated and surrounding communities. Another imperative for mining companies is to ensure their own sustainability, which will also be threatened by HIV/AIDS. As HIV prevalence increases and morbidity and mortality rise, the mining sector will be faced with the economic, social and environmental costs of an infected workforce.

Within the region, the industry employs significant numbers of migrant workers, a system that has been in existence for over a hundred years. The main distinctions of mineral labour are among the following:

- Virtually all miners are male;
- The work can be dangerous and risky;
- The employment of migrant labour is the general norm, although this is country-dependent; and
- Though some mines are labour intensive, all mines require a cohort of skilled and experienced employees individuals. Many of these positions take years to train and accumulate necessary knowledge, often at considerable cost to the employer.

This scenario varies between SADC countries – for instance in Zimbabwe single-sex hostels and migrant labour systems such as in South Africa are absent.<sup>73</sup> But the overall practices associated with the industry opens up the industry to what might be termed “skills bottlenecks” where the production process may become disrupted and delayed, causing a loss in productivity, if such highly skilled individuals fall ill or are

<sup>72</sup> <http://www.sadcreview.com/country%20profiles%202001/zimbabwe/zimMining.htm>

<sup>73</sup> Interview with P. Nash, Divisional Manager – Safety, Anglo American, Harare, June 22, 2001.

forced to premature retirement. Within the mining and minerals industry, HIV/AIDS is likely to have major effects on labour, which can be summarised as:<sup>74</sup>

- Whilst workers suffer from ill health during their terminal decline, it is natural for them to take as much time off as they are allowed or are legally permitted to. Thus the maximum amount of sick leave and annual holiday will be utilised before sick employees are finally medically boarded.<sup>75</sup> This is in addition to unsanctioned staying away from work when the worker is ill or, alternatively, where healthy workers attend funerals.
- Where there may be no health insurance (either because the employer provides none or because the employee has failed to take up any), workers are likely to try and continue working even when they are no longer physically fit to do so.<sup>76</sup> Clearly, their personal productivity will be low. This effect on productivity will continue long after an employee succumbs to AIDS, as their replacement will require training and socialisation.<sup>77</sup> Such long-term effects of one individual's death are particularly exacerbated if that person is in a skilled or management position.
- Extra costs through employee benefits, particularly where the employer contributes towards health care for the workers. Even if the company does not help towards health care or pensions it is probable that in the future state health care will be sourced through higher taxes.<sup>78</sup>
- The replaceability of labour (in an admittedly labour-surplus region) is very dependent upon the skills level of the individual employed as well as their role in the production process. Clearly, if there is no immediate replacement for the HIV/AIDS sufferer, it will take a length of time to substitute that person during which demand for overtime or contract employment will increase. Mining is not only labour- and capital-intensive, it is also experience-intensive so the loss of a skilled and experienced employee is particularly damaging. Indeed, the very nature of much mining means that a mine may be dependent upon a very small number of skilled workers whose absence may make the running of the whole operation difficult, even impossible. Obviously the cost of replacement of an individual and then his training is dependent upon his role in the mine's operations. What this means for the industry is that it may require the training of individuals surplus to immediate requirements who will be in a position to replace a worker who is incapacitated by the epidemic.<sup>79</sup>
- The steady and progressive loss of work colleagues and friends on the mine may cultivate an atmosphere not conducive to a healthy working environment.<sup>80</sup> A fear of distrust and dread about HIV/AIDS and the consternation about being possibly

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<sup>74</sup> See USAID AIDS Briefs, Mining Sector. <http://www.und.ac.za/und/heard/AidsBriefs/sec/Mining.pdf>

<sup>75</sup> Interview with Richard Davy, Group Medical Consultant, Anglo-American, Harare, June 22, 2001.

<sup>76</sup> Interview with Richard Davy, *ibid.*

<sup>77</sup> Interview with Frank Webster, Group Manager, Personnel and Public Relations, Rio-Tinto Zimbabwe, Harare, June 19, 2001.

<sup>78</sup> Interview with Nelson Chisenga, *ibid.*

<sup>79</sup> Interview with Davy Matyanga, Mineral Economist, Chamber of Mines of Zimbabwe, Harare, June 19, 2001.

<sup>80</sup> Interview with Lennox Mekuto, HIV/AIDS co-ordinator, National Union of Mineworkers, Johannesburg, May 6, 2001.

infected is likely to weaken employee morale. Depression and lack of motivation may result. There is also the possibility that a divisive situation may arise where those known to be infected individuals may be ostracised or discriminated against.<sup>81</sup>

- The hard physical work required at the mine face plus the risk of occupational disease may speed the onset of illness among HIV-positive workers.<sup>82</sup> Accident rates may also increase due to fatigue and loss of concentration resulting from psychological and physiological deterioration associated with HIV. This will also affect productivity.
- Most mining operations provide some medical services, ranging from First Aid Stations to fully equipped hospitals.<sup>83</sup> They may serve the miners only, or the neighbouring community as well (usually spouses and dependants). Medical costs will rise as HIV-prevalence increases as well as with time, since 80% of the costs are incurred during the final weeks of life. Of particular concern is the inter-relation between HIV and occupational diseases.<sup>84</sup> Costs of medical treatment can be avoided by greater attention to prevention measures.
- The nature of provided accommodation, migrant labour schemes and the history of the mining industry in southern Africa makes many miners resentful towards the mining companies, breeding distrust.<sup>85</sup> This may mean miners are less open to health education, especially as alcohol and sex are perhaps the only two pleasures over which miners may have control.<sup>86</sup> This breeds a sense of macho behaviour and a dismissal of what are perceived as long-term problems such as HIV/AIDS.<sup>87</sup>

The precise quantitative impact of HIV/AIDS on human resources in the mining and minerals sector is still difficult to gauge, since few operations are monitoring sickness-related absenteeism in a manner that enables them to identify trends. Many managers gauge the impact of HIV/AIDS subjectively using mortalities, which are noticeable only when they affect skilled labour. Mortality is still concentrated amongst unskilled and semi-skilled employees, which has created a mistaken sense of security. Particularly worrying is the failure by many managers to fully appreciate that the time lag between HIV and AIDS allows low mortalities to coexist with high prevalence for a number of years. For example, BCL Ltd. in Botswana is located in a community whose HIV prevalence was estimated to be 49.9% in 1999.<sup>88</sup> Although

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<sup>81</sup> Interview with Charles Muchimba, Director, Information and Research, Zambian Mineworkers' Union, Kitwe, May 17, 2001.

<sup>82</sup> Interview with Dixon Tembo, Medical officer, Mopani Mine Hospital, Kitwe, May 17, 2001. Interview with Lennox Mekuto, *ibid*.

<sup>83</sup> Interview with Richard Davy, *ibid*.

<sup>84</sup> Interview with P. Nash, *ibid*.

<sup>85</sup> Interview with P. Nash, *ibid*.

<sup>86</sup> Interview with Alick Nyirenda, Director, Copperbelt Health Education Project, Kitwe, May 16, 2001.

<sup>87</sup> Interview with Archie Palane, Deputy Secretary General, National Union of Mineworkers, Johannesburg, May 6, 2001.

<sup>88</sup> [http://www.unaids.org/hivaidsinfo/statistics/june00/fact\\_sheets/pdfs/botswana.pdf](http://www.unaids.org/hivaidsinfo/statistics/june00/fact_sheets/pdfs/botswana.pdf)

the mine's current (2001) mortality rate is expected to be 1-1.2%,<sup>89</sup> this figure will inevitably rise 5-10 fold before it stabilises.

As long as the noticeable impact on skilled labour remains small, which it still is in many SADC countries, the HIV epidemic is not seen as serious. Simultaneously, the situation amongst unskilled labour tends to be ignored, because of the relative ease with which such individuals can be replaced.

In analysing approaches and strategies to managing HIV/AIDS in the mining sector, it is important to acknowledge that the methodologies used to deal with the epidemic in the developed world may not be appropriate, feasible or transferable to resource-poor settings. In many parts of Africa, patients, particularly males, commonly seek STD treatment outside the formal sector and are treated along with a multitude of other health problems by primary health-care workers who have received little or no specific training in STD management.<sup>90</sup>

In addition, STD control in these settings must compete for resources with other important and less stigmatised health problems. Although funding has increased as a result of HIV/AIDS control programs, resources are still inadequate and health infrastructures remain weak. Given the urgency of the task at hand, more innovative approaches must be developed and implemented. In designing interventions that will have the greatest impact, the concepts of targeting, improved treatment-seeking behaviour and effective treatment at the point of first encounter are key.

It is important to note that currently the mining sector faces a negative image vis-à-vis its stance and perhaps responsibility in the spread of HIV/AIDS that has the potential to generate potentially damaging perceptions amongst a broad range of stakeholders:<sup>91</sup>

- Investors will be concerned about the costs associated with HIV/AIDS;
- Communities and individuals will worry about the impact of a mining operation on their health and safety;
- Products may become associated with misguided fears of "contamination"; and
- Fatalism amongst employees may jeopardise safety and productivity.

According to one report:<sup>92</sup>

*"Few mining companies adopt programmes that take anticipatory actions to minimise the health hazards derived directly (e.g., pollution-related) and indirectly (e.g., the pull effects of the spread of STDs, HIV/AIDS) from mining activities. Consequently, mining centres are also areas of concentration of STDs, HIV/AIDS as well as diseases associated with water and air pollution."*

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<sup>89</sup> Interview with Mr Mike Marsden, Managing Director, BCL Ltd., Selebi-Phikwe, Botswana, 20 June 2001.

<sup>90</sup> Interview with Alick Nyirenda, *ibid*.

<sup>91</sup> Interview with Dr M.A.C. La Grange, Health Advisor, Chamber of Mines of South Africa, Johannesburg, May 6, 2001.

<sup>92</sup> Charles Abugre and Thomas Akabzaa (1997) Social and environmental accountability issues in foreign direct investment flows to Africa: a focus on the mining sector, *African Agenda*, 15.

Such perceptions need to be acknowledged and engaged with if mining as a sector is to avoid being negatively painted with relation to the AIDS epidemic.<sup>93</sup> The South African Chamber of Mines claims that HIV/AIDS is a public health issue and thus mining companies have limited responsibility for managing the pandemic.<sup>94</sup> But their Zimbabwean counterparts reject this view outright.<sup>95</sup>

Clearly, the type of migrant labour schemes, single-sex hostels, breakdown in families associated with such practices etc. have helped contribute towards the spread of HIV/AIDS – the “consequence of place” (see below). Indeed, this is so widely acknowledged and recognised by virtually all analysts of the mining industry in southern Africa, that any position contrary to this, particularly if publicly adopted by mining companies, chambers of mines etc., risks causing a great deal of damage to the industry’s image and relationship with the public and government. An honest and open acknowledgement that the mining industry feels some degree of responsibility and accepts that HIV/AIDS is both a mining problem and a public health issue is obviously the most sensible direction to go. Other positions will simply reinforce the widely held view (by unions, some government ministers and sections of the public) that the mines have taken but not given – which is obviously not the type of image mining companies wish to project.

### **3.6 The Impact of the Mining Sector on HIV/AIDS**

Hounsome and Ashton<sup>96</sup> put forward the requirements for sustainable development for the mining industry in southern Africa to mean:

- Taking accountability for and with communities living adjacent to mines as being integral to the mining process;
- Acknowledging that mineral resources and environmental sinks are finite and configuring eco-efficiency into both resource utilization and waste disposal;
- Recognising that profits gained at the expense of environmental or social systems are short-term and therefore non-sustainable; and
- Ensuring that mining operations are conducted in such a way that the broader scale benefits to society are openly acknowledged and that concerted efforts are made to ensure that these benefits can be sustained even when mining activities have stopped.

Sustainability of the minerals and mining sector thus includes sustainability of the communities affected by the mines. In the context of HIV/AIDS, this requires a consideration of the potential impacts of the mining sector on HIV/AIDS in communities linked to the mining sector.

We now recognize that whilst HIV/AIDS is a medical condition narrowly restricted to four main modes of transmission, the political economy creates an environment that

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<sup>93</sup> Interview with Charles Muchimba, *ibid*.

<sup>94</sup> Interview with Dr John Stewart, Chairman of MIASA, Chamber of Mines of South Africa, Johannesburg, May 6, 2001.

<sup>95</sup> Interviews with Richard Davy, P. Nash and Davy Matyanga, *ibid*.

<sup>96</sup> Hounsome R and Ashton A (2000) Sustainable Development for the Mining and Minerals sector in southern Africa, MMSD Draft Position Paper.

induces transmission. HIV/AIDS is thus considered a “consequence of place”.<sup>97</sup> Simply put, this means that the broader environment of a place determines people’s interactions and exposure to transmission of HIV. The nature of development in any sector results in a change in people’s interactions. The mining and minerals sector is no different, with the business processes of mineral development and the mining lifecycle creating characteristic social and economic interactions between people involved or associated with the mining sector. The impacts on social and economic interactions extend from the shareholders to the workforce and their families. Some of these interactions that develop around the mining sector have inadvertently become risk generators in HIV infection. Some of the risk generators may act directly whilst others act indirectly in creating environments (social, economic and natural) conducive to HIV transmission. These impacts are listed below:

### **3.6.1 Social Impacts of Mining on HIV/AIDS**

- Regional movement of labour across southern Africa leads to the increased transmission of HIV. The migrant labour system encourages unsafe sexual behaviour by removing men from their families and regular partners, while providing a means of transmitting the disease to people living in rural areas when men return to their homes during periods of leave or after completion of their mining contracts<sup>98</sup>.
- Single-sex housing creates an artificial situation where men are separated from the family unit. This leads to increased sexual activity outside the traditional family structures.
- Induced employment opportunities are created around a mine site to cater for the needs of the large mine workforce. This may occur in both the formal and informal sectors. Within the informal sector, illegal activities such as shebeens, brothels and gambling dens may thrive. These create conditions that are conducive to risky sexual behaviour.
- Promotion of the commercial sex industry occurs, as there are income differentials between mineworkers and the surrounding communities. This can lead to women selling sex in order to earn an income. In parallel to the commercial sex industry, there will be a rise in “survival sex” as women in communities around mines become involved in relationships with mineworkers for material gain.
- Breakdown of traditional family units is a consequence of migration labour. Men leave their families and homes to work some distance away on mines. Often these men may establish relationships with other partners around their workplace. These men are thus involved in polygamous relationships across different spatial areas, promoting the transmission of HIV.

### **3.6.2 Economic Impacts of Mining on HIV/AIDS**

- The mining sector, as one of the largest employers in the region, has the indirect impact of creating employment opportunities for a narrow sector of the population

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<sup>97</sup> Webb D (1997) HIV and AIDS in Africa, Pluto Press, London.

<sup>98</sup> Campbell C and Williams B (1999) Managing disease in the goldmines: ‘Work-related’ and ‘non-work-related’ diseases, South African Medical Journal, Vol. 88, pp789-795.

(predominantly men between the ages of 18-49). As a result, there are disparities in the income earnings between men/women, rural/urban, and core/peripheries. These income differentials lead to conditions of dependency that establish the socio-economic context for HIV transmission.

- In many areas, the mining sector is the predominant economic activity. This leads to a dependency on a single activity that can be potentially disastrous should the activity collapse. Many mining towns have experienced economic collapse when the market has caused mine closure. This economic situation leads to increased poverty and movement of people, both factors promoting HIV transmission.

### **3.6.3 Environmental Impacts of Mining on HIV/AIDS**

An indirect impact associated with the mining sector is the potential role of poor environmental quality on the health of HIV infected people. Due their compromised immune systems, PLWHA may be worse affected by poor environmental conditions around mine. This will therefore require stricter environmental controls for mines.

## 4 KEY STAKEHOLDER APPROACHES

Around the world, people from all parts of society have contributed to the fight against HIV/AIDS. Key role-players include Individuals, community groups, organised labour, private sector interests and private companies, the public sector from nation states to local authorities, development agencies, multilateral organisations of states, research organisations and academia, non-governmental agencies, religious organisations, people living with HIV/AIDS, etc. These groups are working separately and together to manage the HIV/AIDS epidemic.

### 4.1 Stakeholder Overview

Probably the greatest challenge facing all stakeholders in the mining and minerals sector is how to develop life skills and an environment that allow people to make informed decisions on their lives.<sup>99</sup> Knowledge and awareness of the causes of HIV/AIDS is very high and has been for some time, but we are at an impasse concerning the most suitable strategies for post-awareness programmes and are struggling to come up with solutions beyond simple care for the HIV-positive (access to which tends to be limited). This situation is in part due to the excessive emphasis and reliance of AIDS programmes on education and awareness, in the face of overwhelming evidence that awareness levels do not drive behavioural change.

This section reviews approaches that the major stakeholders are using. Many of the interventions that are discussed have had promising results, but all of them have raised serious issues that are also addressed.

#### 4.1.1 Individual Level

Efforts made by motivated individuals remain a major element driving HIV/AIDS initiatives. At the community level they are driven to act out of frustration and because of increase in the number of households with sick and dying members and the number of funerals. Such individuals are receptive to HIV/AIDS awareness campaigns and are frustrated by widespread denial and the lack of outside help.<sup>100</sup>

The interest shown at the individual level is highly variable and it is still common for individuals to refuse to listen when HIV/AIDS is discussed. One of the key opportunities to be discussed is at funerals resulting from AIDS, but this is almost unheard of. It is still common for morbidity and mortality to be associated with witchcraft and poisoning. Problematically, it can be extremely difficult to avoid identifying AIDS-orphans. For example, where orphans are issued with standard food rations these can be easily identified.

The focus of HIV/AIDS campaigns has been overwhelmingly on HIV-positive individuals, leading to the perception that they are a problem. However, this ignores underlying issues that are of concern to individuals and are partly responsible for the pandemic, in particular widespread poverty.

High-risk individuals are to some extent also victims of their environment. Poverty is probably the greatest driving force as it is the search for work that stimulates

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<sup>99</sup> Interview with Alick Nyirenda, *ibid.*

<sup>100</sup> Interview with Patricia Bakwinya, *ibid.*

### Box 3 Reasons for becoming involved in voluntary work.<sup>102</sup>

Patricia Bakwinya recalls seeing a boy drown when she was still a child. Afterwards, she ran home to her mother who comforted her. Recalling this incident as an adult she asked herself what someone would do without having a mother to go to. This set Patricia on her path to provide help to those with HIV/AIDS.

migration and the disruption of families. This can lead to individuals paying or being paid for sex.<sup>101</sup>

Lack of economic empowerment is repeatedly cited as the main reason why people, in particular women, have low self-esteem and are unable to break out of the cycle of high risk behaviour.<sup>103</sup> However, KAP studies amongst workforces routinely show high levels of knowledge, mixed attitudes and low levels of safe practice.<sup>104</sup>

Non-discrimination and confidentiality are two key issues for employees. Other important points to emerge revolve around fitness to work and the implications of medical boarding, in particular for medical, financial and care support. The implications of HIV-status for employment, but also training, development, promotion, transfer, remuneration are significant.

Most people agree that behaviour has to change. It is also observed that people do not discuss their sexual behaviour.<sup>105</sup> People need to come forward for testing and, subsequently also accept their status and understand that the sooner they identify their status and take appropriate steps, the better will be their life expectancy.<sup>106</sup> Even matters as simple as making a will are crucial steps that need to be taken by people once they are HIV-positive.<sup>107</sup>

Though the number of individuals in southern Africa who are completely unaware of HIV/AIDS is small and diminishing, KAP surveys reveal that knowledge, attitudes and practices are massively decoupled. An extraordinary degree of hypocrisy surrounds HIV/AIDS, with individuals believing that their partners are unlikely to have multiple relationships despite the fact that they themselves overwhelmingly do. With monotonous regularity surveys reveal that sexual activity continues to start at a young age, that individuals fail to consistently use of condoms, and a belief that healthy looking people do not have aids. Many still believe that AIDS does not exist or that it can be cured.

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<sup>101</sup> Interview with Dr Vitalis Chipfakacha, HIV/AIDS Technical Advisor, WHO/NACA, Gaborone, Botswana, 15 June 2001.

<sup>102</sup> Interview with Patricia Bakwinya, Tshireletso AIDS Awareness Group, Francistown, Botswana, 21 June 2001.

<sup>103</sup> Interview with Daniel Motsatsing and Mabel Rammekwa, BOFWA, Gaborone, Botswana, 14 June 2001.

<sup>104</sup> Despite knowledge levels of >90% some 40% of employees at Debswana Diamond Company in Botswana have unsafe sex and 30% have multiple partners. This situation is not uncommon (Interview with Mrs Bekezela Mbakile, Debswana Diamond Company, Gaborone, Botswana, 4 July 2001).

<sup>105</sup> Interview with Clive Ashby, BOCAIP, Gaborone, Botswana, 15 June 2001.

<sup>106</sup> Interview with Dr Chris Venter, Chief Medical Office, Botswana Ash, Botswana, 21 June 2001.

<sup>107</sup> Interview with Clive Ashby, *ibid*.

#### **Box 4 The GIPA initiative (Greater Involvement of People Living with HIV/AIDS).<sup>110</sup>**

The UN launched the GIPA initiative in South Africa in 1997 as a partnership between government, business (including Eskom, Transnet and Lonmin Mines) and NGOs, because the continued spread of HIV/AIDS and the underlying issues of denial, discrimination and stigma were at least in part due to a “lack of visible and positive involvement of People Living with HIV/AIDS (PLWA) at all levels of managing the epidemic”. The objectives of the programme are to:

- Promote and advocate for GIPA as an HIV/AIDS prevention and management strategy
- Select and train GIPA fieldworkers to assist in developing and implementing HIV/AIDS programmes at the workplace (i.e. information and awareness, HIV/AIDS in the workplace, personal empowerment, positive living, counselling skills, work and activity planning and presentation and communication skills)

PLWA are well placed and uniquely experienced to provide input into policies and programmes for both infected and non-infected employees. For example, people are more likely to disclose their status to a counsellor who is living with HIV/AIDS. GIPA promotes a climate of openness and understanding within organisations, which in turn allows issues of stigma and discrimination to be addressed. Critically, GIPA strengthens the capacity to offer in-house counselling services, which are a vital element of prevention and awareness. GIPA activities also help establish networks and support structures for PLWA, which is particularly important since they can have productive lives of 10-15 years. Organisations report that contact with GIPA workers, who are all PLWA, has real impacts. Employees seek medical help earlier, are more likely to disclose their HIV status and are more positive towards their HIV-positive colleagues.

### **4.1.2 Community Level**

It is widely accepted that outreach activities that directly engage individuals and communities are the best way to deliver results in HIV/AIDS campaigns. It is equally important for these to adhere to the principle of greater involvement of PLWA (GIPA), as this is a major stumbling block for many initiatives (Box 4).<sup>108</sup> Community-based interventions are easy to put into a rural or village context, but a similar approach is believed by many to be equally important in urban settings where it can be achieved by splitting urban communities into manageable units so that the same principles can apply.<sup>109</sup>

Community home-based care (CHBC) is the single most important intervention at this level, where it can play a number of critical roles:

- It is well-placed for monitoring community health dynamics, e.g. increases in chronic conditions;
- Traditionally community roles can be adapted to play a role in relation to education for planned parenthood and reproductive health issues, and to address youth issues;
- It can act as a vehicle for distribution of diverse services to groups other than just the chronically ill, e.g. orphans, self-help initiatives (in Mmadinare the CHBC also provides gardening tools and supplies);
- It can stimulate the creation of small enterprises, e.g. rearing chickens, market gardening;

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<sup>108</sup> <http://www.undp.org.za/programs/HIV/GIPA%20Summary.htm>

<sup>109</sup> Interview with Dr Donald de Korte, Project Manager, ACHAP, Gaborone, Botswana, 18 June 2001.

<sup>110</sup> <http://www.undp.org.za/programs/HIV/GIPA%20Summary.htm>

- As the CHBC develops, in particular by establishing its own resources such as an “office”, it becomes an object of pride that motivates both existing members and creates a pull for new membership;
- Many opportunities for expansion exist, e.g. initiating orphan day-care, peer counselling, youth education, etc.; and
- As a culture of broad home-based care is established this encourages people to come forward for help, because the link with HIV/AIDS is no longer automatic.

CHBC characteristically requires large numbers of people, since one care-giver may only be able to attend to a relatively small number of clients. In the southern African context, where prevalence is extremely high, the implication is that such services can only be provided effectively if more or less the entire community becomes mobilised (including healthy HIV-positive individuals). An important, and sometimes overlooked, aspect of CHBC is its potential to provide employment creation opportunities. However, many such potential projects are of a farming nature and their key requirement is access to land. At present, this often has to be donated as there does not seem to be an easy mechanism for it to be obtained from local government.

