

HIV/AIDS Interventions in Zambia: Financial Implications

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by

Chris N. Mwikisa *

University of Zambia, Economics Department

***C. N. Mwikisa is an Economics Lecturer at the University of Zambia, with research experience in the social sector. The initial work was carried out together with Dr. Richard Bail (MD, MPH); assisted by Billingsley Kaambwa, and Michael Masiye, and was completed in October 2000.**

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Preface

This paper is based on the costing of the Zambia National HIV/AIDS Strategic Framework and AIDS interventions in Zambia. The paper is presented as an example of the financial implications of implementing HIV/AIDS interventions and scaling them up to cover more populations, and the difficulties that countries may face in costing their respective plans.

The exercise covered the National HIV/AIDS/STD/TB Council and Secretariat, the 42 Catalytic Projects which were felt to have high potential for scaling up, and basic public health AIDS interventions such as surveillance, operations research, STD control, voluntary counseling and testing, promotion and provision of condoms, TB control, hospital care, home based care and protection of the blood supply.

This work was carried out together with Dr Richard Bail (MD, MPH) of Harvard University, with assistance from Billingsley Kaambwa and Michael Masiye who at the time were final year economics students at the University of Zambia. Financial support was provided by UNAIDS / UNICEF. The final report was presented to a workshop organised for all stakeholders, and at a resource mobilisation workshop where about US\$140 million was pledged.

List of Acronyms

AIDS	Acquired Immunodeficiency Syndrome
ANC	Ante Natal Clinic
BDE	Bed-day equivalent
BTS	Blood Transfusion Service
CBHC	Community Based Home Care
CBO	Community Based Organisation
CBOH	Central Board of Health
CHEP	Copperbelt Health Education Project
CHIN	Children in Need
CP	Catalytic Project
CSO	Central Statistics Office
DALY	Disability-adjusted life year
DHS	Demographic Health Survey
DOT	Directly Observed Treatment
FHT	Family Health Trust
FLMZ	Family Life Movement of Zambia
GRZ	Government of the Republic of Zambia
HAART	Highly Active Anti-Retroviral Therapy
HBC	Home Based Care
HIV	Human Immunodeficiency Virus
ICA	International Conference on AIDS
IEC	Information, Education and Communication
KCCT	Kara Counseling and Training Trust
MCDSS	Ministry of Community Development and Social Services
MCTI	Ministry of Commerce, Trade and Industry
MLGH	Ministry of Local Government and Housing
MLSS	Ministry of Labour and Social Security
MOE	Ministry of Education
MOFED	Ministry of Finance and Economic Development
MOH	Ministry of Health
MSTVT	Ministry of Science, Technology and Vocational Training
MSYCD	Ministry of Sports, Youth and Child Development
MTCT	Maternal To Child Transmission
MTP	Medium Term Programme
NAPAC	National AIDS Prevention and Control Programme
NASTLP	National AIDS/STD/TB and Leprosy Programme
NGO	Non Governmental Organization
OVC	Orphans and Vulnerable Children
PLWHA	People Living With HIV/AIDS
PPAZ	Planned Parenthood Association of Zambia
QALY	Quality-adjusted life year
SBS	Sexual Behaviour Survey 1998
SFH	Society for Family Health
STD	Sexually Transmitted Disease
SWAAZ	Society of Women Against AIDS Zambia
TB	Tuberculosis
UNAIDS	Joint UN Programme on HIV/AIDS
UNZA	University of Zambia
UTH	University Teaching Hospital
VCT	Voluntary HIV Counseling and Testing
WDR	World Development Report
WVI	World Vision International
YMCA	Young Men's Christian Association
YWCA	Young Women's Christian Association

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Executive Summary

Zambia is sustaining a devastating impact from the HIV/AIDS epidemic. The burden of disease includes 690,000 deaths thus far and an estimated 1,000,000 persons currently living with HIV/AIDS in a country whose total population is approximately 9.1 million. Approximately 540,000 children have been orphaned. Infant and child mortality rates, after decades of steady improvement, are now worsening. Tuberculosis case rates have mushroomed. Health facilities are often stressed beyond their limits in caring for AIDS patients. The costs of health care for AIDS patients are burgeoning and siphoning funds needed for other vital health and development activities. Nearly all sectors of society are heavily impacted. The mortality of teachers has adversely affected the education system, and, in addition, many children are unable to attend school because of the epidemic. Private businesses have been impacted with absenteeism, loss of productive workers and huge costs for health care and funerals. The agriculture sector has experienced a loss of skilled workers, reduced land utilization and reduced output. While there are recent indications that transmission of new infections among youth and young adults is decreasing, the current burden of disease will continue to impact the Zambian society for years to come.