Other critical challenges, in addition to the need for access to land, are the lack of motivation, dedication and reliability in volunteers. These could be addressed by increasing inward investment into communities in order to directly and indirectly reward volunteers. Implementation problems also need to be addressed, including poor record keeping, a general lack of coordination within and between efforts, and the scarcity of skilled staff, e.g. healthcare workers.

As the epidemic worsens, and in particular as the AIDS death toll rises, orphanages and day-care centres will be increasingly vital schemes for communities to establish. Although these may be relatively straightforward to initiate they remain challenging to resource. Lack of space, furniture and food are the main threats and these are all exacerbated by the rapid growth in numbers that is commonly seen (often to 100s of children within months). Whilst day-care is a solution, it is only sustainable where there are homes for children to return to in the evenings. Generally, however, what is being done is simply inadequate given the scale of the problem.

Another major problem is the stigmatisation of orphans, which can be made worse by having a clearly identified orphanage. Good results have been achieved where initiatives have combined genuine orphans with children for whom care is not available for other reasons. This avoids the direct association of orphans with HIV and reduces stigma. Another key element is the incorporation of activities such as schoolwork, choirs, drama, football etc. (some of which can generate resources). Orphanages can also create benefits in terms of their ability to motivate children to openly discuss issues around sex. The sharing of experiences, particularly associated with the last days of a dying parent, have a particularly cathartic effect.

### **4.1.3 Organised Labour**

In southern Africa, unions have for some years recognised HIV/AIDS as a major issue and this position is shared at the global level by the International Federation of Chemical, Energy, Mine and General Workers' Unions (ICEM - the global body to

which many of the region's unions are affiliated).<sup>111</sup> As with other stakeholders, unions face resource constraints. As a result they have had to limit their actions to the negotiation of HIV/AIDS agreements and policy frameworks with employers.<sup>112</sup>

Typically, the union position on HIV/AIDS recognises the need for coordinated efforts between companies, communities, employees and government, but nevertheless tends to concentrate on the rights of workers to fair labour practices that ensure equality and freedom from unfair discrimination. Negotiated HIV/AIDS agreements between employers and unions have therefore focused on:

- Ensuring that access to employment, promotion, education and training is not conditional on HIV-status; and
- Preventing HIV-status from being used as a justification for non-performance or as the sole basis for retrenchment or medical boarding.

Active union involvement in HIV/AIDS interventions, e.g. the appointment of HIV/AIDS coordinators, training of peer educators and the dissemination of prevention messages, is a relatively recent development.<sup>113</sup>

Although unions recognise the need to minimise the impact of HIV/AIDS on the mining sector and the need for prevention, their key concern is with the way in which HIV infection is managed in the context of the employer-employee relationship. Many of the issues raised by union agreements (using the NUM as an example) are generic, but there are some that are more specific to the mining context, for which the current union stance is as follows:<sup>114</sup>

- **Testing** – there should be no pre- or post-employment HIV testing of workers and any medical examinations should aim solely to establish functional performance. Testing is only possible if it complies with constitutional and legal rights and that the desired intention of the results is known. There is also a “no to that” stance on prevalence surveys, unless mineworkers cannot be singled out from broader society.
- **Confidentiality and disclosure** – the right to confidentiality means that employees should have no obligation to inform employers of their HIV-status. Where disclosure has been made to the employer, this information must not be indicated in personnel or medical records, nor should it be disclosed to third parties. Employers should not attempt to establish whether AIDS or AIDS-related illnesses were the cause of death.
- **Prevention** – although the emphasis continues to be on ABC messages as the most important component in fighting the spread of HIV/AIDS at the workplace a critical additional measure being advocated is the phasing out of hostel and

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<sup>111</sup> <http://www.icem.org>

<sup>112</sup> In order to facilitate these negotiations Gold Fields conducted a programme of capacity building with union negotiators in order to create a level playing field prior to the discussion of HIV/AIDS issues. Interview with Dr Andre Bester, HIV Programme Manager, Gold Fields, Johannesburg, South Africa, 7 May 2001.

<sup>113</sup> The region's largest union, the NUM, only appointed full-time HIV/AIDS coordinators in 1999 although they negotiated their first HIV/AIDS agreement with the Chamber of Mines of South Africa in 1993. Interview with Archie Palane, *ibid*.

<sup>114</sup> Based on the NUM's Draft HIV/AIDS Policy of 2001 and the AIDS Agreement with the Chamber of Mines of South Africa of 1993. Unpublished documents provided by Lennox Mekuto, *ibid*.

compound systems and their replacement by family housing and facilities that allow for visiting partners.

- **Care** – the prevailing view is that employers should provide employees with uninterrupted care and treatment even after termination. Particularly for opportunistic infections, especially TB and STDs, but also including the provision of drugs and vaccines to treat HIV directly. A shift to individual medical schemes is supported as a measure to cross-subsidise costs.

In each of these areas a compromise position must be found. Opposition to testing for epidemiological purposes is counter-productive as this is a key element of HIV/AIDS management. The focus on discrimination is entirely negative, with the implication that stigma cannot be overcome. It also creates a situation where even legitimate actions by co-workers and employers can be construed as discriminatory and lead to spurious claims. This may only serve to reinforce individuals' (and in some cases also employers') resistance to establishing HIV-status. The benefits of knowing an individual's HIV-status are downplayed, even though they are important, e.g. the ability to provide effective prevention and care. Insufficient emphasis is placed on the resource implications of commitments for care, especially for treatment costs beyond the working life of the employee. Advocacy for a change in housing practices is justified in view of observations, but there remains a strong call for unions to champion the need for lifestyle changes amongst their membership.

#### 4.1.4 NGOs

Although NGOs and CBOs play a key role in HIV/AIDS initiatives they are generally in an unequal partnership with their donors. Nevertheless, NGOs play a critical role in capacitating individuals and communities. Another important advantage of NGOs and CBOs is their ability to be more approachable than more formal bodies, because they can present a more familiar interface to individuals, for example using young people to counsel youth or using community members, rather than professionals. Although they provide critical human resources, they face many threats:<sup>115</sup>

- They are often totally dependent on a relatively limited number of sources of funding;
- Volunteers are difficult to find and staff turnover is high, because of the pressure for individuals to find salaried work; and
- Volunteers (and staff) often lack critical skills that can only be developed through expensive training.

A typical experience with regard to resources and donations is that donors prefer to make donations in kind, e.g. equipment. If they donate money, then they invariably want more control over where it goes. Nevertheless, donations in kind can be under-utilised, for example: Jwaneng Mine in Botswana donated a building with the capacity to accommodate 65 orphans, but this only houses seven<sup>116</sup>

Church groups undoubtedly have an important role to play, but face similar challenges to social and care workers in that they need to avoid being

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<sup>115</sup> Interview with S. Ssebagala.

<sup>116</sup> Interview with Mrs Bekezela Mbakile, *ibid*.

judgemental.<sup>117</sup> Although those groups that are focusing on the promotion of abstinence as a viable option tend to fall into the latter category, there is nevertheless much benefit to be derived from concentrating on emphasising values such as faithfulness and responsible behaviour on followers.

NGOs also tend to concentrate their efforts in the community, whilst neglecting the potential benefits that can be gained from engaging employers.<sup>118</sup>

#### **4.1.5 Employer Level**

In January 2001, Dr Gro Harlem Brundtland, the Director-General of the WHO, launched the Global Health Initiative (GHI) at the World Economic Forum (WEF)<sup>119</sup> meeting in Davos.<sup>120</sup> The GHI aims to build on the work that many companies already do in the health field. It recognises that “forces of globalization can be harnessed to bring benefits to poorer people within and between countries”, and that companies can bring a greater results-focus into partnerships with government and civil society. To assist in scaling up effective actions, the GHI encourages the sharing of good corporate practice and supports wider corporate involvement in public policy. This is not the only such initiative.<sup>121</sup> The Global Business Council on HIV/AIDS (whose Honorary President is Nelson Mandela) was launched at the 1997 WEF in Davos, Switzerland, as a result of lobbying by UNAIDS for companies to participate in the global response to HIV/AIDS;<sup>122</sup> its focus is on public sector-private sector partnerships.

At the June 2001 WEF meeting in Durban, South Africa, the GHI met to discuss corporate best practice in southern Africa. There is general agreement between companies concerning the components of successful strategies (listed below):<sup>123</sup>

#### **Key workplace strategy components**

- Awareness, education and prevention, including voluntary testing and counselling, peer education, and availability of condoms;
- Non-discriminatory policies and practices, primarily to de-stigmatize AIDS;
- Care and support, including both counselling and treatment, as part of an integrated healthcare programme;
- Partnerships and coordination with other companies and organizations;
- Commitment of top management;
- Support from organized labour; and

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<sup>117</sup> Interview with Clive Ashby, *ibid.*

<sup>118</sup> Interview with Clive Ashby, *ibid.*

<sup>119</sup> <http://www.weforum.org>

<sup>120</sup> [http://www.who.int/director-general/speeches/2001/english/20010129\\_davosunequaldistr.en.html](http://www.who.int/director-general/speeches/2001/english/20010129_davosunequaldistr.en.html)

<sup>121</sup> Others include BEAD (The Business Exchange on AIDS and Development), Business Responds to AIDS (BRTA), The International HIV/AIDS Alliance, Funders Concerned About AIDS (FCAA), NAT (The National AIDS Trust) and the Prince of Wales Business Leaders Forum.

<sup>122</sup> <http://www.gbcaids.com/>

<sup>123</sup> GHI (2001) Meeting on Corporate Best Practices in southern Africa: Draft Report, unpublished document supplied by Imelda Dunlop, Director (consumer & Health Industries), World Economic Forum.

- Community involvement.

### **Key community level strategy components**

- Clear policies and practices in the workplace before reaching out to the community;
- Clear goals and performance metrics for company involvement in the community;
- Strong public-private partnerships;
- Holistic approach to healthcare;
- Programmes that target people with influence in the community, including local leaders, teachers and traditional healers; and
- Training component.

To quote Sir Richard Sykes, Chairman of the Global Business Council on HIV/AIDS, “business cannot operate in a vacuum. It has to engage the real world.”<sup>124</sup> Business responses are rarely philanthropic and tend to be driven by the need to safeguard commercial interests and a duty of care to other stakeholders that is legally or ethically imposed. Nevertheless, it is evident that many mining and minerals sector companies, particularly in southern Africa, have made significant contributions towards HIV/AIDS. Some have even gone as far as adopting leadership roles at national level, for example Debswana Diamond Company in Botswana.

Sectoral responses to HIV/AIDS began in the mid-1980s with ad hoc initiatives, primarily driven by individuals (usually medical staff) who were responding to increased health problems, sick leave and deaths. The publication of formal strategies and policies has, in the main, taken place only in the last few years. However, such charters may be little more than formal statements of company principles for dealing with HIV/AIDS, e.g. emphasising non-discrimination and confidentiality. Whilst they are good for displaying around facilities, they are less useful in terms of action.

Another problem is that they tend to address management’s response, whereas the stigma associated with the response of one’s colleagues is potentially a far more significant issue at the individual level. A more recent move has been to incorporate HIV/AIDS into a more general life-threatening diseases policy in order to reduce the stigma surrounding HIV/AIDS by placing it on a par with other less controversial, but still potentially fatal, chronic conditions.<sup>125</sup>

Even though significant economies of scale should exist within mining houses, in practice there are significant variations between individual operations. This is seen where recent acquisitions have merged operations with different historical approaches to HIV/AIDS management, such as those resulting from the break-up of ZCCM in Zambia.<sup>126</sup> A more common reason for inconsistency is the absence of detailed guidelines for implementing the specific objectives of HIV/AIDS strategies. As a result, individuals, particularly those in management and senior management

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<sup>124</sup> UNAIDS (1997) *The Business Response to HIV/AIDS: Innovation & Partnership*, Joint United Nations Programme on HIV/AIDS & The Prince of Wales Business Leaders Forum, pg iii

<sup>125</sup> Interview with Dr Chris Venter, *ibid.*

<sup>126</sup> Interview with Dr Brian Brink, Senior VP Occupational Health, Anglo American Plc, Johannesburg, South Africa, May 2001.

### Box 5 HIV/AIDS Issues from a Medium-Sized Mine<sup>127</sup>

The following is based on an interview conducted in June 2001 with members of the HIV/AIDS committee of an operation employing a workforce of 250. This committee was formed at the beginning of 2000 and has 11 members.

Statistics are not available, but in 2000 there was one AIDS-related death. Questionnaires have been distributed to the workforce and responses indicate that employees have high knowledge levels, but would still like to know more. The mine has no HIV/AIDS specific policy, treating it as any other illness. Current interventions are limited to showing HIV/AIDS information videos during tea breaks and lunch (these were obtained from the local town council and were made both locally and in Uganda). Literature is distributed through the nurse and condoms are freely available. A drama group has also been formed.

Although people are talking about AIDS, they are still scared to visit the mine's nurse who also acts as an AIDS counsellor. No one is going for voluntary testing. The mine's involvement with the community is limited to the nurse, who has coordinated donations of clothes to the local orphanage.

Management have been supportive, providing resources (e.g. television, condoms), but have handed responsibility to the HIV/AIDS committee. They see the minutes of this committee, but don't attend. The committee realises that it needs to do more and is preparing an action plan; it would like to raise more money for community projects and to establish links with other AIDS groups in the country.

positions, are often unclear as to how the commitments made at the CEO and board level are to be applied in reality.

Even the basic prerequisites for developing a systematic HIV/AIDS intervention strategy will involve significant commitments in terms of human and capital resources, for example:<sup>128,129</sup>

- Data collection through KAP and sentinel surveys;
- Historical impact analysis (health care review, absenteeism, etc.);
- Audits to identify risk generators (critical skills) and high-risk target groups (from the perspective of the individual and the business); and
- Assessing the communities from which the workforce is sourced and those within which the mines operate

Managers generally lack the tools to support decision-making with respect to HIV/AIDS. Cost-benefit models for objectively comparing interventions are not widely available and, even more seriously, many management information systems are simply not configured to report data in a format that facilitates estimating the likely impact of HIV on costs and operations, e.g. absenteeism, medical boardings and AIDS-deaths. In some cases, such data is not even systematically captured in the first place. These deficiencies are all the more surprising given the substantial costs of creating and implementing HIV/AIDS risk reduction strategies and the potential magnitude of the investment decisions that need to be taken.

Many companies have been successful in conducting prevalence surveys. Although these are acknowledged to be a, if not the, key element of HIV/AIDS management they remain highly contentious issue. Some operations have been unable to gain union agreement to conduct anonymous sentinel surveys and, as a direct result,

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<sup>127</sup> Details have been withheld to maintain confidentiality.

<sup>128</sup> Interview with Mrs Bekezela Mbakile, *ibid*.

<sup>129</sup> Interview with Dr Chris Venter, *ibid*.

simply do not have any direct knowledge of their situation. However, once these obstacles have been overcome the value of the results, e.g. quantitative insights into prevalence between bands and operations, quickly becomes apparent.<sup>130</sup> There appears to be a strong correlation between how comprehensive the care offered to HIV-positive individuals is and both participation in sentinel surveys<sup>131</sup> and in VTC and subsequent disclosure of status to the employer.<sup>132</sup>

For epidemiological purposes surveys should contain as much information as possible, however this conflicts directly with concerns about confidentiality and the potential for identifying individuals. For this reason smaller operations may only be able to collect data that is classified in terms of age and level of employment (unskilled labour, skilled labour, artisans, managers, etc.).

Many employers are trying to emphasise collective responsibility, i.e. that “every employee is an AIDS manager”. However, it is clear that a focus on strengthening the family environment is a key element in reducing risk, since in southern Africa a high proportion of adults are in formal relationships. It is equally important for those that are single to be put into a family setting, particularly with respect to accommodation. There is no question that the practice of using single-sex hostels is one of the most risky. Peer education is widely believed to be a cornerstone of disseminating and reinforcing such prevention messages. But the quality and appropriateness of peer education remains extremely variable and in many cases it is still non-existent. Care, is generally offered through mine hospitals, which are often amongst the best in the vicinity (if not nationally). Standard medical boarding procedures take effect once employees become medically disabled or unproductive in much the same way as for other chronic conditions.

Whilst employers do not have much leverage over governments, they do have a capacity for self-regulation within their own stakeholder level. One suggestion is that suppliers can be required to have standardised HIV/AIDS policies in place as a condition for winning contracts. This was done in the build-up to Y2K and continues to be applied with respect to ISO certification for quality control (9000 series) and environmental standards (14000 series).<sup>133</sup> As a last resort companies can internalise subcontracted services that become threatened by HIV/AIDS, e.g. haulage, power generation, etc.<sup>134</sup>

There is no single model for company involvement in communities. The most common involves setting up an independent trust, whose objectives are identified through a process of community consultation.<sup>135</sup> Most such trusts, under pressure from their company stakeholders, have a stated aim of become self-funding as soon

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<sup>130</sup> Interview with Mrs Bekezela Mbakile, *ibid*.

<sup>131</sup> Interview with Dr Clive Evian, Managing Director, Aids Management and Support, 1 July 2001.

<sup>132</sup> Interview with Dr Gavin Churchyard, Aurum Health Research, Welkom, South Africa, July 2001.

<sup>133</sup> *Ibid*.

<sup>134</sup> Interview with Dr Andre van der Bergh, Senior Consultant: Health, Safety and Environmental Management, Billiton, Johannesburg, South Africa, 22 May 2001.

<sup>135</sup> Although community consultation is widely used, the process itself is fraught with difficulties. It can be extremely difficult to obtain input from a representative cross-section of the community, in particular from women who are often excluded from decision-making on cultural grounds. Communities' members of Trusts also tend to lack the skills to articulate proposals, which in turn leads these to be biased towards the preferences of those stakeholders who are developing proposals.

### Box 6 Employer Initiatives in Botswana – Pre-Investment HIV Testing.<sup>136,137</sup>

Whilst adhering to the principle of non-discrimination on the basis of HIV status, many of the mining companies in Botswana have incorporated HIV testing into their employment strategies. Pre-employment and post-employment testing are rejected in line with ILO recommendations, but in 2000 they implemented “pre-investment” testing for all candidates applying for scholarships and training that takes longer than two-years to complete. This applies to existing employees and school-leavers, although the latter are the most affected group at present.

Individuals are required to demonstrate freedom from any life-threatening diseases (not just HIV/AIDS), that compromise their ability to complete the proposed programme of training and to be able to demonstrate that they will provide a return on the investment that is being made by the sponsor. An independent third party conducts the HIV test only if the individual gives their informed consent. The individual can choose to release the results to the employer, but failure to do so means that the application conditions are not met.

Although this approach has met with some criticism in the press, it is being supported by the Government of Botswana, which applies the same approach to students being sponsored for study overseas. Notably, the numbers of individuals who are HIV-positive is small (none of the 40 candidates tested by BCL Ltd. in 2001 was HIV-positive and only 2 of 50+ candidates tested by Debswana Diamond Company in 2000 were HIV-positive).

as possible, but in reality this is extremely difficult. Trusts invariably start life being supported exclusively, and sometimes generously, by one company or a small group of companies and therefore find it difficult to become independent. Other donors may also be difficult to attract into a scheme that is perceived to have strong links with, and an agenda that is excessively influenced by, a specific private sector partner. A further issue with partnerships is the spirit of company participation. It is not uncommon to find that mines do not prioritise partnerships and show this by allowing themselves to be represented by staff lacking the commitment or authority to make substantive decisions.

However, there is no doubt that the ability of companies to provide physical facilities, supporting human resources and technical capacity (e.g. in financial and project management) can be vital to ensuring that an initiative is successfully launched and subsequently sustained. The involvement of a company can also provide credibility when additional resources are being solicited from other companies and donors. For example, Billiton was able to assist the Mozal Trust motivate for additional funds from the World Bank.<sup>138</sup> The main challenge facing trusts is to ensure that the projects that are taken on are both financially and practically sustainable.

#### 4.1.5.1 Benefit Schemes

The southern African working public has historically made inadequate financial provisions for death and disability and this situation is simply being worsened by HIV/AIDS.<sup>139</sup> Many employees are wholly dependant on statutory benefit entitlements, which are often limited to work-related disability and death. This fact

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<sup>136</sup> Interview with Mr Mike Marsden, *ibid*.

<sup>137</sup> Presentation to Botswana Mining Council by Mrs Tsetsele Fantan, Group HIV/AIDS Coordinator, Debswana Diamond Company, Botswana, November 2000.

<sup>138</sup> Interview with Dr Andre van der Bergh, *ibid*.

<sup>139</sup> Interview with Andrew Mafesanti, General Manager, Botswana Life Insurance, Gaborone, Botswana, 6 July 2001.

### Box 7 Employer Initiatives – Changing Living Conditions.<sup>141</sup>

Several Billiton group companies have managed to maintain HIV prevalence at levels substantially less than half those of the surrounding communities, e.g. prevalence is 11% at Hillside aluminium smelter and 12% at ZAC Colliery (both located in Natal where adult prevalence exceeds 30%). Modelling by Old Mutual and the Actuarial Society of South Africa indicates that by maintaining prevalence around 10%, Billiton will reduce the effect of HIV/AIDS on costs to around 2-3%; providing, however, that medical costs can continue to be borne by medical aid schemes.

These promising results are attributed to a ten-year old company policy to reduce risk factors by:

- Giving preference to the local recruitment of labour;
- Phasing out hostel systems and moving to a individual housing allowances, and maintaining a family-friendly environment where hostels still operate;
- Placing a greater emphasis on qualifications, by increasing the proportion of employees with matriculation; and
- Requiring compulsory participation in private medical aid schemes (introduced in 2001).

These steps were taken in addition to more common measures including vigorous STD campaigns, and the use of periodic presumptive treatment amongst sex workers. Anglo American have had a similar experience at their Namakwa Sands operation in the Western Cape province of South Africa, where the predominantly locally recruited workforce has a prevalence of only 2%.<sup>142</sup>

alone is a strong disincentive for individuals to acknowledge their HIV-status, because of the potential loss of benefits that may result from medical boarding.

Life and medical insurance will undoubtedly become important factors in HIV/AIDS management, as tools to provide employers with a more structured approach to budgeting for the costs of care. Insurance schemes also offer the individual greater choice and greater responsibility for care. Although it is still rare for employers to require compulsory insurance, it is important for employers to encourage and for unions to support this. Unfortunately neither is doing so actively enough.

Even where schemes are designed to be affordable, the rate of take-up is often very low, e.g. <50% of mineworkers in Botswana are covered. This is attributed to the lack of a savings culture. Where employers establish death and disability funds these generally offer far below the 5-10 times annual salary cover that is recommended by the insurance industry. In addition, HIV/AIDS is rapidly causing company-run schemes to become undercapitalised resulting in higher premiums and lower benefits. In 2001, many commercial funds continue to make relatively small provisions for HIV/AIDS, because only a small percentage of their clients have notified the scheme of their HIV status and commenced treatment; even so, the demands of treatment are significant. Only 1.5% of BOMaid's membership in Botswana is on ART, but already the provision for HIV/AIDS treatment has had to be increased from 2.5% to 3.5% of contributions.<sup>140</sup> As shown in Box 8 the region's insurance sector feels that it is meeting this challenge head on.

Medical aid funds are encouraging employers to conduct regular prevalence surveys in order to provide a better profile of the impending scale of the crisis and to allow

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<sup>140</sup> Interview with Mrs M. Manthe, BOMaid, Gaborone, Botswana, 4 July 2001.

<sup>141</sup> Interview with Dr Andre van der Bergh, *ibid*.

<sup>142</sup> Interview with Dr Brian Brink, *ibid*.

### **Box 8 Incorporating HIV/AIDS risk into benefit calculations.<sup>145</sup>**

In 1994 Botswana Life Insurance replaced its standard underwriting procedure of conducting random HIV testing with an HIV exclusion clause that limits coverage in the event of death from AIDS. This originally applied for policies over P100000 (US\$ 20000), but this limit has been progressively reduced to P30000 as it becomes clear that HIV/AIDS is having an extraordinary impact on the ability to maintain cover.

Ultimately individuals will face a two-tier system of premiums: low premiums for those who are tested and HIV-negative and high premiums (>20 times greater) for those that do not submit test results.

better planning.<sup>143</sup> Although employers currently pay around 50% of the membership charge, they are also being encouraged to increase their contributions and to provide a higher proportion of cover for low-paid employees, but companies have been reluctant to do this. It is inevitable that the proportion of medical costs that the individual will have to pay will also have to be increased.

The threat that HIV/AIDS presents to medical aid schemes is clear. For example, in Botswana, average ARV treatment costs P1000<sup>144</sup> per month, which is the amount provided by the scheme. Triple drug therapy would cost P2100 per month. Inevitably, clients get the type of health care that they can afford, but proper consultation can ensure that the optimum benefits are derived for the available resources.

Most death and disability payments are currently paid as lump sums. This is widely recognised as a problem, in that individuals appear to need greater guidance in matters relating to financial management than they are receiving. This would definitely be helped by moving to a system of regularly dispensed benefits.

#### **4.1.5.2 Case Study: The Home-Based Care Initiative of TEBA (The Employment Bureau of Africa)**

The Chamber of Mines of South Africa established TEBA in 1902 to recruit unskilled labour for the Witwatersrand gold mines in South Africa, but is now an independent company. In its heyday, TEBA had recruiting offices in Angola, Malawi, Namibia, Zambia, Zimbabwe, Botswana, Mozambique, Lesotho, South Africa and Swaziland, although it now only maintains a presence in the last five, having downsized as a result of the decline in employment in the South African gold industry. TEBA currently maintains 70 offices and 550 staff, mostly based in rural recruiting grounds.

In 1998, TEBA decided to commercialise its services, the main components of which are employment services, financial services (provided through the TEBA Bank) and, more recently, rural support. TEBA has a number of unique strengths that may offer a platform for HIV/AIDS intervention:

- Sound infrastructure and delivery capacity, including an IT network that allows rapid communication with rural areas.
- A large spatial database (created using GPS) of skilled and semi-skilled workers within the region, which allows worker source areas to be accurately identified and quantified.

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<sup>143</sup> Ibid.

<sup>144</sup> P1 = US\$0.1748 on 10 August 2001.

<sup>145</sup> Interview with Andrew Mafesanti, *ibid.*

- Long-standing relationships with all the major stakeholders in the mining and minerals sector (from individuals to companies, government and, more recently, NGOs).
- A regional presence through a network of field officers (mostly ex-miners), who are familiar with and trusted by local communities.

In the words of the current CEO, James Motlatsi, who was the former President of the NUM, “TEBA is ideally equipped to provide services that are critical for the development of rural southern Africa, while continuing to meet the labour recruitment and employment support service needs of the mining industry”.<sup>146</sup>

An important early consequence of the decision to become more involved in rural development was the training of TEBA field officers to conduct Participatory Rural Assessment (PRA) exercises. Although these market research exercises concentrated on identifying business development opportunities and the need for financial services, they resulted in a better understanding of community issues and the identification of services that could benefit rural development. It became clear that there was significant potential to diversify financial services (especially since TEBA Bank<sup>147</sup> is often the only rural financial service provider), and to expand the facility to provide care for the terminally ill.

TEBA currently provides support and care services to around 1000 mineworkers, mostly with severe spinal chord damage, who were injured in the workplace.<sup>148</sup> Typical services include repatriating affected individuals, counselling the next-of-kin, training care-givers and modifying accommodation to facilitate disabled use. These services are supported by a network of field officers who act as trainers of trainers. TEBA believes that a similar approach is the only socially and economically viable means of providing care to mineworkers living with AIDS and considers itself best placed to meet this challenge, for a variety of reasons:<sup>149</sup>

- It is already a point of contact between employers, employees and employees’ families (the efficiency of which has been greatly enhanced by its IT network).
- TEBA’s presence at mine sites offers the potential to become involved with counselling workers when they are HIV-positive, but before they become ill, for example by giving financial advice on how to optimise their benefits. This process could even be integrated with VCT.
- Families and, in particular, potential home-based carers can be identified and prepared well in advanced of the mineworker’s return, which ensures that the mineworker, affected family members and the home-based carer are fully integrated into the broader community care network.

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<sup>146</sup> <http://www.teba.co.za/>

<sup>147</sup> Most of TEBA’s financial support services have been incorporated into TEBA Bank, a separate company, formally listed as a banking institution. In 2000, TEBA Bank processed payments in excess of R2 Billion, which included the provident fund payments for 10500 mineworkers. It is planning to expand into microlending and business development.

<sup>148</sup> The costs are covered by the Rand Mutual Assurance scheme through which mineworkers are covered against death and permanent disability as part of their employment contract.

<sup>149</sup> TEBA estimates that the number of medical lay-offs due to HIV/AIDS will exceed 10000 per annum in South Africa. Currently, the only service provided to the terminally AIDS-ill is repatriation.

### Box 9 Community home-based care: the Bambisanani Project Model<sup>150</sup>

The Bambisanani Project, based in Kokstad in the Eastern Cape Province of South Africa, is being used by TEBA to develop a model for extending home-based health care and a bundle of other health-related development interventions to mineworker-sending areas. TEBA acted as the lead agency, using its organisational infrastructure of field officers and rural offices centred on a base in Kokstad to play a co-ordinating and implementing role, but the project is a true partnership involving:

- The mining industry, which provides funding (initially from Goldfields, with additional support from Bristol-Myers Squibb);
- Unions, who represent their membership;
- Government, which assists in design and implementation, through its national and provincial departments of health and social development as well as directly providing grants, e.g. for orphans;
- NGOs (initially the Planned Parenthood Foundation of the Eastern Cape, Hospice, Equity); and
- Researchers (initially from the University of Port Elizabeth, University of Transkei and Rhodes University), who were primarily interested in the evaluation of income-generating projects.

Support for mineworkers with AIDS is placed within the context of the entire community within which they live, because care requires a broad range of impacts to be addressed including: stigma, poverty and hardship due to loss of economically active people, support for care-givers (particularly the elderly and school-age children), provision of affordable funeral services, increasing food production and relief of pressure on health and social support services. Notably, orphan-care was not part of the original programme, but has had to be included subsequently, because it is now a major issue.

The main phases of the project were:

- **Building capacity within communities** - by creating the skills that they will need in order to initiate and sustain a quality home-based care system for mineworkers and other community members with terminal illnesses. The current approach uses salaried community workers and is therefore expensive, but the intention is to reskill fieldworkers already employed by TEBA to train and support village-care-givers (who receive a stipend) who, in turn, train and support home-based carers (who receive home-based care kits). This allows one field worker to support several hundred home-based carers. Additional capacity building is done through meetings and workshops.
- **Establishing support group activities** - infected and affected individuals and their families are serviced using drop-in centres based at hospitals, churches or local government offices. The main target groups are PLWA, women (especially those who are care-givers), bereaved families and those caring for orphans. Support for children in distress is coordinated with government health and welfare programmes, but also involves youth counsellors and peer education.
- **Promoting income-generating activities and services** – the focus is on helping needy families establish building, food-related, farming and other micro-enterprises. Another element is the creation of an environment that supports community development, involving all role-players within the community and agencies from the government and non-government sectors.

To encourage sustainability, participation in the programme is made conditional on communities organising and electing care supporters independently. This approach makes it more likely that the care-givers and trainers will be trusted.

- Ongoing PRA exercises allow potential income-generating activities to be identified in the home locations of returning mineworkers, which presents opportunities to initiate and facilitate appropriate reskilling prior to lay-off.

Since 2000, TEBA has been operating a successful pilot project to investigate the provision of a comprehensive, integrated, community-based response to HIV/AIDS (see Box 9). In July 2001, negotiations on funding an expanded programme were still ongoing with a consortium of mining companies.<sup>151</sup> The current cost of the home-

<sup>150</sup> Interview with Tumi Malepe, Manager: Home Based Care, TEBA, Johannesburg, 27 June 2001.

<sup>151</sup> Interview with Tumi Malepe, *ibid*.

based care component alone is R2000<sup>152</sup> - R3000 per patient per annum and would increase as additional support and development activities are included. Whilst TEBA recognises that government must play a significant role in funding and that individuals will also have to make better provisions for their own care, employers are the key stakeholders whose approval and support is needed in order to get the project started.

One of the most potentially interesting aspects of this approach is that the development of a system of quality care, together with opportunities to prepare for eventual illness, may incentivise employees to establish their status sooner and take appropriate steps in recognition of this.

#### **4.1.6 Small Scale Mining**

Small-scale mining is expanding rapidly and often uncontrollably in many developing countries, employing large numbers of women and children in dangerous conditions and generating a workplace fatality rate up to 90 times higher than mines in industrialised countries. Small-scale mines account for as much as 80 to 100 per cent of gold, diamond or gemstone production in Burkina Faso, Mozambique and Niger and more than 50 per cent in Tanzania. It is also extremely important in Zimbabwe and Zambia.

As much as 80 per cent of small-scale mining falls outside any legal or regulatory framework, making it difficult - even dangerous - to control or monitor and all but impossible to introduce health programmes. It is commonly associated with “gold-rush” phenomena, where thousands of (mostly) male artisanal miners descend upon an area to work it for minerals. This is particularly problematic, because it is a short-lived activity. At the same time, the sudden wealth that may be accrued attracts alcohol sellers and prostitutes and brings with it the obvious spread of STDs and HIV/AIDS. There has been virtually no work to monitor or manage small-scale mining in southern Africa, particularly from a health angle.<sup>153</sup>

#### **4.1.7 Government Level**

As a region of the world, southern Africa has some of the weakest and least capacitated health authorities combined with governments that have, in many cases, been ineffective at managing the epidemic. For instance, in September 1999, the UN convened a conference on AIDS in Africa in Lusaka. None of the 15 invited African heads of state bothered to attend, with the host-country president, Frederick Chiluba, sending a vice president in his place. In Kenya, the president, Daniel arap Moi, did not endorse the use of condoms as a preventive until December 1999<sup>154</sup> - this, in a country where 13.9% of adults are infected and nearly a million people have died from AIDS. The controversy over South African president, Thabo Mbeki, and his stance over HIV/AIDS is well known and requires little additional comment. Common criticisms of government include:

- A focus on policy rather than implementation;

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<sup>152</sup> R1 = US\$0.1212 on 10 August 2001.

<sup>153</sup> Interview with Bernd Dreschler, Mining Projects Engineer, Intermediate Technology Development Group, Harare, 18 June 2001.

<sup>154</sup> His latest suggestion in 2001 was that Kenyans should abstain from sex for two years.

- Failure to involve key stakeholders in decision making, in particular NGOs;
- Piecemeal approach often involving the creation of separate bodies to deal with each aspect of HIV/AIDS, e.g. home-based care, counselling, etc.;
- Governments are only channelling small amounts of resources into NGOs;
- Failure to form partnerships with stakeholders, e.g. private sector, community, NGOs; and
- Mismanagement and the abuse of power are depriving citizens, in particularly the youth, of a future that they can look forward to, which robs them of the motivation to care about the way that they live their lives.

The effectiveness of government-run campaigns is hampered by the lack of a close relationship with the community and the perception that they represent outsiders. However, government can support community initiatives by providing access to resources that can then be used by stakeholders that are trusted.

Other than providing resources and skills development government, particularly at the local level, has a key role to play in providing land and facilities that are needed to allow initiatives such as orphanages to develop. However, they are frequently reluctant to do so and commonly use the lack of experience and specialist knowledge amongst stakeholders as a reason for declining support. Indeed, the general level of support that is obtained from government officials is still highly dependant on the attitudes and commitment of individuals, who are free to support or frustrate initiative at the individual and community levels. Paradoxically the same officials who are not motivated by HIV/AIDS nevertheless see that they should control initiatives once they have provided resources and are on occasion prepared to actively frustrate initiatives over which they feel that they have lost control. This does not bode well for the formalisation of programmes.

Education and interventions aimed at children are vitally important to achieve results and are both key responsibilities of government. Two critical messages that need to be entrenched in national curricula are:

- A sound and unbiased understanding of reproductive health; and
- The tools to allow children and young adults of both sexes to make informed sexual decisions.

Where this has been done, for example in Uganda, the youth have been shown to be one of the most important target groups and the only one that provides a genuine “window of hope” for an HIV-free future.<sup>155</sup>

The most consistent and fundamental problem faced by many NGOs and CBOs is the lack of funds, which manifests itself in a variety of ways. For example, the simple lack of transport is often cited as the main limiting factor preventing initiatives from expanding to meet their capacity to serve. With respect to funding, donors will come and go and government is the only entity that is truly there to stay. Offering free services can never be a substitute for providing funding and can result in measures being mistrusted, because solutions are being imposed. It is also common for services to address only a portion of the needs that exist, which often results in

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<sup>155</sup> Interview with Hans-Peter Wiebing, Coordinator, UNAIDS-Botswana, Gaborone, 18 June 2001.

wastage (e.g. vehicles that are allocated without budgets for maintenance, drugs that are dispensed without providing staff to monitor adherence, etc.).<sup>156</sup>

It is noteworthy that even where district level responses or ministerial responses are progressing well, national responses appear to struggle. The most likely source of problems is the fact that HIV/AIDS is a multi-sectoral problem.<sup>157</sup> A key recommendation is that at the government level HIV/AIDS has to be made a mainstream budget item, with the creation of full-time posts, not a special item. This is the only way to ensure sustainability.<sup>158</sup>

#### **4.1.7.1 Care Workers and Health Systems**

A general lack of resources is the major threat to government's ability to service public health demands. Particularly where the prevalence is high all governments will face enormous difficulties in up-scaling their health care systems to handle HIV/AIDS care requirements with uniform efficacy. Stigma remains endemic in southern African health care where HIV/AIDS is concerned and there is frequently a lack of sensitivity amongst care workers. Patients, especially young women and girls, find that when they go to clinics they get harassment (e.g. accusations of promiscuity) rather than support.<sup>159</sup> Currently, many of those HIV/AIDS related services that are available are compromised because, once identified as such, they become the focus for stigmatisation. One solution is to vigorously pursue the incorporation of social and health services into multi-purpose environments.

Public sector - private sector partnerships for the delivery of healthcare face further challenges. In South Africa some mining companies have experimented with constructing medical facilities that are then donated to the public health sector. Goldfields was one such company, which subsequently found that the facilities were not being fully utilised. In part this was because government was unable to provide adequate staffing, but it also reflected the fact that such facilities are only readily accessible to people living within easy walking distance (which is relatively short in the case of the sick).

#### **4.1.7.2 Legislation**

Most southern African countries have laws that are meant to safeguard individuals against discrimination on the basis of HIV-status. These eventualities can ostensibly be addressed by enacting laws that provide a more rigid framework for the protection of individual rights.<sup>160</sup> However, the issues are far from simple especially once one begins to try and reconcile the rights and responsibilities of individuals, employers, non-infected people and patients, for example:

- Pre-testing prior to sponsoring individuals for training addresses an employer's need to best allocate resources.

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<sup>156</sup> Interview with Clive Ashby, *ibid.*

<sup>157</sup> Interview with Lydia Matebesi, National Programme Officer (Health)/UNDP, Gaborone, Botswana, 15 June 2001.

<sup>158</sup> Interview with Mr Bekure Hawaz, AIDS/STD Unit, Ministry of Health AIDS/STD Unit, Gaborone, Botswana, 25 June 2001.

<sup>159</sup> Interview with Bawani Mutshewa, YWCA, Gaborone, Botswana, 14 June 2001.

<sup>160</sup> Interview with Christine Stegling, *ibid.*

### **Box 10 Potential problems with HIV/AIDS legislation: An example from South Africa<sup>163</sup>**

According to the Chamber of Mines of South Africa the wording of the South African Employment Equity Act, No. 55 of 1999, creates a legal framework that prevents public health interventions from effectively dealing with HIV/AIDS. The specific problem arises from the desire to safeguard individuals from discrimination and the desire to make employers prove that testing is necessary in the light of medical facts, employment conditions, social policy, the fair distribution of employee benefits or the inherent requirements of a job. This recognised the existence of situations where pre- and post-employment testing might be warranted, e.g. treatment of occupational exposure to HIV.

However, the solution captured in the Act is to require all HIV tests to be authorised by the Labour Court. Without this authorisation health-care workers are breaking the law by conducting an HIV test (or any test that might reveal HIV status, such as a CD4 count), even when the individual concerned has given their informed consent. The Act effectively outlaws testing, since it is likely to be impractical to obtain such approval for each HIV test, especially given the broad definition of an “employee”.

Although testing continues, it does so in a climate of uncertainty that is compromising employers’ efforts to combat STDs. It may take the Department of Labour two years to amend the Act. In the meantime it is up to an employer to lodge a test case and brave any associated implications. This example, which is yet to be resolved, simply highlights the complexities and potential pitfalls of drafting effective HIV/AIDS legislation.

- Informing a sexual partner, e.g. a spouse, takes into account the counsellor or health worker’s concern with the individual’s right to life.
- Testing an employee allows them to be protected against occupational exposure to HIV/AIDS.

To make matters worse there are also inconsistencies in some HIV/AIDS Laws (see Box 10), as well as in their application.<sup>161</sup>

However, this situation becomes significantly more complex when one is in an environment, such as southern Africa, where prevalence is exceedingly high. Another important area of legislation is that surrounding the sex trade. In many countries of the southern African region this is still illegal, which only serves to compromise efforts to manage a crucial high-risk group.<sup>162</sup>

Adherence to traditional beliefs is widespread in southern Africa and whilst this can be a beneficial source of support, there are also examples where this can lead to abuse and this is therefore an area where individuals need to be protected by policy and law.

#### **4.1.8 International Level**

Donors remain a critical source of funding to support HIV/AIDS initiatives. However, this creates significant problems:

- Smaller projects, particularly NGOs and CBOs, can easily become highly dependent on single donors and risk collapse when these pull out;

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<sup>161</sup> In Botswana, pre-employment testing of expatriates is routinely carried out by the public sector. Interview with Christine Stegling, BONELA, Gaborone, Botswana, 13 June 2001.

<sup>162</sup> Christine Stegling, *ibid.*

<sup>163</sup> La Grange MAC (2000) Letter to the Editor: Employment Equity Act – another HIV calamity, The Chamber of Mines of South Africa, discussion document, 3p.

### Box 11 The African Comprehensive HIV/AIDS Partnerships (ACHAP)<sup>164,165</sup>

In 2000 the Bill and Melinda Gates Foundation and Merck joined forces to launch ACHAP, a Botswana-based project that aims to develop a model for public-private sector partnerships. Each partner pledged US\$50 million over 5 years. Merck also made a commitment to offer free antiretroviral drugs over the same period. The initial objectives of the partnership are:

- To catalyse existing programmes so that they can work, particularly those that are community based;
- To provide HIV/AIDS education to all health care workers nationwide (in collaboration with the Harvard AIDS project);
- To provide HIV/AIDS education to all teachers nationwide (in collaboration with UNDP);
- To upgrade national medical testing facilities to meet national HIV monitoring demands (in collaboration with CDC); and
- To investigate the feasibility of ARV drug distribution (with McKinsey & Co).<sup>166</sup>

The ACHAP initiative has a number of fundamental strengths, the most important of which is its ability to work significantly faster than government. This is possible because it is well resourced, flexible and leanly staffed by highly motivated people (consultants on short-term contracts are used in preference to full-time staff). ACHAP is also unique in not being tied to any specific approach, which allows it to follow any initiative that offers the potential to deliver results, from working with traditional healers to supporting football clubs.

South Africa was approached first, but actually refused the offer to cooperate, which is why the programme eventually moved to Botswana, although the small population of the latter are acknowledged to be advantageous to efforts to find solutions. Ultimately, however, it was the combination of a clearly expressed political willingness to deal with HIV/AIDS and the lack of corruption that motivated the choice of location that was felt to offer the greatest probability of success.

- Funding is generally short-term (typically one year) and is often highly conditional; and
- Donors focus on national economic indicators without looking into the underlying situation, e.g. Botswana may be a middle-income country, but large numbers of people still live below the poverty line.

The focus of support needs to shift towards those groups that are delivering results. Whilst it is clear that governments, even within the region, have the scope to invest a greater proportion of their own resources into HIV/AIDS, the international community has to decide what it will do when this is not happening. The consequence at the moment is that many worthwhile and successful initiatives will continue to fail due to a lack of resources.

Interestingly, although most donors work independently it is not uncommon to find that they are tying their requirements to other stakeholders to create situations where action is frozen. Typical examples include allocating resources to agencies for distribution, but then not ensuring that this takes place; and requiring matching resources, which fail to materialise leaving initiatives unable to proceed

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<sup>164</sup> Interview with Dr Donald de Korte, *ibid*.

<sup>165</sup> Business Day (2001) <http://www.businessday.co.za/bday/content/direct/1,3523,828928-6078-0,00.html>

<sup>166</sup> McKinsey & Co conducted a similar piece of work in Uganda for UN-AIDS in Uganda. <http://www.mckinsey.com/firm/people/feature/index.asp>

UNDP is actively trying to strengthen government ministries, e.g. in Botswana, by conducting needs assessments, carrying out socio-economic studies, running workshops (including ones aimed at MPs and traditional leaders) and building capacity. In particular, the target has been to help develop ministerial and district responses, which generally revolve around the formation of multi-sectoral AIDS committees. UNDP is also active in establishing day-care facilities for orphans and smaller initiatives aimed at helping sex workers find alternative income-generating opportunities.<sup>167</sup>

#### 4.1.8.1 Organisational Structures

The number of groups that play significant international roles in HIV/AIDS is large and growing and includes the UN family, other international bodies such as the World Bank, developed-country aid programmes and international NGOs, to mention but a few.

UNAIDS deserves particular mention in that it has a truly global mandate conferred on it by the United Nations.<sup>168</sup> It is important to highlight that UNAIDS is only a programme, with relatively limited internal resources (typically there may only be one or two UNAIDS advisors posted in a country). It is sponsored by WHO, UNESCO, UNFPA, UNDP, etc., with a brief that includes:<sup>169</sup>

- Coordinating the UN's response to HIV/AIDS to ensure that duplication is avoided and maximise synergies between the different areas of responsibility of the constituent agencies (e.g. UNICEF works with children, WHO deals with health, etc.);
- Assisting countries to develop a national response to HIV/AIDS;
- Reviewing strategic plans in order to identify gaps;
- Advocating policy change;
- Developing, documenting and disseminating best practice information (in particular through the internet<sup>170</sup>); and
- Providing technical assistance through an international network of experts.

UNFPA is particularly active in working with youth in the 10-25 year cohort where it concentrates on widening choices for youths through a combination of training on reproductive health matters, condom distribution and the direct support of youth centres.<sup>171</sup> The main strategies that are pursued are:

- Policy advocacy
- Behavioural change and communication
- Provision of services
- Life and livelihood

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<sup>167</sup> Interview with Lydia Matebesi, *ibid.*

<sup>168</sup> <http://www.unaids.org/>

<sup>169</sup> Interview with Hans-Peter Wiebing, *ibid.*

<sup>170</sup> <http://www.unaids.org/bestpractice/collection/subject/index.html>

<sup>171</sup> Interview with Yoko Suzuki, Programme Officer, UNFPA, Gaborone, Botswana, 15 June 2001.

The relationship between funding and national economic indicators can be a problem. For example, middle-income countries such as Botswana are seeing their access to international resources being cut, even though huge gaps still exist between rich and poor and in the light of poorly developed health infrastructure.<sup>172</sup> This situation can create a real problem for NGO's, which frequently do not have access to funding from government and are almost totally reliant on donor funding. A similar situation is found to affect the World Bank's Multi-country AIDS Programme (MAP), which uses economic indicators to determine whether assistance is offered in the form of grants or loans, knowing full well that the latter effectively kills any chance of an intervention being launched.<sup>173</sup> As has been stated already, the international community still needs to decide whether it has reached a stage where the overarching priority is to take action.

#### **4.1.8.2 The Research Community**

A key goal of HIV/AIDS research is the development of a vaccine, which is being coordinated by the International AIDS Vaccine Initiative (IAVI).<sup>174</sup> The first trials of candidate HIV vaccines are underway and several new vaccine designs are being developed for clinical testing in the developing world through innovative public-private sector Vaccine Development Partnerships. IAVI plans to introduce 25 vaccine designs of which 6-8 will go to trial by 2007.<sup>175</sup> However, the implementation of a global eradication programme will still take decades.

Other, non-vaccine, HIV/AIDS research covers an extremely diverse range of fields. This is partly due to the variety and complexity of factors that play a role in transmission, but also relates to the increasing availability of funding for HIV/AIDS-related work. HIV/AIDS research is characteristically highly multidisciplinary. Though this presents challenges, for example in coordinating groups whose methodologies and objectives may be very different, it also generates enormous opportunities to generate highly original solutions.

Until prevention and care solutions are found that can turn HIV/AIDS control into a routine exercise, there will be a need for research organisations to be actively involved in the implementation, monitoring and evaluation of programmes. Partnerships involving researchers can benefit from their analytical and development skills, which are not generally available to the same extent in other stakeholders. Research groups, in turn, are also highly dependent on the resources, infrastructure and cooperation of other stakeholders.

The challenge facing organisations that are funding interventions is to accept that collaboration with research groups is important and that it will require programmes to be designed to allow the collection of quality data. This inevitably means that additional resources are needed,<sup>176</sup> but must be weighed against the benefits that will be derived from gaining a better understanding of how programmes achieve their results.

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<sup>172</sup> Ibid.

<sup>173</sup> Interview with Kate Kuper, Investment Officer, Mining Department, IFC/World Bank, Washington DC (interview conducted in Johannesburg, South Africa), May 2001.

<sup>174</sup> International AIDS Vaccine Initiative <http://www.iavi.org/>

<sup>175</sup> IAVI Scientific Blueprint 2000, [http://www.iavi.org/pdf/IAVI's\\_Scientific\\_Blueprint\\_2000.pdf](http://www.iavi.org/pdf/IAVI's_Scientific_Blueprint_2000.pdf)

<sup>176</sup> Interview with Dr Alison Grant, London School of Hygiene & Tropical Medicine, 6 June 2001.

### Box 12 Research-driven interventions in SMEs: An example from Zimbabwe<sup>178</sup>

The Wellcome Trust recently initiated a 3-year project in Harare, Zimbabwe, to investigate primary health care in SMEs. Approximately 24 factory sites are participating in a study that evaluates the cost-benefit relationship that can help SMEs choose and implement simplified occupational health services available in larger companies, within their more limited resources. The main components of the programme are:

- To establish basic “clinics” (i.e. a room with water, couch, basic equipment, secure storage)
- To develop standard guidelines for syndromic management of common conditions
- To encourage nurses to take samples and refer these
- To investigate the potential for sharing resources, e.g. nursing staff, between companies
- To provide facilities for rapid testing
- To administer TB prophylaxis
- To encourage VCT (one site will have VCT facilities, the others will use a voucher system to promote VCT and to reduce waiting times)
- To monitor performance indicators between sites (e.g. absenteeism, productivity etc.)

It is noteworthy that such an approach allows a much wider range of issues to be addressed than the simple choice of the most appropriate health care service model. TB treatment can be used to investigate treatment issues such as effectiveness and adherence, which are relevant to other infections such as HIV, and offers a potential model for HIV/AIDS care, including ART. An effective, accessible and trusted health facility also generates the sort of trust that is a critical prerequisite for promoting VCT.

By bringing together researchers, donors, companies and of course employees, the project provides an arrangement from which each stakeholder can benefit. However, the research element is the key element without which the effectiveness of the various intervention measures cannot be established.(i.e. the monitoring of indicators such as absenteeism, productivity, comparisons between sites etc.) is essential if the various intervention elements are to be evaluated.

Mining companies have a history of partnership in medical research and have, in South Africa at least, played a major role in the study of occupational health and TB.<sup>177</sup> The ability to monitor groups accurately and easily is critical to research and this is a major advantage that companies in general have with respect to their employees. Large mining companies, in particular, benefit from well-developed health services that provide essential infrastructure for HIV/AIDS research.

For example, the Ernest Oppenheimer Hospital in Welkom, which is part of the Anglo American group health services, is shortly to become an accredited HIV/AIDS vaccine-testing centre.<sup>179</sup> Such accreditation brings opportunities to participate in cutting-edge research and development and the possibilities for stakeholders associated with these organisations to be amongst the first to benefit from innovations.

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<sup>177</sup> Interview with Dr Richard Hayes, Professor of Epidemiology & International Health, LSHTM, London, 7 June 2001.

<sup>178</sup> Interview with Dr Liz Corbett, Wellcome/USAID, Harare, Zimbabwe (interview conducted at Aurum Health Research, July 2001).

<sup>179</sup> Interview with Dr Gavin Churchyard, *ibid*.

### **Box 13 The Lechabile Project: Community-based intervention amongst high-risk women.<sup>180</sup>**

Anglo Gold commissioned a survey in 1995 to investigate the reasons for high HIV and STD prevalence within the mining communities around Welkom in the Free State of South Africa. The results indicated that the single-sex hostels system was driving demand for sex between mineworkers and non-marital partners and that this was associated, in particular, with a core group of highly mobile sex workers. Whereas mineworkers had access to medical services these women did not. The survey also identified a lack of STD awareness amongst mineworkers as well as finding that women were being put off using available treatment opportunities because of highly judgemental attitudes amongst nursing staff. A decision was made to fund a project (although additional resources for peer educator training were obtained from the Ministry of Health) to provide peer education and STD treatment to high-risk women on the basis of the significant savings that were predicted by modelling (using AidsCAPs AVERT software). The main approaches included:

- Peer educators were recruited and trained from amongst the high-risk women, as the target group was found to be unapproachable to other individuals. These peer educators also acted as models for the benefits of the treatment programme.
- Permanent and mobile clinics were set up offering training, condoms and treatment.
- An anonymous card-based registration system was established, which allowed clients to attend follow-up treatment sessions at any of the stations, as well as facilitating tracking.

Several important issues emerged from this intervention:

- The resident community was, and still is, hostile towards the core group of sex workers. This is partly because many of the women come from outside the local environs, some even from other countries in the region.
- Some women continue to engage in sex work even where they are in stable relationships with mineworkers (so-called “town wives”), but this may be unknown to the man. Interestingly, such women may themselves consider other sex-workers in a negative light.
- Illegal brothel owners were also approached with mixed responses. Some were positive on the basis that participation in the programme could enhance their reputation for safety. Those that rejected approaches were usually denying their activities.

has been funding a project aimed at providing PPT to women at high risk in the communities around Welkom in South Africa. There are currently around 2000 women involved in the programme.

The impact of the intervention was modelled using AVERT (see Section 4.2.3), which confirmed that PPT to be a highly cost-effective measure.

## **4.2 Mining Sector HIV/AIDS Programmes**

Mining sector employers generally have high quality occupational health services that often go well beyond national statutory requirements in order to meet international health and safety standards. They typically provide accident and injury services, monitoring and treatment for chronic or reportable conditions (e.g. silicosis, TB), facilities for routine medical consultation and referral. Some hospitals offer genuinely world-class equipment and surgical capacity.

Interestingly, hospitals and medical services that were once a source of considerable pride are in some cases being devolved in order to reassure patients that their treatment is independent of their employer and reduce fears that they may be discriminated against.<sup>181</sup> The irony is that it is these same facilities and their

<sup>180</sup> Interview with Stori Ralepeli, Lechabile Project Manager, Welkom, July 2001.

<sup>181</sup> Interview with Dr Gavin Churchyard, *ibid*.

#### **Box 14 Encouraging the HIV-positive to take early retirement.**

Several mining companies are investigating innovative methods to reduce the impact of HIV/AIDS on the families of mineworkers who are unable to continue working.

At Lonmin's Western Platinum operation HIV-positive employees who are faced with medical boarding can nominate candidates for consideration as replacements. This provides a potentially important opportunity for the benefits of employment to remain within the immediate or extended family of the affected person. The impact of the loss of income is therefore mitigated. This solution is, however, only likely to be practical for jobs that do not involve high levels of skills.<sup>184</sup>

Other mines have considered offering a combination of retraining and rescheduled benefits in order to encourage HIV-positive employees to take early retirement whilst they are still well enough to pursue alternative income-generating activities at their homes. A portion of the potential savings that the employer makes from reducing the direct and indirect costs of sickness at the workplace and by improving succession planning, can thus be transferred to the employee as an incentive.<sup>185</sup>

professional staff, which were the first to notice HIV/AIDS impact and motivate for action, often building on existing, successful and sometimes very large TB- and STD-related programmes.

International organisations, such as the CDC and other research groups, have played an important role in helping establish employer-based HIV/AIDS programmes. The combination with the private sector is a very powerful tool for rapid implementation as shown by the fact that AngloGold were able to train staff and establish their first HIV/AIDS wellness clinic within 9 months.<sup>182</sup> The relatively controlled nature of the mining workforce provides a very suitable environment for the collection of high quality data, which is essential for research. This is one of the main reasons why international donors and research institutions have been prepared to support such mine-based HIV/AIDS interventions, up to and including registering mines as accredited HIV vaccine testing locations.<sup>183</sup> Such situations will, if allowed to continue, lead to considerable benefits ranging from improved public perceptions, enhanced access to innovative solutions and greater opportunities for cost sharing.

The benefits of this type of cooperation were recognised prior to HIV and mines have in the past played an important role in the study of other infectious diseases, e.g. TB, it is nevertheless an important example of the types of mutually beneficial collaboration that can exist. However, this approach is not without problems, in particular because resources have to be allocated to ensure that research quality data can indeed be collected, which may not be of equal interest to the mining sector partner. Such collaboration does, however, require fundamentally different perspectives to be reconciled between researchers who want AIDS-related results to remain in the public domain, and companies that are inclined to view any investments in a more commercial light.

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<sup>182</sup> Interview with Dr Alison Grant, *ibid.*

<sup>183</sup> DfID and the UK-based Wellcome Trust have support research and HIV/AIDS interventions at Anglo Gold, *ibid.*

<sup>184</sup> Interview with Charles Kendall, People Services Manager, Westplats North/Lonmin, Mooi-nooi, South Africa, March 2001.

<sup>185</sup> Interview with Dr Andre Bester, *ibid.*

### 4.2.1 Funding Issues

In most cases employers have had to fund HIV/AIDS interventions with little or no contribution from employees or government. This is one of the reasons why the implementation of HIV/AIDS programmes is slow, localised and rarely comprehensive. Costs can vary enormously depending on the breadth and depth of the interventions that are chosen; yet companies cannot simply justify their expenditure in terms of a direct gain. Most current investments do not even maintain the status quo and are simply slowing the rate at which conditions get worse as employees' productive lives are shortened and health care costs rise.

Several mining companies, but by no means the majority, have tried to quantify the impact of HIV/AIDS on their business in order to identify cost-effective prevention and care strategies. Those that have done so are often reluctant to release detailed results, because of the sensitive nature of such information.<sup>186</sup> One that did was Goldfields, who found – as a result of extensive actuarial modelling – that the costs of Voluntary Counselling and Testing (VCT) and wellness programmes (TB and STD) could be completely offset as long as major healthcare costs were delayed by one year or more, or if incidence could be reduced by a few percentage points.<sup>187</sup>

Regardless of such arguments, the financial resources available for HIV/AIDS initiatives will depend substantially on the current profitability of individual mines, which is in turn linked to commodity price cycles. Marginal mines and those exploiting commodities with low margins and widely fluctuating prices therefore have limited scope to fund HIV/AIDS programmes. The cost of employee benefit entitlements is an additional factor that needs to be taken account of. Balancing all of these factors is not only complex, but also highly contentious.

One particular cause of concern is the need to balance the costs of prevention and care of productive members of the workforce against those of providing benefits and care to the medically boarded. Medical treatment costs escalate towards the latter stages of AIDS, with perhaps 80% being incurred during the final 2 weeks of life. This places an enormous strain on available resources and begs the question of where resources can be optimally applied. Mining companies and unions are beginning to address and will need to reconcile the fundamental need to maintaining workforce productivity and the desire to maximise lifelong benefits without disadvantaging the economically active workforce.<sup>188</sup> Mandatory individual benefit schemes are likely to be a key element of any solution.

In terms of savings potential, TB and STD interventions are the two most significant measures (condom distribution and IEC campaigns are important, their efficacy has already been called into question). They also have the advantage of being easier to monitor and assess in terms of cost-benefit. TB is widely considered to be the most important HIV-related disease. The timely and effective treatment of latent TB is critical, not only because of the high costs of treating active TB, but also because active TB accelerates the progression from HIV to AIDS, in some cases more than

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<sup>186</sup> Two of the comments that were made included an estimate that overall labour costs could increase by 15%, with a result that the life of marginal mines could be reduced by half.

<sup>187</sup> Interview with Dr Andre Bester, *ibid*.

<sup>188</sup> Day et al. (2000).

halving life expectancies.<sup>189</sup> A vicious cycle also develops between HIV and TB, with HIV-infection increasing TB incidence rates more than 10-fold,<sup>190</sup> which in turn greatly increases the TB infection pool within self-contained mining communities.

#### 4.2.2 Modelling the Economic Impact of HIV/AIDS

Relatively little published data exists on the economic costs of HIV/AIDS in the occupational setting. The difficulty of estimating the cost of an individual infection lies in the need to combine direct costs (e.g. health care) and indirect costs (e.g. lost production, replacement and training), with other less quantifiable effects (Table 7).<sup>191</sup> It is rare for data from clinics and hospitals as well as insurance and employment records to be systematically collected let alone subjected to an integrated analysis. Modelling continues to rely heavily on assumptions, particularly concerning transmission and incidence.

**Table 7 Progression of cases and costs of workforce HIV/AIDS.**<sup>192</sup>

Progression of HIV/AIDS in the workforce	Economic impact of individual case	Economic impact of all cases
1. Employee becomes infected with HIV virus	<ul style="list-style-type: none"> <li>No costs to company at this stage</li> </ul>	<ul style="list-style-type: none"> <li>No costs to company at this stage</li> </ul>
2. HIV/AIDS-related morbidity begins	<ul style="list-style-type: none"> <li>Sick leave and other absenteeism increase</li> <li>Work performance declines due to employee illness</li> <li>Overtime and contractors' wages increase to compensate for absenteeism</li> <li>Use of company's on-site health clinics increases</li> <li>Payouts from medical aid schemes increases</li> <li>Employee requires attention of human resource and employee assistance personnel</li> </ul>	<ul style="list-style-type: none"> <li>Overall productivity of workforce declines</li> <li>Overall labour costs increase</li> <li>Additional use of medical aid benefits causes premiums to increase</li> <li>Additional medical staff must be hired at the company's health clinics</li> <li>Managers begin to spend time and resources on HIV-related issues</li> <li>HIV/AIDS interventions must be designed</li> </ul>
3. Employee leaves workforce due to death, medical boarding or voluntary	<ul style="list-style-type: none"> <li>Payout from death benefit or life insurance scheme is claimed</li> <li>Pension benefits are claimed by employee or dependants</li> <li>Other employees are absent to attend funeral</li> <li>Funeral expenses are incurred</li> </ul>	<ul style="list-style-type: none"> <li>Payouts from pension fund cause employer and/or employee contributions to increase</li> <li>Returns on investment in training are reduced</li> <li>Morale, discipline, and concentration of other employees are disrupted by</li> </ul>

<sup>189</sup> A study conducted in Botswana showed a average life expectancy of 33 months for HIV-positive who develop active TB (interview with Dr Euan Lee, CDC/BOTUSA, Gaborone, Botswana, May 2001).

<sup>190</sup> A study conducted in 1998/99 showed TB-incidence to increase from 0.6 per 100 person years in HIV-negative mineworkers to 8.7 per 100 person years in HIV-positive mineworkers [in: Day et al. (2000).ac.za/aids/dec2000/hivprevention.htm].

<sup>191</sup> Interview with Dr Chris Venter, *ibid*.

<sup>192</sup> Whiteside A and Sunter C (2000) AIDS: The Challenge for South Africa, Human & Rousseau Tafelberg, pp110.

Progression of HIV/AIDS in the workforce	Economic impact of individual case	Economic impact of all cases
resignation	<ul style="list-style-type: none"> <li>• Company loans to employees are not repaid</li> <li>• Co-workers are demoralized by loss of colleague</li> </ul>	frequent deaths of colleagues
4. Company recruits a replacement employee	<ul style="list-style-type: none"> <li>• Company incurs costs of recruitment</li> <li>• Position is vacant until new employee is hired</li> <li>• Costs of overtime wages increases to compensate for vacant positions</li> </ul>	<ul style="list-style-type: none"> <li>• Additional recruiting staff and resources must be brought in</li> <li>• Wages for skilled (and possibly unskilled) employees increase as labour markets respond to the loss workers</li> </ul>
5. Company trains new employee	<ul style="list-style-type: none"> <li>• Company incurs costs of pre-employment training</li> <li>• Company incurs costs of in-service training to bring new employee up to level of old one</li> <li>• Salary is paid to employee during training</li> </ul>	<ul style="list-style-type: none"> <li>• Addition training staff and resources must be brought in</li> </ul>
6. New employee joins workforce	<ul style="list-style-type: none"> <li>• Performance is low while new employee comes up to speed</li> <li>• Other employees spend time providing on-the-job training</li> </ul>	<ul style="list-style-type: none"> <li>• There is an overall reduction in the experience, skill, institutional memory and performance of the workforce</li> <li>• Work unit productivity is disrupted as labour turnover rates increase</li> </ul>

One of the more thorough surveys illustrates this problem. It was conducted in 1999 at a sugar mill in Durban, South Africa. The company, Illovo Sugar, was similar to mining sector employers in that 98.7% of the workforce was male, with 60.5% living in single-sex hostels. The researchers made the following findings:<sup>193</sup>

- A prevalence of 26% with a median age of 40.5 years, 90% of whom were married (23% to more than one wife), with a median of 6 dependants;
- 98% of HIV-positive employees were unskilled or semi-skilled and 80.5% had CD4 counts below 500;
- Historical records indicated that on average 27.73 days were lost to illness per year for each of the last two years of employment at an average cost of R8463.73 per year.

Although the results provided a good review of past events, the authors noted that the delay between HIV and AIDS would significantly raise the impact on morbidity, mortality and costs as the epidemic matured. Assessments of past impact, however precise, are therefore a relatively poor guide to future events and might be as much as an order of magnitude too conservative.

<sup>193</sup> Morris CN, DR Burdge and EJ Cheevers (2000) Economic impact of HIV infection in a cohort of male sugar mill workers in South Africa, The South African Journal of Economics, Special Edition Volume 68(5).

### 4.2.3 Numerical Models

Models are import management tools for evaluating scenarios, despite the limitations of projection methodology and the assumptions that are made. There are still fundamental difficulties in reconciling short-term projections of the type needed to evaluate intervention design with long-term projections used for strategic planning. But as a general observation, modelling suggests that where measures result in an extension of the individual's working life by three years can break-even, although this varies depending on the mix of skilled and unskilled labour that is employed.

**Table 8 AVERT Modelling of an STI intervention: Assumptions and results for a 9-month preventative STI intervention.**

<b>Assumptions</b>	<b>Scenario 1</b>	<b>Scenario 2</b>	<b>Results</b>	
Avg. annual partners (women)	40	32		
Avg. annual contacts per partner (women)	10	10		
Avg. annual contacts (miners)	4	3.2		
Avg. annual contacts per partner (miners)	10	10		
GUD prevalence	10%	7%		
Non-GUD prevalence	25%	17%		
Condom use	13%	29%		
<b>Results</b>			<b>Difference</b>	<b>Percent</b>
Probable HIV infections (women)	103	62	41	-40%
Probable HIV infections (men)	405	209	196	-48%

HIV/AIDS programs typically measure progress by assessing changes in behaviour, but financial, logistical, and technical constraints usually make it impossible for them to quantify the extent to which a prevention intervention reduces HIV transmission. This is one area where modelling can help. One such computer programme is AVERT, which was developed by the AIDS Control and Prevention (AIDSCAP) project to estimate the number of infections that would be averted by preventative STI treatment.<sup>194</sup> It combines epidemiological data and estimates of transmission probabilities to translate the effects of behaviour change into differences in the numbers of new HIV infections. AIDSCAP researchers constructed pre- and post-intervention scenarios for a preventative STI intervention conducted for Harmony mining company in South Africa. Information was collected on STI test results, numbers of sexual partners, numbers of sexual contacts per partner, overall prevalence of ulcerative and non-ulcerative STIs, and condom use.

Table 8 shows an example of the comparisons that the model allowed. In the Harmony example, the project goals (50 percent condom use in commercial sex and an 80 percent reduction in STI rates), if achieved, were expected to result in a 48% reduction in the number of new HIV-infections during the project period. From this, it was possible to conduct a cost-benefit analyses that showed that for each dollar spent on presumptive treatment and peer education, the mining company had saved more than eight dollars in treatment costs for HIV-related illnesses among its

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<sup>194</sup> Family Health International (1997) AIDS Control and Prevention Project August 21, 1991 to December 31, 1997 Final Report Volume 1, <http://www.fhi.org/en/aids/aidschap/aidspubs/special/final/capfnl10.html>

### Box 15 Integrating HIV prevention and care: Experience from the South African mining industry<sup>197</sup>

Over the past 4 years AngloGold<sup>198</sup> has been actively developing a model for integrated HIV prevention and care programme in close collaboration with the London School of Hygiene and Tropical Medicine.<sup>199</sup> The programme is based at the Ernest Oppenheimer Hospital in Welkom, South Africa, and is managed by Aurum Health Research (a wholly owned subsidiary of AngloGold). The key elements of this programme are:

- Anonymous HIV screening surveillance
- Active promotion of VCT
- A specialist clinic offering preventative therapy against opportunistic infections for employees infected with HIV
- Provision of sexual health care service for a core group of women at high risk of sexually transmitted infections and HIV (which has been shown to be extremely cost effective)

This ongoing project has demonstrated that mining companies can offer a higher standard of HIV prevention and care than the public service. It has also highlighted the way in which a mine's unique situation can allow it to implement novel awareness and preventative strategies.

The prevention clinic, in particular, has very high levels of acceptance (98%), which strongly supports the importance of such initiatives as motivating factors. What has also emerged is the need for the mine to acknowledge the role of employees, communities and, especially, PLWA, in dealing with HIV/AIDS, in addition to providing them with financial and logistical support.

VCT centres and wellness clinics, in particular, have emerged as potentially critical centres for forming partnerships between mine- and community-based initiatives and allowing a wider population to be reached.

employees. This conclusion persuaded the Harmony Mine management to continue and expand the intervention.

Researchers at the Boston University Centre for International Health<sup>195</sup> are involved in an ongoing project to model the economic impact of HIV/AIDS on southern African companies in different sectors and workforce sizes (from <1000 to >20000) and segmented by population group, sex, age cohort and job level.<sup>196</sup>

The main cost generators (based on a median survival time of 7 years from HIV infection to death) were:

- Morbidity-related costs incurred during years 1-6 after infection (the analysis considers productivity, absenteeism, supervisory requirements, overtime and casual labour wages)
- Termination-related costs incurred during years 6 or 7 (the analysis considers benefit payments and market impacts on insurance premiums)

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<sup>195</sup> Rosen S, JL Simon, DM Thea and JR Vincent (2000) Care and treatment to extend the working lives of HIV-positive employees: calculating the benefits to business, South African Journal of Science, Vol.96 No.6, pp300-304.

<sup>196</sup> Preliminary results (January 2001), based on modelling for two scenarios, were provided by Dr Sydney B Rosen.

<sup>197</sup> Day JH, S Charalambous, AD Grant & GJ Churchyard (2000) Integrating HIV prevention and care: Experience from the South African mining industry, AIDS Bulletin, pp.4-7. <http://www.mrc.ac.za/aids/dec2000/hivprevention.htm>

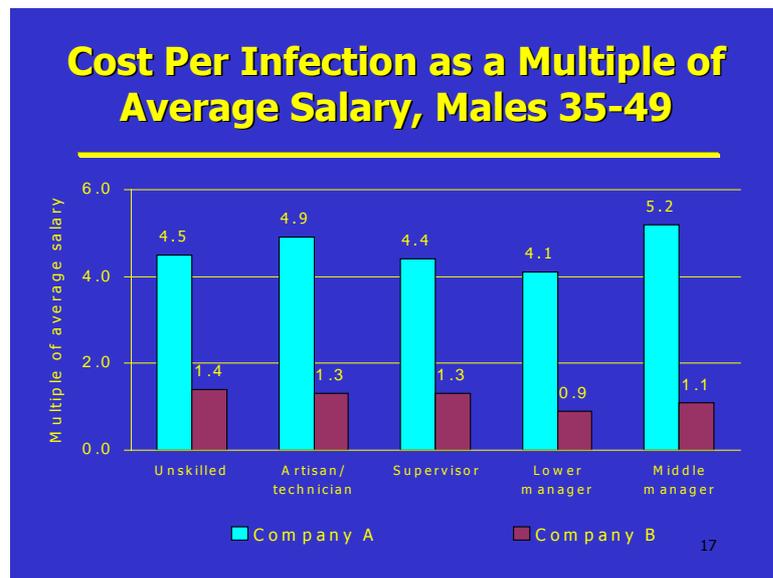
<sup>198</sup> <http://www.anglogold.com>

<sup>199</sup> <http://www.lshtm.ac.uk>

- Replacement costs are incurred during years 6-8 (the analysis considers recruitment and training costs)

Factors that were not considered included: potential costs arising from the impact of HIV/AIDS on market wage levels, the direct costs of HIV/AIDS programmes, potentially increased management burden and the indirect costs of losing workplace cohesion and workforce experience. Consequently, the analysis tends to be conservative.

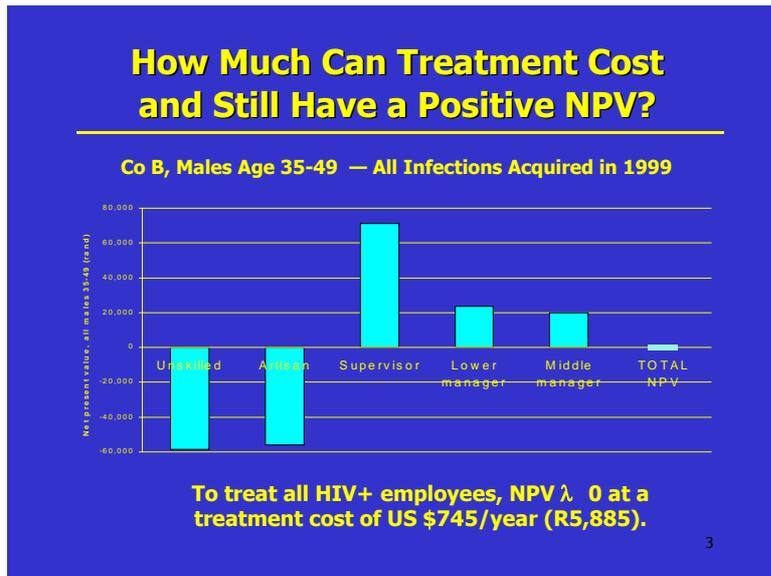
As with all numerical models, the key determinant of the results is the incidence projection that is used, since this forms the basis for calculating the number of new HIV/AIDS infections in future years. The Boston group assumed that incidence peaked in 1999 and is now declining. In this scenario, HIV prevalence peaks and stabilises around 2002/3 and AIDS-mortality around 3 years later.



**Figure 4 Boston Centre for International Health HIV/AIDS Model: Projected cost per HIV infection.<sup>200</sup>**

Initial results for two scenarios indicate that each HIV infection can cost between 0.9 and 5.2 times the individual's average salary (Figure 4). The overall impact of HIV infections is estimated to lie between 1.9% and 6.3% of total salary costs, with the greatest impact being felt amongst unskilled labour and artisans, where costs can reach 12% of total salaries. The main factor driving up costs is the type and structure of benefits. Pension funds with defined benefits are considerably more costly than provident funds, which cap total benefit payments and allow individual benefits to fall. Other factors leading to higher costs include: whether companies use medical aid schemes rather than company clinics, the level of recruitment and training, capital intensive processes and the associated increases in labour productivity and salaries, and the use of permanent employees (with full benefits) as opposed to subcontracting.

<sup>200</sup> Companies: (A) Heavy industry sector with a workforce of >20000, and (B) Agricultural sector with 5000-10000 employees, *ibid*.



**Figure 5 Boston Centre for International Health HIV/AIDS Model: Cost-benefit analysis for ART.<sup>201</sup>**

Companies can significantly mitigate the costs of HIV/AIDS by reducing benefits, outsourcing tasks (especially unskilled ones) and substituting capital for labour. In effect shifting the burden of HIV infections from the private sector onto households and the public sector. Numerical modelling allows those companies that are prepared to invest in HIV/AIDS prevention and treatment to evaluate the financial benefits of doing so. In the above examples, a one-year increase in the working life of an employee would reduce the cost of HIV infection by 5-10%, which translates into a saving of 9-26% of an individual's annual salary. This approach can be used as a basis for comparing and deciding between different interventions on the basis of their net present value. Figure 5 shows the results for an evaluation of ART in company B, showing how this varies depending on employee level.

### 4.3 Dealing with Stigma

Very few examples exist where stigma has genuinely been addressed, even though prevalence has reached levels where hardly anyone is without close relatives and friends who are HIV-positive or have died. The level of denial is truly astonishing. For example, in Botswana, a country in which there are an estimated 400000 HIV-positive people only 11 have publicly declared their status.<sup>202</sup> Even where prevention campaigns have been operating for several years it is common to find significant percentages of the workforce would prefer not to work with HIV-positive colleagues and would go as far as supporting compulsory testing in order to allow such individuals to be identified and ostracised.<sup>203</sup> This corroborates the finding that the main reason cited by employees for not wanting to come forward and openly acknowledge their status is fear of how colleagues (rather than management) will treat them.

<sup>201</sup> Ibid.

<sup>202</sup> Interview with Christine Stegling, *ibid.*

<sup>203</sup> Interview with Dr Chris Venter, *ibid.*

A key target group in tackling stigma is the youth and UNAIDS highlights the importance of addressing this group through education. Stigma compromises virtually all prevention and care initiatives.

Fears about confidentiality are a genuine problem. Although international precedents exist for name-based reporting of contagious diseases in other industrialised countries, this has been steadfastly rejected in southern Africa. There is a genuine concern that the region has yet to balance the rights of the infected individual against those of the healthy.

#### 4.4 Prevention

Prevention is the most fundamental element of disease control. Although some countries require certain categories of people to be tested prior to granting them entry,<sup>204</sup> large-scale testing and isolation of HIV-positive populations as practiced in Cuba is neither feasible nor acceptable.

Since, in southern Africa HIV is primarily transmitted through sex, this has been the primary focus of prevention strategies.<sup>205</sup> In reality, the situation is much more complex, with risk generators including behavioural, social, biological, political and economic factors, such as:

- Comparatively limited access to information and services regarding sexual and reproductive health, especially among youth<sup>206</sup>
- Ignorance of one's HIV status<sup>207</sup>
- Unwillingness to make behavioural changes that would combat spread of HIV/AIDS, even when educated about the disease,<sup>208</sup> e.g. little or no condom use
- Large proportion of the adult population with overlapping multiple sexual partners
- Large sexual networks and high rates of sexual promiscuity.<sup>209</sup> Migrant workers in particular have become a conduit for spreading HIV/AIDS from urban to rural areas<sup>210</sup>
- “Age mixing”, primarily of older men and younger women or girls
- Mass migration potentially over long distances, which is often linked to the search for employment
- Lack of sexual and economic empowerment of women, in particular the subordinate status of women and their dependence on and control by men<sup>211</sup>
- High levels of sexual violence

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<sup>204</sup> Botswana has had such a policy in place for foreign workers since the 1990s.

<sup>205</sup> UNAIDS (2000) Aids Epidemic Update: December 2000. [http://www.unaids.org/epidemic\\_update/report\\_dec00/index\\_dec.html](http://www.unaids.org/epidemic_update/report_dec00/index_dec.html)

<sup>206</sup> Interview with Nelson Chisenga, *ibid.*

<sup>207</sup> Interview with Dixon Tembo, *ibid.*

<sup>208</sup> Interview with Alick Nyirenda, *ibid.*

<sup>209</sup> Interview with Dr MAC le Grange and Alick Nyirenda, *ibid.*

<sup>210</sup> Interview with Bernd Dreschler, *ibid.*

<sup>211</sup> Interview with Esnea Yebo, Copperbelt Electricity Company, Kitwe, May 16, 2001.

- A young and rapidly growing population (44% of sub-Saharan Africa, which is growing at 2.5% annually, is under the age of 15)
- High rates of sexually transmitted infections, for example, the WHO estimates that sub-Saharan Africa has the highest regional prevalence of each of the four main STIs that may be remedied: syphilis, gonorrhoea, chlamydia, and trichomoniasis<sup>212</sup>
- Low rates of male circumcision
- High viral loads aggravated by frequently changing sexual partners
- Poor public health infrastructures, e.g. annual per capita public health expenditures in the region ranged from US\$2 to US\$105 in 1997<sup>213</sup>
- Insufficient response by government on how to manage the crisis, e.g. South Africa, Zimbabwe<sup>214</sup>
- Social chaos due to poverty, conflict, political instability, corruption, ethnic persecution, natural disasters, food shortages, over-population, etc.<sup>215</sup>

Since past approaches in the region have singularly failed to halt the spread of HIV/AIDS, the trend is towards more holistic approaches that specifically broaden their focus away from behaviour change and address key non-biomedical factors that are linked to HIV, in particular widespread poverty.<sup>216</sup>

#### 4.4.1 Awareness and Peer Education

Mining houses, particularly in South Africa, have often been at the forefront of attempts to limit HIV transmission using HIV-awareness programmes. The pervasiveness of typical ABC or “three NOs”<sup>217</sup> campaigns can go as far as messages appearing on wage slips, bank statements and utility bills.<sup>218</sup> The almost total ineffectiveness of this approach is evident, ironically, in the very groups that have been consistently targeted, namely young adults and mineworkers, which steadfastly remain those amongst whom prevalence is highest.

Most KAP studies further confirm the limitations of IEC campaigns. One such study conducted after several years of intensive awareness initiatives by Debswana Diamond Company in Botswana recorded knowledge levels of 94%. Whilst at first sight encouraging, the same study revealed that 46% of the participants still engaged in high-risk practices.<sup>219</sup> This is not an unusual result and supports the view that messages need to change and become more positive.

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<sup>212</sup> Interview with Dixon Tembo, *ibid.*

<sup>213</sup> Interview with John Chanda, *ibid.*

<sup>214</sup> Interview with Frank Webster, Group Manager, Personnel and Public Relations, Rio-Tinto Zimbabwe, Harare, June 19, 2001. Interview with Dr MAC le Grange, *ibid.*

<sup>215</sup> Interview with Dr Clive Evian, *ibid.*

<sup>216</sup> Interview with Dr Vitalis Chipfakacha, *ibid.*

<sup>217</sup> This promotes responsible sexual behaviour in the under-15s through the following maxims: No sex before HIV testing; No sex without a condom; and No sex outside own cohort. *Ibid.*

<sup>218</sup> Interview with Alick Nyirenda, *ibid.*

<sup>219</sup> Presentation by Mrs T. Fantan, *ibid.*

### Box 16 Peer Approach to Counselling by Teenagers (PACT).<sup>223</sup>

The Botswana YWCA began its PACT programme in 1990 to address teenage pregnancy. It was recognised that stigma and cultural issues were preventing communication between teenagers and parents and that communication with peers, whilst common, was hampered by misinformation. PACT addressed this by focusing on training peer educators who, in turn, train others in their school or community. HIV/AIDS has now been incorporated into the PACT approach.

It is common to find that participants have high levels of knowledge, but that this is not leading to changes in attitudes or behaviour. PACT deals with this problem by emphasising, through direct exposure, what HIV/AIDS can do. Participants are actively involved in community activities to bring HIV/AIDS nearer to them, e.g. through hospital visits.

HIV/AIDS awareness messages tend to concentrate on the need to stay HIV-negative, without acknowledging that many men (and women) have not come to terms with the full extent of the behavioural changes they need to make to prevent HIV transmission. The urgent question is how to get people to be realistic about risk without arousing so much fear that they become fatalistic and feel that since there is no escaping infection they might as well enjoy life while they can. Such feelings are reportedly even more common in mineworkers whose daily work is difficult and dangerous.<sup>220</sup> Off the record, some of the larger stakeholders also indicate that they are resigned to the fact that in the absence of a cure, there is a limited amount that can be done, other than provide healthcare and drugs.

Peer education (usually accompanied by condom distribution) is without doubt one of the most important HIV-prevention strategies and is used on a global basis. Unfortunately, such programmes for the most part follow an information-based and biomedically-focused model that has repeatedly been shown to be of limited effect.<sup>221</sup> One of the most important investigations of mine-related HIV prevention, which evaluated peer education and community mobilisation, has been the Carletonville-Mothusimpilo project near Johannesburg in South Africa. What emerged from this was the need for peer education programmes to:<sup>222</sup>

- Recognise that sexual behaviour is a socially negotiated phenomenon and not just a rational individual decision based on facts about health risks;
- Provide individuals with the confidence to take control of their health and the ability to think critically about their behaviour; and
- Strengthen communities so that health-enhancing behaviour change is enabled and supported.

In this context it is useful to contrast two peer education programmes: the PACT programme produced by the YWCA in Botswana<sup>224</sup> and the “HIV/AIDS and the Law” programme produced by the South African National Union of Mineworkers.<sup>225</sup>

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<sup>220</sup> Interview with Mr Archie Palane, *ibid*.

<sup>221</sup> Interview with Dr Catherine Campbell, London School of Economics, London, 4 June 2001.

<sup>222</sup> Campbell C, C MacPhail and Mzaidume Z (2001) Peer Education and Community Mobilisation for HIV Prevention: Lessons from Carletonville, South Africa, Unpublished report to the U.K. Department for International Development.

<sup>223</sup> Interview with Bawani Mutshewa, *ibid*.

<sup>224</sup> YWCA (1996) Peer Approach to Counselling by Teens, Botswana, 113p. This resource was funded by the WHO, Swedish Embassy (SIDA) and the United Nations Fund for Population.

The PACT programme is not atypical in being strongly focused on the individual, even beginning with a “declaration of self esteem”. The rest of the programme presents examples of correct and incorrect behaviour and arguments for the former; only one page is devoted to networking and community projects.

The programme being adopted by the NUM addresses discrimination, marginalisation, stigmatisation and lack of respect for the human rights and dignity that can result from HIV/AIDS. It does so by concentrating on human rights, ethical and legal principles, and is consistent with NUMs objective of enabling the interpretation of company policy to ensure that HIV/AIDS status does not compromise an employee’s job security.<sup>226</sup>

#### **4.4.2 Prevention Primary Infection**

Avoiding primary exposure to HIV remains the principle means of prevention. Chemoprophylaxis is an important element of post-exposure management, but only in the workplace, e.g. health care employees who receive needle-stick injuries or when first aid procedures result in exposure to blood or mucous.<sup>227</sup> Post-exposure prophylaxis (PEP) with zidovudine (ZDV/AZT) can reduce the risk of HIV transmission through accidental exposure to blood by approximately 79% and of mother-to-child transmission (MTCT) by 67%. Whilst PEP is strongly supported for workplace-related exposure it is not advocated as a “morning after” type treatment.

In Botswana pregnant HIV-positive mothers are treated with AZT from the 34<sup>th</sup> week to delivery. Subsequent to birth the baby is treated with AZT for the first month and the mother is provided with infant formula for 6-12 months. This reduces MTCT from 35-50% to 10%.<sup>228</sup> MTCT is more widely supported than generalised antiretroviral treatment, e.g. by employers, because of the moral arguments surrounding the rights of the unborn child. However valid this argument may be, the issue of who will care for an HIV-negative child born of almost invariably HIV-positive parents, for whom similar life-saving treatment is unlikely to be available, remains an unanswered question.

#### **4.5 Care**

Once HIV prevalence exceeds 20%, as is the case in southern Africa, HIV/AIDS management has to change direction.<sup>229</sup> Prevention will remain an important goal, particularly amongst the youth and in MTCT, but the key challenge becomes one of ensuring that people living with AIDS are kept healthy and productive for as long as possible. Associated with this is the need to strengthen communities to deal with the AIDS-ill and, most worryingly, with AIDS orphans.

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<sup>225</sup> Aids Law Project (1997) HIV/AIDS and The Law, Aids Law Project and Lawyers for Human Rights, Witwatersrand, South Africa, 300p. (125ru3vi@solon.law.wits.ac.uk)

<sup>226</sup> Interview with Archie Palane, *ibid*.

<sup>227</sup> CDC (1996) Update: Provisional Public Health Service Recommendations For Chemoprophylaxis After Occupational Exposure To HIV, *MMWR*, Volume 45(22), pp.468-472.

<sup>228</sup> Interview with Dr A Banu Khan, National Coordinator, Botswana National Aids Coordinating Agency (NACA), March 2001.

<sup>229</sup> Interview with Hans-Peter Wiebing, *ibid*.

It is important to expand our concept of care to be holistic. Physical care alone is not enough. Improving an individual's quality of life requires them to have a positive state of mind, which is the result of emotional and psychological support.<sup>230</sup>

#### 4.5.1 Keeping People Living with AIDS Healthy

There are essentially three main elements in the therapy of AIDS. Firstly and foremost, the reduction of mass virus in the body, that is the viral load, by direct antiviral treatment of the HIV infection itself; secondly, the treatment of the indirect effects of HIV infection, that is the opportunistic infections and the HIV-associated tumours and thirdly, the reconstitution of the immune system which has been profoundly damaged by the infection.

During the early stages of HIV-infection high CD4 counts and low viral loads mean that individuals are generally asymptomatic. Indeed, this observation is fuelling the complacency that exists in many quarters even though it only reflects the long latent period of HIV/AIDS and the fact that the bulk of the infections in southern Africa are relatively recent. Things will soon worsen dramatically.

Given an asymptomatic period of 4-7 years, this means that 15% to 25% of the HIV-infected will move into the final phase of AIDS each year once the epidemic has reached a plateau. This equates to between 45 and 75 people in a group of 1000 people with 30% prevalence, becoming ill regularly or permanently each year.

Two-thirds of asymptomatic HIV-positive people will need advice on how to live healthily and the one third of symptomatic AIDS-sufferers will need active treatment and care. Huge levels of care intervention will be needed as each category numbers in the millions in southern Africa.

The key focal areas of so-called wellness programmes include:<sup>231</sup>

- Healthy nutrition;
- Limiting unhealthy practices, such as alcohol consumption and smoking;
- The importance of regular exercise;
- Awareness of opportunistic infections and how to avoid them, identify them and get them treated; and
- Reinforcement of safe sex messages to prevent HIV-transmission and further increases in the viral load.

The optimum timing of prophylactic treatment for opportunistic infections in HIV-infected patients is a matter of debate. In the African context TB-prevention is the primary focus although other opportunistic diseases are common (c.f. the definition of AIDS earlier). Informal post-test clubs that provide general support and advice have been an integral part of successful wellness programmes, e.g. The AIDS Support Organisation (TASO) of Uganda.<sup>232</sup> This approach is also being promoted by Aurum Health Research, which in collaboration with Anglo Gold is planning to

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<sup>230</sup> Interview with Clive Ashby, *ibid.*

<sup>231</sup> Interview with Dr A Banu Khan, *ibid.*

<sup>232</sup> <http://www.fao.org/dimitra/fr/query/detaorg.idc?Template=Detaorg&OrgID=807>

### Box 17 Employer provision of ART.<sup>234</sup>

In March 2001 Debswana Diamond Company in Botswana became the first employer in southern Africa to offer employees (including workers on contracts for longer than two years) anti-retroviral treatment in order to extend their productive life. Debswana has undertaken to pay 90% of ARV drug costs and the employee the balance, treatment for opportunistic infections is also provided. This benefit is irrespective of medical insurance, although insured employees are required to claim any benefits to which they are eligible first. This scheme is extended to one spouse (since they can infect their partner), but not to children and ceases when employment is terminated (it is not clear how it would continue after retirement).

HAART therapy is initiated when the CD4 count drops below 350, or earlier if warranted by opportunistic infections, and an independent contractor manages the treatment scheme. Debswana also operates a free MTCT programme. Other initiatives that are coupled with the company's care strategy include an anonymous telephone help-line. VCT is available through a free national network that is based the mine community (in a building supplied by the mine, on land provided by the government and with staff and funding provided by an NGO).

Currently, 39 employees are currently participating in this programme (28.8% of the 6000 workforce were HIV-positive in 1999). Notably, Debswana did not conduct a cost-benefit analysis prior to the introduction of the scheme, preferring to justify it as "doing what they think is best".

revitalise the entire peer counselling system so that peer educators will be specifically tasked with acting as resource persons.

#### 4.5.2 Antiretroviral Therapy

Antiviral drug development is still in its infancy. Many viruses are not amenable to therapy and it is often difficult to design drugs that are sufficiently selective to be therapeutically useful. Nevertheless, significant resources have been allocated to developing antiretroviral drug therapies for HIV/AIDS, with some success. A further complication with HIV/AIDS drug development, manufacture and distribution, has been the intense controversy surrounding their pricing and consequent lack of availability for the developing World (one recent event, in April 2001, involved 39 pharmaceutical companies dropping a lawsuit against a new South African law allowing the importation of less expensive, generic AIDS drugs).<sup>233</sup>

Antiretroviral therapy (ART) began with the use of zidovudine (AZT) in the mid-1980s. ART cannot eliminate HIV (except in the immediate post-infection period), but it can slow disease progression, prolong life, reduce the frequency and severity of AIDS-associated opportunistic infections, improve body weight and increase CD4 counts.<sup>235</sup>

Antiretroviral (ARV) drugs slow virus replication and the progression of HIV infection. There are three classes of antiretroviral drugs that are approved by the US Food and Drug Authority: NRTIs (Nucleoside Reverse Transcriptase Inhibitors), PIs (Protease Inhibitors) and NNRTIs (Non-nucleoside Reverse Transcriptase Inhibitors).<sup>236</sup> The main determinants of the choice and effectiveness of antiretroviral therapies are:

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<sup>233</sup> Nicol Degli Innocenti and David Pilling (2001) A Crack in the Resolve of an Industry: South Africa and the Drug Companies Have Changed Forever, Financial Times, London, 19 April 2001.

<sup>234</sup> Interview with Mrs Bekezela Mbakile, *ibid*.

<sup>235</sup> *Ibid*.

<sup>236</sup> HIV/AIDS Treatment Information Service (1999) HIV and its treatment: What you should know, <http://www.hivatis.org>

### Box 18 Alternative approaches to ART: Discontinuous Therapy.<sup>238</sup>

Research is beginning into structured treatment interruptions (STI) or pulsed therapy, where ARV drug treatment occurs for discrete periods, rather than continuously, for a number of reasons:

- STI provides opportunities for the body to develop an immune response to HIV
- Adherence is likely to be better
- Side effects and costs are reduced
- It is also anticipated that limited drug availability will inevitably lead to situations where a black market may develop, or where drugs are shared between infected persons (some of whom are eligible for treatment)

- **Drug combination** – ARV drugs are used in single, double or triple therapies.<sup>237</sup> However, because HIV is able to mutate relatively quickly into drug-resistant strains, single drug therapy is now only used to prevent MTCT. Double therapies are also relatively ineffective at long-term control. Only triple drug therapy (also known as Highly active antiretroviral therapy, or HAART) is capable of containing the HIV.
- **Timing** – Whereas the early use of single or dual-drug therapy when CD4 counts are still high may have no effect, early use of HAART may actually decrease the quality of life in asymptomatic patient and will certainly increase the risk of drug-resistance and raise costs. Until CD4 counts reach 350-500, healthy living and the pre-emptive treatment of opportunistic infections are the most effective approach.
- **Cost** – this is arguably the main factor in the southern African context. The annual costs of dual- and triple therapy are R15000-25000 and R35000-R50000, respectively, in South Africa, which places them beyond the reach of the general population. Negotiations are underway between development agencies, national governments and pharmaceutical companies to provide drugs more cheaply to developing countries (although some countries have been offered some ARV drugs free).<sup>239</sup> Once the additional costs of CD4 and viral load testing and increased personnel are added levels are unlikely to come below US\$1 per day, which is still beyond the reach of most public health budgets.
- **Distribution infrastructure** - even if drugs could be provided cheaply, most southern African countries lack the capacity and infrastructure to adequately administer ART through their public health systems (which involves secure dispensing facilities, regular measurement of CD4 counts and viral loads, and regular monitoring).

Furthermore, many of the interviewees indicated a fear that drug treatment tends to be seen as a cure and thus encourages reverting to high-risk behaviour.

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<sup>237</sup> Triple therapy is the preferred route and is commonly known as Highly Active Antiretroviral Therapy (HAART) and involves combinations of two NRTIs and one PI, two NRTIs plus one NNRTI, or two NRTIs plus two PIs.

<sup>238</sup> Interview with Dr Richard Hayes, *ibid.*

<sup>239</sup> Merck is providing five years of free ARV drugs to Botswana. Interview with Dr D. de Korte, *ibid.*

Finally, there is still relatively little known about the ability of individuals on ART to carry out physical labour of the sort required in many mining environments.<sup>240</sup>

### 4.5.3 Adherence

Failure to adhere to drug programmes has a number of consequences. In addition to reducing HIV suppression it can actually result in conditions that optimise the development of drug-resistant HIV strains. Negative side effects<sup>241</sup> and the complexity of the regimen<sup>242</sup> are two problems that may arise from any drug treatment, particularly where this is prolonged. Further barriers include:<sup>243</sup>

- The patient's relationship to the health care provider
- The patient's relationship to the disease
- The patient's relationship to the medication<sup>244</sup>
- The patient's characteristics, e.g. how proactive they are, how they interact with their health carers
- The nature of the illness
- The healthcare setting

Many of these barriers are significantly influenced by cultural and social factors, which must be mitigated if investment in ARV is to be fully realised. It is therefore essential for the evaluation of treatment barriers to be conducted as early as possible. One avenue being investigated is to integrate such studies into the VTC process.

## 4.6 HIV Monitoring

The availability of accurate data is the single most important tool for dealing with HIV and is the foundation upon which successful large-scale preventative programmes, such as the one in Uganda, have been built.<sup>245</sup> Without data it is impossible to establish the extent of the epidemic, to anticipate direct and indirect costs, to project additional recruitment or training requirements, or to assess the effectiveness of interventions.

Monitoring ideally involves tracking the HIV-status of a representative cohort over time. Tracker studies are expensive, require skilled staff, need captive populations and are therefore difficult to justify and execute in developing country settings. Nevertheless, they can provide very valuable data and have been undertaken by some mining companies, e.g. Lonmin Platinum, used them to quantify morbidity,

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<sup>240</sup> Interview with Dr Alison Grant, *ibid*.

<sup>241</sup> Achieving high levels of adherence to drugs that cause asymptomatic HIV patients to feel sick is a particular challenge.

<sup>242</sup> HAART may involve taking more than a dozen pills in a particular sequence, some on full and some on empty stomachs, etc.

<sup>243</sup> Interview with C. Sterkenberg, Aurum Health Research/Columbia University, Welkom, 28 June 2001.

<sup>244</sup> This may even include the way that it looks and is packaged.

<sup>245</sup> UNAIDS (1998) A Measure of Success in Uganda, UNAIDS Best Practice Collection, 98.8, <http://www.unaids.org/publications/documents/epidemiology/determinants/una98e8.pdf>

absenteeism and costs associated with HIV.<sup>246</sup> Tracker studies also offer an opportunity to investigate the circumstances underlying seroconversion.<sup>247</sup>

Anonymous sentinel surveillance is more common and involves testing groups who are usually being sampled for other purposes, primarily STD patients and women attending antenatal clinics. Although not precisely representative, sentinel results can be extrapolated to the population at large. Test kits cost around US\$3 each, which makes them too expensive to justify their use at national levels in developing countries.<sup>248</sup> But for employers the cost of comprehensive yearly or two-yearly surveys can be justified on the basis of the considerable strategic benefits that such data provides. Anonymous unlinked testing procedures can be designed to allow individuals to identify their own sample,<sup>249</sup> but given widespread concerns about confidentiality this is probably of limited value and may even impact on the accuracy of the survey.<sup>250</sup>

Issues regarding sentinel testing remain contentious, fraught with legal and ethical problems. Consequently, many mining companies do not have any immediate plans to introduce testing, even voluntary schemes. Recently, it was found that 18% of Zambia's Konkola Copper Mines workers were HIV-positive. The survey was based on the premise that it was necessary to help plan future operations and also to improve the health of workers. A total of 8,523 workers were tested: approximately 64 percent of workers at the mine.<sup>251</sup> The trade unions were solicited and supported the scheme. However, critics have subsequently pointed out that there was virtually no post-testing counselling and that the nature of the testing (i.e. anonymously) meant that no one knew who was HIV-positive and who was not. This caused profound anxiety amongst the miners.<sup>252</sup> The testing project was too quick and carried out with non-Zambian doctors. Obviously the idea was to understand the prevalence rate, but any management of HIV/AIDS needs to go beyond the physical and also recognise the psychological.

#### **4.6.1 Voluntary Counselling and Testing**

One of the greatest problems with HIV is the long period during which HIV-positive individuals do not manifest outward signs of infection. The best, and often only way to detect HIV infection is therefore to test a person's blood or saliva for the presence of antibodies to HIV.<sup>253</sup> Commonly used test methods are all accurate to greater than 99%, but non-invasive saliva tests are preferred – especially for data collection purposes - because they can give results in 10 minutes.<sup>254</sup> The use of blood tests based on the ELISA (enzyme-linked immunosorbent assay) - Western Blot

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<sup>246</sup> Interview with Charles Kendall, *ibid.*

<sup>247</sup> Dr Dave Barnes, Anglogold, South Africa, pers. Comm. November 2000.

<sup>248</sup> Interview with Dr Tom Kenyon, BOTUSA/CDC, Gaborone, Botswana, 25 June 2001.

<sup>249</sup> Participants are provided with two coded labels. One is attached to the sample and the other is kept and can be compared with published results.

<sup>250</sup> Interview with Dr Clive Evian, *ibid.*

<sup>251</sup> UN Integrated Regional Information Network (Nairobi) May 5, 2001

<sup>252</sup> Interview with Alick Nyirenda, *ibid.*

<sup>253</sup> Martin DJ and JGM Sim (2000) HIV antibody testing, *South African Journal of Science*, Vol. 96(6), pp272 – 274.

<sup>254</sup> CDC (1998) Update: HIV Counseling [sic] and Testing Using Rapid Tests – United States, 1995, *MMWR*, Vol. 47, No. 11, p211-215. <ftp://ftp.cdc.gov/pub/Publications/mmwr/wk/mm4711.pdf>

### Box 19 Collaboration in the delivery of VCT: The Tebelopele Initiative.<sup>258</sup>

The Tebelopele VCT initiative in Botswana is a good example of a collaborative multi-stakeholder project and was established with the overall goal of creating a network of free, anonymous VCT centres throughout Botswana. The government of Botswana and the CDC are the two main stakeholders. However, Debswana Diamond Company became an active partner in establishing VCT facilities in towns near its mining operations at Jwaneng (March 2001) and Orapa/Letlhakane (May 2001).

In both cases the Botswana government provided land, the mines funded the erection of buildings and the donor agency gave a commitment to financially support the centres for a 5-year period. Previously, these mines had been unsuccessful in getting employees to volunteer for testing and it was hoped that the presence of an independent centre that is also open to the general public and located off mine property, would encourage this to change. Importantly, company participation also benefits the larger community and not just its own employees.

combination remains the preferred approach for confirming HIV-positive status, but results take 1-2 weeks.

Voluntary counselling and counselling (VCT) is seen as the gateway to preventative care, because it allows individuals to know their status and receive a personalised message concerning the need to effect behavioural change.<sup>255</sup> VCT is also an integral component of MCTC campaigns. However, there are a number of major challenges that need to be acknowledged and tackled:

- **Barriers to testing**<sup>256</sup> - Various issues will prevent individuals from participating in HIV-testing. These include: stigma (see below), fears about confidentiality, lack of readily accessible testing opportunities, lack of incentivising treatment options, the time delay in receiving results (a problem especially with blood tests), the attitudes of health workers and even cultural beliefs.<sup>257</sup>
- **Voluntary principle** - It is internationally recognised that testing must remain voluntary. Currently, it is unlikely that individuals, miners' unions etc could agree to a formal scheme for repeated testing, particularly bearing in mind the often fractious and tense relationship that exists between labour and employers (i.e. in South Africa). Such an approach would nevertheless be useful in the context of southern African HIV prevalences.<sup>259</sup>
- **Stigma** - People remain reluctant to participate in HIV/AIDS testing, even for sentinel purposes, because of the stigma attached to anything relating to HIV/AIDS. However, there are strong indications that this can be overcome if individuals are given a sufficient incentive. The availability of wellness programmes and especially the prospect of antiretroviral treatment, have been directly tied to decreasing opposition to anonymous monitoring, e.g. at Debswana

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<sup>255</sup> Interview with Dr Tom Kenyon, *ibid*.

<sup>256</sup> Interview with Dr Gavin Churchyard, *ibid*.

<sup>257</sup> Barriers to blood sampling include fear of witchcraft or impotence, and even suspicion that blood is being sold. Interview with Cynthia Sterkenberg, *ibid*.

<sup>258</sup> Interview with Dr Tom Kenyon, *ibid*.

<sup>259</sup> The ILO is to issue a directive on confidentiality to employers together with guidelines for workplace VCT. Interview with Dr Liz Corbett, *ibid*.

Diamond Company,<sup>260</sup> and increasing VCT attendance, e.g. at Anglo Gold in South Africa<sup>261</sup>.

- **The “window period”** – As long as current behavioural trends continue a scientifically rigorous approach to testing would require all sexually active HIV-negative individuals to be tested every 3-4 months. This would result in substantial logistic and economic commitments.
- **The need for counselling** - Anonymous testing or testing done without extensive pre- and post-test counselling may be counter-productive. The psychological nature is crucial. One Zambian NGO has forcefully argued that testing without counselling backup is meaningless and may result in creating “worried wells” i.e. people who are negative but think they are positive and consequently become depressed and anxious. Such worried wells tend to self-diagnose and effectively think themselves into the grave.

Many of these same issues apply to other less controversial diseases. For example, TB testing, identification and treatment can bring enormous benefits. Yet observations suggest that even where all the barriers appear to have been met, a significant proportion of individuals never return to collect their test results and of those that do many fail to adhere to the treatment. This does not bode well for similar HIV/AIDS-related treatment interventions and the underlying reasons clearly still need to be better understood.

#### 4.6.2 The Implications of Testing for Counselling

Counselling is essential for dealing with the potential implications of test-results, but it has a variety of implications that tend to be underestimated. Individual counsellors at a VCT centre (or in any counselling setting) can only deal effectively with relatively small numbers of clients each day, perhaps as few as six. Most HIV campaigns currently have a “know your own status” message. Were this to gain widespread acceptance, it would create a demand for VCT amongst a large proportion of the sexually active population that would simply overwhelm capacity for testing and, more seriously also for counselling.

Some groups, such as the Zambian Copperbelt Health Education Project (CHEP), are even promoting the need for VCTC (volunteer, counselling, testing, counselling).<sup>262</sup> Organisations such as Kara in Zambia provide counselling around the testing of HIV/AIDS that involves counsellors working together with the clients to help them explore and handle problems.<sup>263</sup> The ability of counselling to provide emotional and psychological care, particularly to those who are HIV-positive, is critical in helping to provide them with a positive state of mind, which is essential.<sup>264</sup> As long as stigma prevents HIV-positive individuals from communicating with close family members, friends colleagues and the community at large, the potential demand for counselling will be large. Stigma also reinforces the need for counselling and testing to be seen as independent.

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<sup>260</sup> Interview with Dr Clive Evian, *ibid*.

<sup>261</sup> Interview with Dr Gavin Churchyard, *ibid*.

<sup>262</sup> Interview with Alick Nyirenda, *ibid*.

<sup>263</sup> *Ibid*.

<sup>264</sup> Interview with Clive Ashby, *ibid*.

The CDC, which runs VCT initiatives in Botswana, Kenya, Malawi, Uganda and Zambia (see Box 19), has decided for purely practical reasons that follow-up counselling cannot be incorporated into its mission. Its clients are simply given details of support groups.<sup>265</sup>

Most stakeholders have recognised that counselling services need to be expanded and are taking steps to train counsellors and trainers of counsellors. Unfortunately, as was outlined in section 4.4.1, this is generally not being approached in a community oriented or holistic manner. Counselling practitioners tend to emphasise the importance of education, social work experience and strong interpersonal and communication skills, which is not a common combination in southern Africa.<sup>266</sup>

The main approach to developing counselling capacity is to re-skill health workers,<sup>267</sup> placing additional demands on their time. This also ignores the widely held perception that many of the region's health care workers are judgemental, unsympathetic and too focused on personal issues to have the motivation for counselling work. Some experts feel that recruiting and training large numbers of lay counsellors, which is what the peer education system is doing, may simply aggravate problems by increasing the potential for poor counselling. One final problem is the tendency of counsellors to "burn out". Support networks for counsellors will be another requirement.<sup>268</sup>

#### **4.7 Preventative Treatment of Opportunistic Infections**

Successes in the prevention and treatment of opportunistic infections have radically improved the prognosis for PLWA in the developed world, who can now expect to live relatively good lives. For example, recent studies in the United Kingdom show that children born HIV infected can live until 20 years of age with appropriate health care. In these circumstances, HIV/AIDS is managed as a chronic disease rather than a life-sentence. Unfortunately, when treatment is unavailable, opportunistic diseases become fatal. By far the most important opportunistic infection in the developing world is tuberculosis. The reality of the southern African situation is that the majority of the population cannot afford treatment for opportunistic infections and in many cases the healthcare facilities themselves lack the resources to provide appropriate treatment.

The management of opportunistic infections should be regarded as an integral part of efforts to reduce HIV prevalence. TB and malaria do so by compromising and suppressing the immune system (TB infection also dramatically accelerates the course of HIV infection<sup>269</sup>). STDs increase transmission rates directly by damaging the integrity of the skin and mucous membranes. In the southern African context high rates of STD infection are usually also a good indicator that the risk of HIV/AIDS infection is high. This is why AIDS interventions should always target STDs along with other risk reduction strategies.

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<sup>265</sup> Interview with Dr Tom Kenyon, *ibid.*

<sup>266</sup> Interview with Alick Nyirenda, *ibid.*

<sup>267</sup> Interview with Dr Brian Brink, *ibid.*

<sup>268</sup> Interview with Dr V. Chipfakacha, *ibid.*

<sup>269</sup> CDC (1999) The Deadly Intersection Between TB and HIV, <http://www.cdc.gov/hiv/pubs/facts.htm/hivtb.pdf>

Successful programmes to combat TB, malaria and STDs are widespread and well documented. All three are endemic in southern Africa, often at high prevalences.<sup>270</sup> Such interventions have in many cases been operating for decades and often include syndromic approaches to diagnosis and treatment, which avoid the need for time-consuming and potentially expensive laboratory procedures that may not be available.

Interventions for opportunistic infections have the additional benefit of being less stigmatised than those involving HIV, with the exception of those involving STDs. The necessity of dealing with infections that currently may affect larger numbers than HIV was the reason why comprehensive spraying to eliminate malarial mosquitoes was prioritised by Anglo American after it acquired part of the former ZCCM mining operations in the Zambian Copperbelt.<sup>271</sup>

TB deserves special mention because it is the leading cause of death in HIV-positive people and has such high prevalence in southern Africa (e.g. latent TB is present in over 70% of Batswana) leading to the majority of HIV-positive patients inevitably being co-infected with TB.<sup>272</sup> The ideal approach is to prevent, particularly in HIV-positive patients<sup>273</sup>, the progression from latent to active TB. An important reason for prioritising TB campaigns is that treatment quickly renders active patients non-infectious.

In addition to compromising the individual's health and chances of recovery, non-adherence increases the potential for drug-resistant strains to develop. The directly observed treatment system (DOTS) was specifically developed to maximise adherence to TB treatment, by requiring regular clinic attendance to receive twice-weekly or even daily doses of isoniazid (INH) over a period of six months.

#### **4.7.1 The Importance of Targeting**

Not all members of a population are at equal risk for acquiring or transmitting STDs (including AIDS). Relatively small groups of community members known epidemiologically as "core groups" or "high frequency transmitters" are responsible for sustaining and perpetuating the spread of infection in a community. Risk profiles may include an assessment of the following:

- The vulnerability of individual employees or categories of employees to HIV infection.
- The nature and operations of the organisation and how these may increase susceptibility to HIV infection (e.g. migrancy or hostel dwellings).
- A profile of the communities from which the organisation draws its employees.
- A profile of the communities surrounding the organisation's place of operation.

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<sup>270</sup> Interview with Dr E. Lee, *ibid.*

<sup>271</sup> Interview with Dr Brian Brink, *ibid.*

<sup>272</sup> The lifetime probability of conversion from latent to active TB is around 10% in HIV-negative patients, but 5-10% per annum in HIV-positive patients. In Botswana, the average life expectancy of patients with both HIV and active TB is only 33 months. *Ibid.* 270.

<sup>273</sup> CDC (1998) Prevention and Treatment of Tuberculosis Among Patients Infected with Human Immunodeficiency Virus: Principles of Therapy and Revised Recommendations, MMWR 47(RR20), pp1-51. <http://www.cdc.gov/mmwr/preview/mmwrhtml/00055357.htm>

- An assessment of the impact of HIV/AIDS upon their target markets and client base.<sup>274</sup>

Targeting limited resources to these priority groups will have a much greater impact on the spread of HIV/AIDS than programs aimed at the general population. Having said that, it is important not to stigmatise or ostracise them while they are receiving prevention and care services. Although behavioural, ethnographic and epidemiological surveys defining these core groups are often lacking, experience has shown that sex workers and their clients, people working away from home (such as migrant workers in mines, long-distance truck drivers and military personnel) and youth often have rates of STD infection that are significantly higher than those in the population at large. In addition, urban populations generally have a higher prevalence of STD infections than rural ones.<sup>275</sup>

In many developing countries, the point of first encounter for STD self-medication and treatment is in the informal health sector, perhaps traditional healers.<sup>276</sup> In Africa most STD patients are unlikely to get effective treatment in the run-down formal clinic. Long queues, return visits, cost of transportation, fees and, importantly, the fear of being seen at an STD clinic, all keep people away from formal health centres.<sup>277</sup>

A person's first meeting with health workers is usually the only contact, and may inform possible future behaviour, partner care and also the effectiveness of the treatment.<sup>278</sup> Thus STD care at the first point of meeting should be as effective as possible. Clearly, the importance of counselling both pre- and during treatment is imperative.

## 4.8 Coordination

One of the main issues faced by a major NGO in Zambia is the attempt to get top management on board. Whilst in some countries this is not so much a problem, it seems that attitudes and responses vary from company to company even within the same corporate families and countries.<sup>279</sup> A greater co-ordination within the industry is clearly required.

Lack of coordination is one of the main problems identified by UNAIDS.<sup>280</sup> The build-up in the pandemic that has been witnessed in southern Africa has been mirrored by an equally rapid increase in HIV/AIDS-related activities within countries, with ever greater numbers of international bodies wanting to become actively involved. At the national level governments generally struggle to coordinate these activities, particularly so when they themselves have yet to formulate strategies.

The dissemination of information is another challenge that needs to be met. Often information is available, yet is difficult to find. UNAIDS has tried to approach this by

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<sup>274</sup> South African Department of Labour Employment Equity Act Code of Good Practice on Key Aspects of HIV/AIDS and Employment.

<sup>275</sup> Interview with Dixon Tembo, *ibid.*

<sup>276</sup> Interview with Alick Nyirenda, *ibid.*

<sup>277</sup> Interview with Dixon Tembo, *ibid.*

<sup>278</sup> Interview with Alick Nyirenda, *ibid.*

<sup>279</sup> Interview with John Chanda, *ibid.*

<sup>280</sup> Interview with Hans-Peter Wiebing, *ibid.*

encouraging the distribution of information through its website and supporting the documentation of case studies.<sup>281</sup> There are several reasons why organisations continue to find it difficult to share information between themselves. Private sector companies and government often have cultures of confidentiality that require considerable efforts to change and, in the case of companies, there is often the fear that information could provide competitors with a competitive advantage. NGOs and CBOs are often concerned that revealing sources of funding to others will simply worsen their own ability to secure future resources.

A critical element of coordination is the need to ensure that resources are rapidly mobilised. It is often the case that resources, particularly those provided by international donors, are available but are simply not being distributed.

#### **4.9 Case Study: Community Mobilisation in the Lesedi Project**

Based on evidence from studies that showed that STD treatment interventions could reduce HIV transmission rates, a consortium of mines and organisations in the gold mining area around Carletonville, South Africa developed the “Lesedi” project. The intervention included syndromic STD management in miners, periodic presumptive treatment of women at high risk of infection (mainly commercial sex workers), sexual health promotion, counselling, and the promotion of male and female condom use. Significantly, the project devoted much effort to maintaining a high level of support from mining company management and union representatives, which involved keeping them informed of developments and providing them with detailed evaluations (including costs and estimated savings).

Results were impressive, given that it cost only R268000, for example:

- Amongst miners, gonorrhoea and chlamydia were reduced by 42% and genital ulcers by 77%. Similar dramatic declines in the STDs were seen in the women.
- Reduced rates of symptomatic STDs were also observed in the mine hostel populations.
- Computer modelling of cost-effectiveness implied that the intervention had achieved a 46% decrease in estimated HIV infections, equivalent to cost savings of R2.34 million.

The Project showed (yet again) that targeted STD interventions are a cost-effective means of preventing HIV infections. It also highlighted the urgent need for such interventions to be fast-tracked, since behavioural change such as increased condom use and reduced rates of partner change are possible but take years to become established. Apart from a dramatic impact on STDs, the Lesedi Project has also taught us much about the value of motivating managers in industry and union representatives to support cost-effective interventions that prevent HIV infection in employees and the communities in which they live.

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<sup>281</sup> Interview with Hans-Peter Wiebing, *ibid.*

## Box 20 Multi-stakeholder HIV/AIDS interventions in South Africa.<sup>282</sup>

Several multi-stakeholder HIV/AIDS interventions have been launched in South Africa over the past 5 years, including:

- **Carletonville (Mothusimpilo) Project** – initiated in 1997, this project has resulted in major reductions in STDs by emphasising peer education involving commercial sex workers, miners and the community around the mines.
- **Lesedi Project** – over the past 6 years this project has been operating in various communities in the Free State Province, achieving marked reductions in STDs. The project has been driven and funded primarily by one stakeholder (Harmony).<sup>283</sup> This has provided the project with continuity and simplified its management structures.
- **Mpumalanga (Powerbelt) Project** – launched in 2000, this still in the process of being implemented. It is unique in attempting to address both a variety of sectors (e.g. mining, power-generation, water supply, etc.), through a very comprehensive set of approaches, including: prevalence surveys, awareness education, door-to-door peer education, wellness programmes, STD and TB treatment, micro-business development, housing, workplace discrimination, etc.
- **Bambisanani Project** – this ongoing home-based care initiative is described in Box 9.
- **Lechabile Project** – this ongoing community-based STD intervention is described in Box 13

The projects have uniformly delivered positive and encouraging results in terms of metrics such as KAP statistics, condom use, and reductions in both the incidence and prevalence of HIV, STDs and TB. However, they suffered from similar characteristic problems, namely:

- As the scope of projects increases, so does their cost, implementation timescale, management complexity and potential lack of co-ordination between stakeholders
- Uncertainties about the future of projects once initial project funding comes to an end

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<sup>282</sup> Interview with Lennox Mekuto, *ibid.*

<sup>283</sup> <http://www.harmony.co.za/Landing1.asp>

## **5 SUSTAINABLE MANAGEMENT OF THE HIV/AIDS PANDEMIC**

In less than 20 years HIV/AIDS has become an integral part of the southern African landscape. Within a few years it will directly affect between a third and half of the region's adult population and their dependents. However successful we are in addressing the transmission of HIV, the legacy of AIDS will be with us for at least the next two generations, perhaps even longer if a cure is not found.

In concluding this report we will highlight why stakeholders are finding it hard to share common principles in dealing with HIV/AIDS and how this problem can only be addressed sustainably by developing trusting partnerships. We move on to review key issues for the sustainable management of HIV/AIDS, namely: addressing the risk factors driving the pandemic, caring for the affected and effectively delivering solutions. The generic best practice issues are then used to provide an outline of how the southern African region can live with the pandemic.

Guidelines and toolkits are an important element of HIV/AIDS management. We provide some observations on how these can be developed to emphasise sustainable management. The final section reviews the interaction between HIV/AIDS, the mining and minerals sector and the sustainable development vision and concludes with recommendations for stakeholder contributions.

### **5.1 Driving Principles for HIV/AIDS Management**

Most stakeholders in the region have committed themselves to fight HIV/AIDS, releasing vision and mission statements, goals and objectives, strategies, guidelines and plans, some of which are being implemented. Yet in southern Africa the only successes have been extremely localised.

#### *A humanitarian and socio-economic issue*

The review in section 3 illustrates that HIV/AIDS is a humanitarian issue as well as a crisis threatening social and economic stability throughout sub-Saharan Africa; its impacts on different stakeholders are distinct, but inseparable. Humanitarian issues associated with widespread sickness and death are highly emotive and subjective, but other than the issue of stigma, the steps that need to be taken to manage HIV/AIDS need to be pragmatic, objective and within the limits of available resources.

#### *Driving principles: Recognising differences between stakeholders*

As shown in sections 3.4, 3.5 and 3.6, the risk factors underlying the epidemic are many. Some are linked directly to the mining and minerals sector (e.g. single sex hostels), some indirectly (e.g. growth of commercial sex) and others not at all (e.g. cultural barriers to testing). The needs and capabilities of the various stakeholders are equally diverse, which is the main reason why it is still uncommon for collaborating stakeholders to genuinely share a common driving principle in the fight against HIV/AIDS. For example, in the view of most companies, their primary business is business and not social services; a view patently not shared by others.

**Table 9 Selected motivating factors and available resources for major stakeholders in the fight against HIV/AIDS.**

<b>Stakeholder</b>	<b>Motivating Factors</b>	<b>Available Resources</b>
<b>Individual</b>	<ul style="list-style-type: none"> <li>• Quality of life, e.g. health, safety, resource security (food, housing, income, etc.), family and friends</li> <li>• Altruism and ambition</li> </ul>	<ul style="list-style-type: none"> <li>• Behaviour</li> <li>• Direct and indirect contributions, e.g. money, time, effort, attitude, etc.</li> <li>• Links between individuals and communities</li> </ul>
<b>Community</b>	<ul style="list-style-type: none"> <li>• Quality of community life</li> <li>• Traditional/cultural value systems</li> </ul>	<ul style="list-style-type: none"> <li>• Traditional/cultural structures</li> <li>• Community mobilisation, e.g. community-based organisations</li> <li>• Links between communities and local stakeholders</li> </ul>
<b>Organised Labour</b>	<ul style="list-style-type: none"> <li>• Secure, fair and safe working environment</li> </ul>	<ul style="list-style-type: none"> <li>• Access to and ability to speak on behalf of economically active individuals</li> <li>• Links between employees, private sector and government</li> </ul>
<b>Employer Organisation</b>	<ul style="list-style-type: none"> <li>• Optimising the business environment</li> </ul>	<ul style="list-style-type: none"> <li>• Links between the private sector, government and organised labour</li> </ul>
<b>Private Sector</b>	<ul style="list-style-type: none"> <li>• Profitable operation</li> <li>• Growth and competition</li> </ul>	<ul style="list-style-type: none"> <li>• Income and expenditure</li> <li>• Skilled human resources, e.g. project management, general and specialised skills</li> <li>• Infrastructure, e.g. physical resources, distribution network, supply chains, etc.</li> <li>• Links between national and global economies</li> </ul>
<b>Pharmaceutical Company</b>	<ul style="list-style-type: none"> <li>• As private sector</li> </ul>	<ul style="list-style-type: none"> <li>• As private sector</li> <li>• Research and development</li> </ul>
<b>Local Government</b>	<ul style="list-style-type: none"> <li>• Optimising the local environment</li> <li>• Political influence and power</li> </ul>	<ul style="list-style-type: none"> <li>• Income and expenditure</li> <li>• Provision, maintenance and development of services, infrastructure, etc.</li> <li>• Links between local stakeholders and government</li> </ul>
<b>National Government</b>	<ul style="list-style-type: none"> <li>• As local government, but on a national scale</li> </ul>	<ul style="list-style-type: none"> <li>• As local government, but on a national scale</li> <li>• Links between local stakeholders and the international community</li> </ul>
<b>International Agency</b>	<ul style="list-style-type: none"> <li>• Humanitarian issues, conflict resolution, etc.</li> <li>• Global sustainable development</li> </ul>	<ul style="list-style-type: none"> <li>• Mobilisation of resources</li> <li>• Active intervention, e.g. disaster relief, sanctions, etc.</li> </ul>

Stakeholder	Motivating Factors	Available Resources
	<ul style="list-style-type: none"> <li>• Global trade</li> </ul>	<ul style="list-style-type: none"> <li>• Links between international stakeholders</li> </ul>
<b>Donor and NGO</b>	<ul style="list-style-type: none"> <li>• As international agency</li> <li>• Advocacy and altruism</li> </ul>	<ul style="list-style-type: none"> <li>• As international agency</li> <li>• Links (potentially) between any stakeholders</li> </ul>

The review of stakeholder approaches in section 4 shows that the positive outcomes of most interventions, particularly those involving partnerships with the mining and minerals sector, tend to be most closely aligned with the needs of the stakeholder providing the funding. This is not surprising, but it highlights the fact that contributions in kind, especially participation by individuals and communities, tend not to be fully valued - even where they are a key reason for the successes. Efforts to maximise the benefits and sustainability of interventions thus continue to be compromised, because different stakeholder motivations and contributions (a selection of which are summarised in Table 9) are not properly recognised.

Many of the problems faced by interventions can be attributed to the fact that each stakeholder's level of motivation for any particular component of an HIV/AIDS intervention will vary. For example, employers want a healthy workforce and may be prepared to offer treatment to sex workers in order to achieve this, but the apparent rewarding of prostitution is unlikely to strike a chord within the communities that accommodate such an intervention. Stakeholders tend to overcome problems by leveraging their contributions, in particular by dictating the use of funds, which gives an unfair bias to those who are providing funding. Better communication would help, but genuinely shared decision-making is needed to resolve such issues. This remains a real challenge to building sustainable partnerships.

## 5.2 Key Issues in Best Practice

The scale of the epidemic in southern African can make it seem to be an intractable problem. But the successful interventions, such as in youth education, community home-based care and PPT, are reasons for optimism. The challenge is to rapidly expand those components of existing initiatives that are working, to better integrate them with each other and to expand them. To simplify our discussion of best practice, and align it better with approaches to sustainable development, key issues are related to a simple framework based on five stakeholder "levels".

**Table 10 A simple framework of the key HIV/AIDS stakeholders.**

Level	Key Responsibilities
<b>Individual</b>	Each individual has a responsibility towards others. Although the onus is on individuals who are more empowered through having greater choice or influence (e.g. the employed, the healthy, adults, men, etc.), to bear a greater responsibility.
<b>Community</b>	Tasks and issues that are beyond the capacity of individuals can only be dealt with collectively, by group (including churches, unions, etc.) or community mobilisation.
<b>Employer</b>	Employers, whether in the state or the private sector, benefit directly from the efforts of their employees and therefore have a primary responsibility towards them. However, as beneficiaries of local, national and global resources and markets, they owe a degree of responsible corporate citizenship.

Level	Key Responsibilities
Government	Government is primarily responsible for the people whom it represents and to those from whom it benefits.
International	The responsibilities of the international community are much less well defined and are perhaps best expressed in terms global sustainable development.

Very useful insights can be provided when key issues, such as potential areas of responsibility (Table 10), are analysed within such a framework, for example:

- Differences or similarities in the prominence, magnitude and relevance of issues between stakeholder levels can be highlighted; or
- Opportunities and needs for partnerships can be identified.

#### *Factors influencing sustainability*

None of the approaches documented in section 4 were truly sustainable, because they either involve stakeholders:

- Assuming responsibilities that should lie elsewhere, and which they do not have all the necessary resources to address; or
- Failing to take responsibility and shifting the burden onto others.

The net long-term result is demotivation. Stakeholders who are active in HIV/AIDS interventions, such as the employers, will be driven to focus their resources into ever more targeted interventions which maximise the return on investment. Stakeholders with limited resources simply become fatalistic – as witnessed by the almost total lack of behaviour change.

#### *Collaboration and partnerships*

The key issue in best practice is therefore the need for collaboration and partnership within and, especially, between stakeholder levels. This is not without problems since such partnerships require stakeholders to devolve and share ownership, responsibility and resources; this requires trust. It is also a fact that resources will always be limited (with the possible exception of volunteers) and will need to be prioritised so as to be best utilised. Inevitably compromises will have to be made, which will be all the more difficult precisely because partners come from different levels.

#### *Best practice components*

There is already a considerable wealth of experience, albeit often poorly disseminated, which indicates that the main elements of a sustainable solution to HIV/AIDS are generic:

- Driving factors of the epidemic need to be addressed;
- Affected people need to be cared for; and
- Solutions need to be effectively delivered.

The following sections will discuss these in more detail.

## 5.2.1 Addressing the Risk Factors Driving the Pandemic

In southern Africa, the main element of HIV/AIDS transmission is the sexual behaviour of individuals. The total failure to reduce the risks associated with sex is a clear indication that a different approach is needed: one that simultaneously addresses key risk factors at all levels and not just behavioural risk at one level.

**Table 11 Selected risk factors driving HIV/AIDS.**

Level	Key Risk Factors
<b>Individual</b>	<ul style="list-style-type: none"> <li>• Behaviour</li> <li>• Poverty</li> </ul>
<b>Community</b>	<ul style="list-style-type: none"> <li>• Lack of primary health care</li> <li>• Stigma, cultural and traditional norms</li> </ul>
<b>Employer</b>	<ul style="list-style-type: none"> <li>• Dislocation of employees</li> <li>• Disruption of communities around the mine and in recruitment areas</li> </ul>
<b>Government</b>	<ul style="list-style-type: none"> <li>• Lack of commitment</li> <li>• Social and economic instability</li> <li>• Poor allocation of resources, corruption, etc.</li> </ul>
<b>International</b>	<ul style="list-style-type: none"> <li>• High cost of drug treatment</li> <li>• Perception of HIV/AIDS as a developing world problem</li> </ul>

Many of the factors in Table 11 are well-known and extremely challenging problems; and the HIV/AIDS pandemic is just one more reason highlighting the need to addressing them. Nevertheless, stakeholders in southern Africa will have to address four central issues if behavioural risk is ever to be reduced successfully, namely:

- Economic development;
- Eliminating the causes of social and economic instability;
- Improving public health; and
- Ensuring government commitment

### *Lack of resources and poverty*

Widespread poverty is arguably the single greatest challenge to HIV/AIDS, because it reduces the resources, and therefore also the opportunities, available to individuals, communities and governments in the region. Economic development is therefore a key element of HIV/AIDS prevention,<sup>284</sup> especially amongst those groups that are currently the most disenfranchised, namely: women, PLWA and rural communities.

Sustainable microeconomic development is unlikely to succeed unless a sound macroeconomic environment is in place at the national level. The mining and minerals sector can play a key role in this regard, because it is often a, if not the pioneering investor and generator of foreign currency earnings (Table 6). But the ultimate responsibility for creating an enabling environment to stimulate investment

<sup>284</sup> Due to its many potential outcomes, e.g. income and employment creation, investment in infrastructure and social capital, etc.

and job creation is shared between government and the international community. Government has many tools at its disposal to create an attractive investment climate, including an educated and healthy workforce, but the international community's control of debt and access to global markets is equally important.

### *Instability*

It has already been noted that the extent of the epidemic in some southern African countries is masked by the inability to collect data due to civil war (c.f. Section 3.3), which gives the false picture that there is less of a problem. In reality, HIV/AIDS simply cannot be managed in an unstable environment. Although poverty is destabilising, particularly where it drives migration in search of work,<sup>285</sup> the main causes of instability are the breakdown of civil society and economic failure (often linked to corruption and mismanagement). Both can result in the collapse of national infrastructure, civil unrest and even conflict, which may spread beyond national borders.

Governments rightly bear the bulk of the responsibility for maintaining stability, but in southern Africa there is still considerable scope for unscrupulous stakeholders to become a significant part of the problem – the conflict diamond issue being one example. This is an area where the international community has the ability, if not always the will, to bring its influence to bear.

### *Public health*

All stakeholders benefit from investments that improve the overall health of populations. As a minimum, the populations of southern Africa should have access to affordable (if not free) treatment for TB, STDs and malaria in a non-discriminatory environment. Each of these diseases affects both HIV-positive and HIV-negative individuals, increases HIV incidence and reduces the life expectancy of PLWA. This is why they must remain prerequisites for any medical interventions aimed at managing HIV/AIDS. The only instances where there is a strong argument for prioritising more costly HIV treatment are PEP and MTCT.

Although it is not currently the case, the public health systems of the region must become leaders in overcoming stigma. This is an essential step that needs to be taken in order to motivate people not only to seek and adhere to treatment, but also to want to know their own status and become proactive in managing their own health.

### *Government commitment*

Individuals pass on, communities can disperse and migrate, investors may pull out, and the international community is free to pursue the issues of the day. This leaves government (i.e. the public sector) as the only stakeholder who is genuinely there to stay. Sustainable prevention efforts need a vision that is both national in scope and long term; only democratically elected governments have a genuine mandate to take the responsibility for creating and implementing such a vision.

Whilst the role of the government is not (and should not be) one of hands-on management, it is imperative that it provides an enabling environment within which stakeholders can operate. It is all too common for government or its agents to play a

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<sup>285</sup> Migration has historically been closely associated with the mining and minerals sector, but rural to urban migration is a general regional phenomenon.

limited role in managing HIV/AIDS, but a very significant one in frustrating initiatives. Key elements of government commitment need to include:

- Maintaining legislation that protects the rights of the individual, in particular to make informed sexual choices and be free from discrimination;
- Providing honest unbiased information on reproductive health in general and HIV in particular, especially to children, youth and women;
- Prioritising the allocation of state resources, e.g. out of defence and into health care;
- Establishing an environment that allows the most effective use of resources;
- Assisting all stakeholders in coordinating their efforts; and
- Ensuring that the benefits of HIV/AIDS interventions are provided equitably to the population.

Without these, there is little chance of HIV/AIDS being effectively addressed, particularly as most countries in southern Africa have extremely limited resources and therefore little choice but to depend on companies, NGOs and international donors, as well as communities, to take the initiative in dealing with HIV/AIDS.

### 5.2.2 Caring for the Affected

Providing care to those affected by HIV/AIDS is the most immediate and costly challenge that stakeholders in southern Africa are facing (Table 12). One need only consider that the pandemic will inevitably directly and indirectly affect 100s of millions of people in Africa before it peaks,<sup>286</sup> to realise that resources will be limited, regardless of how much international aid is forthcoming.

**Table 12 Selected impacts of HIV/AIDS care.**

Level	Key Demand
<b>Individual</b>	<ul style="list-style-type: none"> <li>• Increasing numbers of dependants</li> <li>• Greater need for resources</li> </ul>
<b>Community</b>	<ul style="list-style-type: none"> <li>• Supporting the HIV-positive and their carers</li> <li>• Caring for those without alternative support, in particular AIDS orphans</li> </ul>
<b>Employer</b>	<ul style="list-style-type: none"> <li>• Increased employee turnover</li> <li>• Increased staff costs</li> <li>• Pressure to provide support, treatment and care for employees and dependants</li> </ul>
<b>Government</b>	<ul style="list-style-type: none"> <li>• Loss of skilled human resources</li> <li>• Drain on resources</li> <li>• Requests for action</li> </ul>
<b>International</b>	<ul style="list-style-type: none"> <li>• Claims to support developing countries</li> </ul>

<sup>286</sup> Michael Smith, UPI Science News, United Press International, Tuesday, 10 July 2001.

HIV creates a demand for care that not only increases as the infection progresses, but can also continue after death if there are dependents. In addition, even those who are HIV-negative may need care, for example when they have HIV-positive dependents or are volunteering to establish their HIV status (formal and informal counselling are integral aspects of testing). The pervasiveness and scale of HIV/AIDS-related care can only be addressed sustainably by interventions that:

- Overcome stigmatisation;
- Mobilise communities around counselling and care; and
- Improve the quality of life through wellness and health care.

Although these three are closely inter-related, health care is likely to be the most open-ended in terms of its potential demand for resources. For this reason the prioritisation of health care deliverables will be a key element of sustainable care strategies.

### *Tackling stigma*

Together with resource-shortages, stigma is probably the greatest obstacle to the provision of effective and widespread care. It leads to the exclusion of a valuable resource, namely PLWA; discourages individuals from establishing their status; reduces the effectiveness of the public health system; and negates the efforts of IEC, to name but a few consequences. Given the high levels of HIV prevalence in the region one might expect stigma to eventually disappear, particularly when the majority of people know someone with HIV or AIDS, but this is still not happening to any significant extent. Although the GIPA approach (Box 4) appears to be the way forward, it is too early to know how effective it will be.

### *Community based counselling and care*

Given the scale of the epidemic, community mobilisation is the only approach that can realistically offer the capacity to deliver care to the extent that it will be needed. Some of the approaches will need to be voluntary and informal, but many of the most important ones, like counselling, home-based care and orphanages, will involve working closely with other stakeholders who are providing resources.

Lack of access to reliable information and high-quality counselling reduces the effectiveness of initiatives as diverse as VCT, peer education and wellness programmes. Many individuals in southern Africa will need support to come to terms with the implications of HIV and it is possible that the potential demand for counselling could be similar in scale to that demand which already exists for education. Building the skills and capacity to deliver this type of service will be time-consuming and costly, and maintaining it will require future investments in management, delivery infrastructure and remuneration. But this expenditure is vitally important if support structures are to be developed that will allow HIV interventions to succeed.

Community based care may be strictly viewed as a social service, and therefore as the responsibility of government. Initiatives of the sort being advocated by TEBA (Section 4.1.5.2) are an important step forward and offer an opportunity for employers to use their duty of care towards their employees as a means of stimulating broader community based care.

### *Wellness programmes*

The main elements of wellness programmes are healthy nutrition and the treatment of opportunistic infections (c.f. Section 5.2.1: *Public Health*). In the case of nutrition, there is considerable potential to use this requirement to stimulate the development of commercial enterprise around the growth, preparation and distribution of food to groups being cared for at the community level (the running of orphanages, hospices, home-based care and funeral services provide other such opportunities). The main obstacles at present are access to land, affordable micro-lending and business development skills, but all southern African countries are quite capable of delivering such services to some degree.

The health care elements of wellness programmes are more problematic, in that they require skilled staff, facilities and medicines to be available and affordable. There is some potential for resources to be shared between private and public sector health services, but experiences have not been promising. However, there is a growing body of modelling that would allow stakeholders to evaluate health care (and other) interventions more objectively. A better understanding of intervention cost-benefit relationships would form a sound basis for designing public sector-private sector partnerships that can maximise the benefits to be derived from limited resources.

Employers must not be left to manage health care in the wider community on their own, because they will have no option but to target their interventions at high-risk generators (e.g. commercial sex workers), which inevitably leads to negative impacts (divisiveness, stigmatisation, conflict, etc.). This illustrates the wider point that health care interventions in particular, and care in general, need to be provided equitably. Stakeholders need to agree common care goals at a national level so that no community is disadvantaged in the long term.

### **5.2.3 Effectively Delivering Solutions**

Until prevention efforts change the demographics of HIV/AIDS, it will continue to affect all sectors of society in southern Africa. Any sustainable solution will therefore require comprehensive and integrated prevention and care initiatives to be rolled out swiftly to achieve national coverage. Doing this efficiently will involve maximising the use of existing knowledge, experience and resources (Table 13), in order to avoid duplication and to reduce learning curves.

**Table 13 Selected delivery mechanisms available for HIV/AIDS solutions.**

<b>Level</b>	<b>Key Delivery Mechanism</b>
<b>Individual</b>	<ul style="list-style-type: none"><li>• Voluntary work</li><li>• Self help</li></ul>
<b>Community</b>	<ul style="list-style-type: none"><li>• Informal support networks</li><li>• Community based organisations</li></ul>
<b>Employer</b>	<ul style="list-style-type: none"><li>• Enabling infrastructure and project management skills</li><li>• Benefit schemes, e.g. provident funds, medical aid, etc.</li></ul>
<b>Government</b>	<ul style="list-style-type: none"><li>• VCT centres</li><li>• Public sector, especially health and education</li><li>• Policy</li></ul>

Level	Key Delivery Mechanism
International	<ul style="list-style-type: none"> <li>• Information exchange</li> <li>• Technical expertise and capacity building</li> <li>• Assistance programmes</li> </ul>

### *Expanding initiatives*

To date relatively few HIV/AIDS initiatives have been rolled out. Those that have, such as Tebelopele VCT (Section 4.6.1), take several years to do so. The main problem is the lack of resources; where funding has been available, skills and infrastructure are in short supply, and vice versa. NGOs and research groups (and more recently international stakeholders such as the World Bank, Bill and Melinda Gates Foundation and pharmaceutical companies) have been the most proactive in seeking to engage other stakeholders in order to expand existing HIV/AIDS intervention programmes or establish new ones.

The mining and minerals sector, because of its intrinsic profit focus, characteristically finds it easier to launch pilot projects (which are a familiar part of their business model) than to roll out major HIV/AIDS programmes that involve commitments to continuous expenditure on non-core business items (witness the insistence that multi-stakeholder trusts should be set up with full company support only to try and hive them off as quickly as possible).

NGOs are likely to emerge as the key players in expanding initiatives, but the structures for helping them do so need to be greatly improved. It has to be easier to identify stakeholders (in particular NGOs need to coordinate amongst themselves), programmes need to be monitored to develop best practice (which then needs to be disseminated), and there have to be mechanisms for mobilising resources quickly. The latter, however, will not happen unless there is more trust between NGOs, government and donors (private or public sector). This, in turn, requires NGOs to focus on delivering more professional project management, which is an area where companies have a wealth of knowledge and experience that they could share.

### *Creating sustainable strategies*

Existing initiatives cannot expand, nor can new ones be created, without additional resources. Economies of scale may reduce resource requirements on a unit scale, but the overall burden of HIV/AIDS on all stakeholders will increase. Individuals and communities will have to devote more time to care, employers' workforce-related costs will rise, social services and public health will take up a greater proportion of government spending, and international donors will face increased calls for assistance.

Sustainable HIV/AIDS management requires stakeholders to take a much more systematic and structured approach to interventions. Detailed and accurate resource inventories are needed to enable efforts to be better coordinated. Similarly, the development and dissemination of best practice would help improve the choice of intervention and speed up subsequent implementation. But the development of best practice means that programmes have to include monitoring elements that allow successes and failures to be critically and objectively evaluated.

### 5.3 Living with the Pandemic

Throughout most of southern Africa the HIV/AIDS pandemic will peak during the next decade. This will be followed by a period characterised by high, but stable or (hopefully) slowly decreasing HIV-prevalence and AIDS-mortality. Whilst it is difficult to predict precisely what will happen in the future, it is evident that all stakeholders will face fundamental consequences (Table 14). Success will be measured in terms of:

- The extent to which prevention programmes reduce HIV prevalence; and
- The success with which the HIV ill and HIV affected can be treated in order to improve their quality of living and life expectancy (in the case of the HIV-positive).

If interventions continue with the status quo, i.e. poorly coordinated mostly ad hoc initiatives, then beneficiaries will continue to be limited to specific groups, in particular the employed; and most communities and individuals will become marginalised. The presence of profound inequalities in life expectancy could be a very destabilising force in society.

**Table 14 Selected long-term consequences of HIV/AIDS.**

Level	Key Consequences
<b>Individual</b>	<ul style="list-style-type: none"> <li>• Increasing chance of having others depend on oneself and of becoming partially or wholly dependent on others</li> <li>• Pressure to change behaviour</li> </ul>
<b>Community</b>	<ul style="list-style-type: none"> <li>• Pressure on social structures due to changing demographics, i.e. proportionately more sick, orphans and youth</li> <li>• Increasing role in providing care</li> </ul>
<b>Employer</b>	<ul style="list-style-type: none"> <li>• Higher employee-turnover and employee-associated costs</li> <li>• Increased involvement in non-core business associated with HIV/AIDS prevention and care</li> </ul>
<b>Government</b>	<ul style="list-style-type: none"> <li>• Need to devote a greater proportion of available resources to HIV/AIDS, in particular through the provision of health and social services</li> <li>• Potential instability due to demographic, social and economic changes</li> </ul>
<b>International</b>	<ul style="list-style-type: none"> <li>• Increased demand to supply resources to countries affected by HIV/AIDS</li> <li>• Pressure to support the comprehensive treatment and cure of HIV/AIDS and opportunistic infections</li> </ul>

#### *Best-case scenario and community based interventions*

The best-case scenario for sustainable long-term HIV/AIDS management is one built on successful community based intervention of the type being pursued by the Bambisanani Project (Box 9), where:

- Individuals and communities are fully engaged with other stakeholders in addressing HIV/AIDS;
- Behavioural, social and cultural factors around sex change to reduce stigma and allow informed decision-making;
- The capacity to deliver care is created and supported;

- A package of IEC, VCT, primary health and wellness programmes is provided as an incentive to value life; and
- Opportunities for poverty alleviation provide opportunities for self-actualisation.

### *Testing*

Accurate prevalence data is the single most important tool for dealing with HIV and the foundation upon which successful large-scale prevention and care programmes are built. Without data it is impossible to establish the extent of the epidemic, to plan interventions or to assess their effectiveness, which is why such information must be collected and made freely available.

Testing is also critical for individuals, since it is the only reliable means of determining whether infection has occurred. In the southern African context, knowing one's HIV status is a responsibility to oneself and to the community within which one lives; it also enables the maximum benefit to be derived from the care opportunities that are available. Current widespread opposition to testing, e.g. by unions, is based on the need to protect individuals against discrimination. However, there is an urgent need to acknowledge that HIV is a chronic disease that can be managed, but which nevertheless has an impact on the long-term health of individuals, their ability to perform certain tasks safely and, most significantly, on the health of those who may be unwittingly exposed to an infection that is inevitably lethal.

### *Antiretroviral therapy*

ART can profoundly improve the quality and length of life in PLWA. But it is unlikely that countries in southern Africa will have the resources to comprehensively administer ART without cannibalising other essential services, such as primary health care. The only exception to this is MTCT.

Employers are likely to remain the only stakeholders that can offer ART on a widespread basis. Even so, the only way in which such treatment can be guaranteed in the long-term is for it to be delivered through appropriately designed medical benefit schemes. However, employees should be strongly encouraged to make provisions for their own care.

### *The long-term role of the mining and minerals sector employer*

Any company that is active in southern Africa has a responsibility to commit resources to HIV/AIDS management and should provide its employees with access to the types of programme outlined in the best-case scenario above (especially those dealing with opportunistic infections). Wherever possible, these should be delivered in partnership with CBOs and NGOs at the site of operations and, if resources are available, also in the principal recruitment catchment areas.

Although restrictions on the movement of labour are not advocated, it is clear that the continued use of single sex hostels is one common sectoral practice that should be abandoned as a matter of urgency and replaced with more family-friendly living conditions.

### *The long-term role of the government*

Government has a clearly defined responsibility to its citizens, which should be translated into:

- Providing a clear and unequivocal messages on HIV/AIDS, sexual behaviour change and stigma;
- Developing a social, economic and administrative infrastructure that enables prevention and care to be delivered to the entire population;
- Acting as a conduit for channelling resources obtained from donations from the international community or as tax revenues from employers and individuals, into the community; and
- Ensuring that resources are used to deliver the highest possible overall impact to the population, without excluding any communities.

#### *The long-term role of the international community*

The international community has three major resources at its disposal:

- Funding to put prevention and care systems in place where there are none and to strengthening existing interventions
- Technical expertise to disseminate in the form of capacity building, best practice and information sharing
- Drugs to improve public health by combating opportunistic infections and HIV/AIDS

Since resources are finite, even at this level, it is inevitable that their allocation will have to be prioritised. Some resources can be shared relatively easily (e.g. through the internet), but others will inevitably have to be allocated on the basis of greatest need or most acute resource shortage.

Medicine offers us a unique opportunity to directly improve the individual's quality of life. For this reason, the provision of health care and the development of affordable drug treatment should be prioritised.

## **5.4 Guidelines and Toolkits**

Considerable effort continues to be devoted to producing documentation that informs and advises stakeholders with respect to HIV/AIDS (many examples are available on the Internet);<sup>287,288</sup> rather than concentrating on actually implementing solutions in practice.<sup>289</sup> One of the problems with these toolkits and guidelines is with the level of detail that they provide: too much, and the documents become unworkable, too little, and they become useless.

Part of any long-term sustainable management strategy, for any stakeholder, should be an exercise of critical evaluation. We would suggest that there is a need for a series of toolkits that help stakeholders:

- Determine the targets that they are motivated to achieve and the resources that they are prepared to devote to HIV/AIDS;

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<sup>287</sup> For example, the USAID Bureau for Africa Office for Sustainable Development has funded the publication of a variety of AIDS Toolkits <http://www.und.ac.za/und/heard/AidsBriefs/AidsBriefs.htm>

<sup>288</sup> The UNAIDS website is one starting point for such resources <http://www.unaids.org/>

<sup>289</sup> Interview with Dr Vitalis Chipfakacha, *ibid*.

- Identify the other stakeholders that they need to partner with, what they are interested in and what resources that prepared to devote to HIV/AIDS;
- Create partnerships, share resources, allocate responsibilities and agree ownership between stakeholders;
- Expand, coordinate and effectively deliver initiatives that address the reduction of risk factors and the provision of care;
- Support, strengthen and mobilise communities;
- Access, distribute and manage resources; and
- Monitor the HIV/AIDS pandemic, evaluate the effectiveness of initiatives and continuously improve them.

## **5.5 HIV/AIDS, the Mining and Minerals Sector and the Sustainable Development Vision**

The MMSD process has identified eight key challenges that the mining and minerals sector needs to be able to address as part of a sustainable development vision:<sup>290</sup>

1. Can the sector move towards a more viable structure that will contribute more effectively to sustainable development?
2. How can the minerals sector support the development of national economies, especially in the poorest countries?
3. How can the sector best contribute to sustained improvements in livelihoods and well being at the community level?
4. How can the minerals industries become leaders in environmental management?
5. What are the ground rules for land: its management, access, control and use?
6. How can we ensure that future markets and consumption patterns are compatible with a sustainable world?
7. How can we ensure meaningful access to information for all stakeholders?
8. What should be the administrative relationships, role, responsibilities and performance standards of the key actors in a more sustainable future?

To end this report we will briefly summarise HIV/AIDS in the context of the above points (other than numbers 5 and 6, which deals with land rules and markets). Since economic development (point 2) and improved livelihoods (point 3) have very obvious relationships with measures that address HIV/AIDS, they will not be dealt with specifically. The emphasis of some of the remaining points has been altered slightly in order to reflect our primary concern with HIV/AIDS. In addition, the “mining and minerals sector” is equated with the employer level of the stakeholder framework that was introduced in Table 10.

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<sup>290</sup> Caroline Digby and Gabriela Flores (2001) Eight Challenges Facing the Mining and Minerals Sector, MERN Bulletin, MMSD/IIED. (<http://www.iied.org/mmsd>)

### 5.5.1 Moving Towards Viable Structures

A mining and minerals sector project is viable as long as the overall balance of factors (including HIV/AIDS) remains favourable and does not worsen unpredictably. Given the amount that is known about HIV/AIDS prevalence in southern Africa, this is likely to be one of the more predictable elements. Consequently, providing that HIV/AIDS is properly factored into the decision-making process today, it should not threaten sectoral viability in the future. However, there is no doubt that the sustainability of operations with low margins, or those that are exploiting highly cyclic commodities, is considerably compromised by HIV/AIDS.

**Table 15 Selected contributions that the mining and minerals sector can make to other stakeholders' HIV/AIDS interventions.**

Level	Key Contribution
Individual	<ul style="list-style-type: none"><li>• Prevention and care of employees</li></ul>
Community	<ul style="list-style-type: none"><li>• Support of community mobilisation, e.g. local sourcing of supplies, capacity building, etc.</li></ul>
Employer	<ul style="list-style-type: none"><li>• Liaison with other employers (including suppliers, sectoral competitors, etc.)</li></ul>
Government	<ul style="list-style-type: none"><li>• Sharing and joint development of resources</li></ul>
International	<ul style="list-style-type: none"><li>• Acting as a conduit for resources</li></ul>

Once established, and for as long as it continues to be active, the mining and minerals sector can therefore play a very significant role in initiating and supporting initiatives to address HIV/AIDS (Table 15). Whilst the focus of companies will be on their employees, interventions can be effectively leveraged through engaging with CBOs and NGOs.

### 5.5.2 Sectoral Leadership in HIV/AIDS Management

The mining and minerals sector has been a key player in the fight against HIV/AIDS, providing a substantial proportion (and sometimes almost all) of the initiative and effort, especially in southern Africa. Regardless of the reasons for this, the sector has taken on a leadership role partly by default. This position has clear advantages in terms of the ability to influence strategy and action; it also has a number of major disadvantages.

The sustainable solution of HIV/AIDS requires initiatives that involve stakeholders outside of the mining and minerals sector. In such a scenario the best role for the sector is to attempt to assume overall leadership, but for it to focus on being a champion of best practice, continue to take the initiative and introduce a private sector results-focus.

### 5.5.3 Information Access

Section 5.2.3 (c.f. *Creating sustainable strategies*) dealt with the need for information access as a part of coordination. Companies in the mining and minerals sector, in particular the larger players, already devote a considerable amount of effort to information management. Resources of relevant expertise and infrastructure are therefore readily available within the sector and could potentially be used to support

HIV/AIDS-related information management needs, e.g. by acting as nuclei from which comprehensive HIV/AIDS related information systems can grow.

Since data on HIV/AIDS is also needed for sectoral planning purposes, there is a motivational incentive for the mining and minerals sector to invest in developing such a resource. Given the culture of confidentiality that exists within the sector and the sensitivity of HIV/AIDS related information, one of the challenges will be to determine how information can be shared between stakeholders effectively.

#### **5.5.4 A Multi-Stakeholder Model**

The final question raised by MMSD is in many ways the most complex. It is almost disingenuous to suggest that a simple (or single) multi-stakeholder model can exist and very few genuine examples have been found in which one stakeholder does not dominate (Box 20). Successful and sustainable multi-stakeholder HIV/AIDS interventions would need to:

- Involve genuine cooperation between and within all stakeholder levels;
- Ensure that the priorities of all the stakeholders are taken into account;
- Objectively recognise the value of all resources that are provided by stakeholders; and
- Be prepared to allow other stakeholders to take responsibility.

Finally, trust is likely to be one of the most important factors determining whether a viable, successful and sustainable multi-stakeholder management model can be developed. Since trust takes both time and experience to establish we can only suggest that cooperative projects need to be implemented as soon as possible and wherever possible.

## 5.6 Summary of Recommendations for Stakeholder Contributions to Sustainable Development

### 5.6.1 General Issues

Issue <sup>291</sup>	Recommendation <sup>292</sup>	Responsible Stakeholder <sup>293</sup>	Time Scale <sup>294</sup>	Origin <sup>295</sup>	Example <sup>296</sup>
Scale of epidemic in southern Africa and ineffective prevention messages	Urgent need to shift from IEC approach to address root causes of transmission: poverty alleviation, cultural norms around sex, and social and economic instability.	All	Immediate implementation to be sustained until epidemic is under control and prevalence falling KPI – annual Human Development Index report and epidemiological surveys	3.1; 3.2.2; 3.5; 4.1; 4.2.2; Figure 2; Table 1, Table 3, Table 5	Numerical Models, 4.2.3
Lack of clear government commitment	Establish an international charter on key prevention and care strategies to be followed throughout sub-Saharan Africa.	Governments (regional) – ratify and implement charter International – coordinate charter	Immediate implementation to be sustained until epidemic is under control and prevalence falling KPI –level of internal investment, e.g. proportion of government expenditure	4.1.2; 4.1.4; 4.1.7; 4.1.8; 4.2.1; 5.2.1;	Capital flight, 3.4.2; CHBC, Box 9
Denial and failure to accept responsibility for HIV/AIDS risk generators	Shift away from negative messages to ones that emphasise the need to accept HIV/AIDS and take greater responsibility for personal behaviour.	Individuals – change sexual behaviour All	Immediate implementation to be sustained until epidemic is under control and prevalence falling KPI – stigma and prevalence reduction	3.2; 3.4; 3.6; 4.1; 4.1.1; 4.4; 4.4.1; 5.2.1	Gender issues, 3.4.3; Cultural/sexual issues, 3.4.4; Box 15

<sup>291</sup> Obstacle preventing transition to sustainable development (SD)/ potential opportunity for enabling transition to SD

<sup>292</sup> Only that which will enable stakeholders in the M&M sector to contribute to the transition to SD.

<sup>293</sup> Community, Industry, NGOs/CBOs, Labour, Governments (local, national, regional), Academia, SSMs, Consumers, Shareholders, Financiers/insurers, Suppliers, International

<sup>294</sup> When this recommendation should be implemented. Where possible indicate when progress can be measured

<sup>295</sup> Section/s in the report where this is identified.

<sup>296</sup> Refer to section/s where an example of implementation is given.

Issue <sup>291</sup>	Recommendation <sup>292</sup>	Responsible Stakeholder <sup>293</sup>	Time Scale <sup>294</sup>	Origin <sup>295</sup>	Example <sup>296</sup>
Growing demand for counselling and care	Build capacity to deliver community-based interventions by channelling resources into CBOs and NGOs. Allow communities a greater say in the course of interventions. Provide long-term funding.	Community, Industry, NGOs/CBOs, Governments (local, national) – engage one another International – disseminate best practice and mobilise donor funding	<2 years KPI – capacity to deliver counselling and care, proportion of affected reached	4.1; 4.2.1; 4.5; 4.6.1; 4.6.2; 5.2.2; 5.2.3	CHBC, 4.1.5.2; CHEP, 4.6.2; GIPA, Box 4; ACHAP, Box 11; PACT, Box 16
Prioritisation of finite resources	Monitor and analyse HIV/AIDS intervention programme outcomes to develop and improve quantitative understanding of cost-benefit relationships.	Industry, NGOs/CBOs, Governments (local, national, regional) – monitor programmes Academia – analyse data and develop modelling tools International – disseminate data and tools	<2 years KPI – ability to accurately model real situations	3.6.2; 4.2.1; 4.5.2; 4.7.1	Numerical Models, 4.2.3; Community-based intervention, Box 13
Addressing acute resource shortage	Where national stakeholders cannot provide HIV/AIDS services these have to be supplied by the international community, preferably using existing stakeholder networks.	Industry, NGOs/CBOs, Governments (local, national, regional) - implementation International – provision of resources and compensation of partners	Immediate implementation to be sustained until capacity is demonstrated KPI – number of people in southern Africa with access to care	4.2.1; 4.1; 4.1.8	CHBC, 4.1.5.2; ACHAP, Box 11
Lack of leadership	Company stakeholders can continue to take the initiative, but in partnership so as to play a greater role in capacity building and developing best practice	Industry	<5 years KPI – Government, NGO and CBO implementation capacity	4.1.5; 4.1.7; 4.1.8; 5.2.2	GHI, 4.1.5
Finite life of the mining and minerals sector	The role of the mining and minerals sector should take into account estimates of the profitability and lifespan of operations.	Industry – factor HIV/AIDS into feasibility studies Governments (local, national, regional) – reduce reliance on sector	N/A KPI – proportion of HIV/AIDS intervention costs relative to GDP contribution of other sectors	3.6; 4.1.3; 4.2.1	
Legislation	Review to ensure that the rights of all stakeholders are protected, including the rights of the HIV-negative not to be deliberately exposed, of individuals to be sexually empowered, and of health care providers to be able to	All – work within the spirit of the law Governments (national) – create an enabling legal environment International – review international law	Ongoing process to ensure that HIV/AIDS law is workable KPI – incidence of discrimination and abuse	; 4.1.7; 4.1.7.2	Legislation, Box 10; Testing, 4.4;

Issue <sup>291</sup>	Recommendation <sup>292</sup>	Responsible Stakeholder <sup>293</sup>	Time Scale <sup>294</sup>	Origin <sup>295</sup>	Example <sup>296</sup>
	optimise health care. Laws that criminalise common sexual practices such as prostitution and homosexuality should be removed.				

## 5.6.2 Major Risk Generators

Issue	Recommendation	Responsible Stakeholder	Time Scale	Origin	Example
Poverty	Stimulate economic development, particularly in rural recruitment catchment areas, subcontract services relating to HIV/AIDS care, retrain medically boarded employees, encourage participation in benefit schemes.	Industry – subcontract services NGOs/CBOs – provide project management assistance Labour - encourage reskilling of potential retirees Governments (local, national, regional) – regulate/provide microcredit Financiers/insurers – develop accessible benefit packages International – donors, access to markets	Immediate implementation >10 years transition KPI – GDP, tax revenues and other economic indicators	3.4.2; 4.1.1; 4.1.6	Poverty, 3.4.2; CHBC, 4.1.5.2; Community-based intervention, Box 13
Stigma	Multi-stakeholder approach to address all aspects of the problem through a combination of measures including GIPA, protection of individual rights, etc.	Individual, Community – change attitudes Industry, NGOs/CBOs, Labour, Governments (local, national, regional) – GIPA, protect individual rights Academia – investigate reasons	Immediate implementation >Generation transition KPI – discrimination, VCT uptake, care enrolment	3.4.4; 4.1; 4.1.1; 4.1.4; 4.1.7.1; 4.3; 4.6.1; 5.2.2	GIPA, Box 4; PACT, Box 16;
Instability	International community to censure stakeholders driving instability.	All	Ongoing >10 years transition KPI – indicators such as transparency international	4.1.7; 5.2.1	
Equity	Establish minimum levels of HIV/AIDS care and ensure that these are available on a nationwide basis. Address deficiencies in service provision.	Community, Industry, NGOs/CBOs – advise on capacity to deliver services Governments (local, national, regional) – monitor compliance and channel resources appropriately International – establish norms	<5 years KPI – national and regional service quality variations	4.1.3; 4.7.1	ART, Box 17
Single sex hostels	End practice by establishing alternative lower risk living conditions	Industry Labour – encourage responsible sexual behaviour	<5 years KPI – workforce in hostels	3.6.1	Community-based intervention, Box 13

### 5.6.3 Public Health Issues

Issue	Recommendation	Responsible Stakeholder	Time Scale	Origin	Example
Poor public health	Implement standardised public health systems that include treatment for TB, STD and malaria. Improve access through establishing rural and mobile and training more health care workers.	Community – mobilise volunteer health workers Industry – enter into health care partnerships with public sector NGOs/CBOs, Governments (local, national, regional) – mobilise resources Financiers/insurers – develop affordable schemes, advise on suitable cover International – donors, access to drugs, disease eradication programmes	Immediate implementation Maintain indefinitely KPI – annual Human Development Index report	; 4.1.7; 4.5.2; 5.2.1	Health expenditure, 3.4.2; Research-driven interventions, Box 12
Treatment of opportunistic infections and HIV/AIDS	Adopt minimum norms for provision of drug therapy and ensure that these are implemented on a nationwide basis and regularly improved in light of scientific developments.	Individual – adhere to protocols Industry – ensure norms are met for workforce Governments (local, national, regional) – determine to what extent resources allow international norms to be met or exceeded International – facilitate drug development and distribution, make up resource shortfall	<5 years Maintain indefinitely KPI – epidemiological surveys	4.7	Community mobilisation, 4.9; ACHAP, Box 11
Prioritisation of primary health interventions	Treatments must follow a logical sequence within the limits of available resources. Priority to be given to interventions that address problems with highest morbidity and best cost-benefit in terms of quality of life and ability to live productively.	Industry, Governments (local, national, regional) – collaborate with public sector in the provision of services to communities at the mine and in recruitment catchment areas NGOs/CBOs – assist in community mobilisation Academia – assess effectiveness of different interventions International – develop treatments, disseminate information and provide direct support for campaigns	<2 years KPI – division of expenditure in public health service, overall health of nation	3.5; 4.5.1; 4.7; 4.7.1; 5.3	Research-driven interventions, Box 12; Integrated prevention & care, Box 15

Issue	Recommendation	Responsible Stakeholder	Time Scale	Origin	Example
Judgemental attitudes amongst health care workers	Improve motivation amongst health care workers, conduct IEC and if problem persists apply sanctions.	Individuals – change attitudes Labour – promote change of attitudes amongst membership Governments (local, national, regional) – promote change and enforce non-discrimination	<5 years KPI – staff turnover, patient-health-worker ratios, etc.	4.1.7.1;	ACHAP, Box 11; Community-based intervention, Box 13
Delivery of wellness and healthcare	Use public sector – private sector partnerships.	Industry, Governments (local, national, regional) – collaborate in delivering healthcare	Ongoing <10 years to roll out KPI – unit costs of delivering services	4.1.2; 4.1.5; 4.5.1; 4.5.2; 4.7; 5.2.2; 5.3	CHBC, 4.1.5.2; Community mobilisation, 4.9; ACHAP, Box 11; Community-based intervention, Box 13
ART	Drug costs should be affordable to those in employment. Encourage introduction of mandatory medical benefit schemes for those in employment and require participation in wellness schemes.	Individual – adherence, behaviour change Industry, Labour, Governments (local, national, regional) – provision through employee benefit schemes Academia – investigation of cost-effective treatment methods Financiers/insurers - ensure that schemes are viable and that benefits are administered cost effectively and delivered so as to maximise utility International –vaccine development, provision of drugs at affordable prices	<5 years ? years – vaccine KPI – proportion of workforce on medical benefit schemes, adherence	4.4.2; 4.5.2; 4.5.3; 5.3	Testing and ART, Box 6; ACHAP, Box 11; ART, Box 17; Discontinuous therapy, Box 18
MTCT	Treatment should be incorporated into public health norms as soon as possible providing it does not compromise other primary health care elements. Employers and benefit schemes should provide it as a standard entitlement.	Individuals - adherence Industry, Financiers/insurers - Governments (national) – provide as soon as can be afforded International – facilitate drug development and distribution	<5 years KPI – number of HIV-positive births	4.4.2; 5.3	
Low proportion of population with benefit provisions	Compulsory benefit schemes for those in employment, increased level of employer contributions for lowest paid.	Industry – administer schemes Labour – support membership Governments (local, national, regional) – subsidise membership Financiers/insurers – ensure that schemes are viable and that benefits	<5 years KPI – proportion of workforce with benefit schemes	4.1.5.1	Living conditions, Box 7; Benefit calculations, Box 8; Early retirement, Box 14

Issue	Recommendation	Responsible Stakeholder	Time Scale	Origin	Example
		are administered cost effectively and delivered so as to maximise utility			

### 5.6.4 Multi-stakeholder Partnership Issues

Issue	Recommendation	Responsible Stakeholder	Time Scale	Origin	Example
Need to quantify the value of stakeholder contributions	Produce guidelines for assessing the equivalent value of non-cash elements of HIV/AIDS interventions, e.g. voluntary work, etc.	Academia - to conduct independent research International community (e.g. UNAIDS) - to accredit scheme	<2 years KPI – matching of funding to non-financial resource inputs	4.1.5.2; 4.1.8.2; 5.4; Table 9	
Poor cooperation in partnerships	Establish and maintain national resource inventories to provide stakeholders with information on available resources	Government (National) – to maintain inventory	<2 years KPI – number of multi-stakeholder interventions	4.1.5; 4.1.7; 4.8; 5.2	Community mobilisation, 4.9; Multi-stakeholder interventions, Box 20
Lack of trust	Encourage partnerships between stakeholders, communication, sharing of resources and exchange of resource people.	All	<10 years KPI – number of multi-stakeholder interventions	3.5; 4.8; 5.5.3	
Poor dissemination of information and best practice	Programmes need to incorporate the facility to collect research quality data; monitoring and evaluation must be carried out in order to develop best practice.	Academia – to conduct independent research Industry, Government and International community - to allocate funds International community (e.g. UNAIDS) – to promote more uniform reporting and disseminate findings	Ongoing <2 years to establish reporting KPI – average time to implement projects	4.1.5; 4.1.8.1; 5.2	
Lack of coordination in NGO sector	Simplify systems for accessing funding to encourage cooperation instead of competition.	Industry, Governments (local, national, regional), International – draw up guidelines for long term funding NGOs/CBOs – to form coalitions	<5 years KPI – reduction in year-on-year fluctuations in funding, increase in results per unit resource investment	4.1.4; 4.1.8; 5.2.3	
Lack of project management skills in NGOs CBOs	Build capacity by coordinating stakeholders, seconding staff (especially from the private to the government/NGO/CBO sectors), developing individuals and subcontracting services.	Industry – second staff, provide contract services NGOs/CBOs – share resources Governments (local, national, regional), Academia, International – develop and deliver capacity building	<5 years KPI – resource utilisation, e.g. proportion of funds spend on administration etc.	4.1.4; 4.1.8; 5.2.3	CHBC, 4.1.5.2

### 5.6.5 Progress Measurement Issues

Issue	Recommendation	Responsible Stakeholder	Time Scale	Origin	Example
Need for metrics	Monitor indicators that go beyond epidemiological measures and allow a wider range of stakeholder related risk factors to be quantified, e.g. stigma, productivity loss, informed sexual decision-making, benefit scheme uptake etc.	Community, Industry, NGOs/CBOs, Labour, Governments (local, national, regional), Financiers/insurers – monitor programmes and share data Academia – develop metrics International – disseminate data	Ongoing KPI – availability of comparative data	4.1.5; 4.1.8.2; 4.2.1; 4.4.1; 4.6	Modelling, 4.2.2; Numerical Models, 4.2.3; Research-driven interventions, Box 12; Integrated prevention & care, Box 15
Testing	Ongoing sentinel testing to allow intervention effectiveness to be monitored, tracker studies to provide detailed understanding of disease progression and VCT for individual empowerment.	Individuals – establish status regularly if sexually active and engaged in risky activities Community – overcome stigma Industry, NGOs/CBOs, Labour, Governments (local, national, regional), International – collaborate in establishing testing facilities and share data Academia – ensure testing is ethical	Ongoing <2 years to achieve national coverage for VCT KPI – uptake of VCT, incidence of discrimination	4.1.3; 4.1.5; 4.6; 4.6.1; 4.6.2; 5.3	NUM, 4.1.3; CHBC, 4.1.5.2; Mine issues, Box 5; Testing and ART, Box 6; VCT, Box 19

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## Appendix – Contact Details

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