The Government of the Republic of Zambia responded with a series of planned interventions beginning in 1986 with the establishment of the National AIDS Control Programme. In 1987 an emergency programme to protect the blood supply was initiated. The first Medium Term Programme covered the period 1988-1992, and the second MTP covered the years 1994-1998. Currently, the GRZ has developed a new Zambia National HIV/AIDS Strategic Framework to cover the years 2001-2003. The Framework establishes a National HIV/AIDS/STD/TB Council and a corresponding Secretariat. These institutions are to coordinate the multi-sectoral AIDS campaign, integrating the activities of some 14 ministries, as well as numerous NGOs, CBOs and private businesses.

The costing of HIV/AIDS interventions in Zambia was done in two phases. In the first phase the National Council and Secretariat as well as the promising 42 Catalytic Projects were costed. The second phase concerned the comprehensive costing of other principal activities for combating AIDS. A Summary Table in Chapter 3 displays the estimated costs for each activity for 2001-2003, as well as the donor commitments and GRZ outlays for each activity, and the "gaps" between the estimated costs and the resources available.

The total cost for the National Council and Secretariat for the first three years is projected to be USD 4.181 million. The largest portion of this is for recurrent operational costs, approximately 59% of the total costs in years two and three. Approximately 33% of the total costs will support salaries and emoluments.

The Framework identifies some 42 Catalytic Projects chosen in accordance with priorities related to sub-populations, geographic location and intervention type. The implementing agencies for these Catalytic Projects include ministries, NGOs, CBOs and the private sector. All of the projects were judged to have a reliable track record and to have substantial potential for scaling up. The targets for the Catalytic Projects include the segments of society most heavily affected by the epidemic. The projects focus on reducing transmission, treating disease manifestations and mitigating the impact of the epidemic. The scale-up targets included most of PLWHA, most orphans, most affected families, a substantial percentage of youth, and most CSWs and truckers, as well as numerous other groups. Over 4000 new sites for delivery of services would be opened and over 32,000 communities would be served. The three-year budget for 34 of these 42 Catalytic Projects was 50.9 million USD. Over 8.4 million USD has been already committed for these 34 projects. Another 8.1 million USD of support was considered almost certain, and an additional 18.6 million USD worth of support was currently under negotiation. In some cases the entire project funding has been assured, but in others there was no support as yet. Incremental costs are presented for each Catalytic Project. A sensitivity estimate was presented for each project showing the expected reduction in achievement if funding was incomplete. As there was evidence of overlap and redundancy among the projects, a process of rationalisation was recommended.

The cost for 2001-2003 for the entire complex of activities, including projections for the use of HAART is estimated to be 559.9 million USD.

A brief review of cost effectiveness data on some of these activities was presented. In economic terms the most cost-effective investments would include TB prevention among HIV positive persons and MCTC interventions.

Other activities with favorable cost benefit characteristics include targeting of high-risk populations, the treatment of active TB, BTS, VCT and condom social marketing. The cost effectiveness of programmes to enhance STD treatment is currently debated. Hospital care of AIDS patients is not very cost effective, but is an obligatory cost for humanitarian reasons. Decentralization of AIDS care and Community-based Home Care may be more cost effective than care in a hospital. The treatment of opportunistic infections is similarly not cost effective, though the prevention of such infections with the use of co-trimazole is likely to be more cost effective. HAART treatment of AIDS, if Zambia decides to opt for this activity, would be enormously expensive, and not cost-effective.

A set of criteria that might be used by decision-makers is suggested to include 1) the net cost to GRZ, 2) the cost to donor partners, 3) effectiveness of the activity, 4) cost effectiveness of the activity, 5) the future financial implications for GRZ, 6) the impact on the future development of Zambia, and 7) humanitarian concerns. A decision matrix applying these criteria to the activities proposed in the Framework is presented. Best choices for investment by GRZ and its donor partners would appear to include: Support for the Council and Secretariat, Surveillance, Condom Social Marketing, TB treatment, TB prevention in HIV positive persons, and MTCT. Next best choices include Condom Distribution by GRZ, VCT, School-based education, the Catalytic Projects, BTS, STDs, and Operations Research. Good choices include: Female Condom Distribution, Co-trimazole prophylaxis and Social Welfare. A less good choice is Community-based Home Care. Hospital Care is a poor investment choice and HAART treatment is the least good choice of all.

Recommendations included strong public advocacy by leaders, prioritizing scaling-up activities known to be effective, the selection of criteria to be used in making financing decisions for HIV/AIDS activities, the use of a decision matrix applying these criteria, maintaining the capacity to perform economic analysis and to direct operational research, rationalizing the Catalytic Projects, monitoring the Catalytic Projects, the enhancement of district level authority and responsibility for scaling-up HIV/AIDS interventions, decentralization of AIDS care to the level of health centres, the production of Zambian guidelines for the care of HIV/AIDS patients and the arrangement of integrated training for primary care providers in AIDS care, the definition of a "Core Package" of commodities advisable for all patients receiving community based home care, the exploration of all options for reduced prices of HIV/AIDS drugs, including a review of the Value Added Tax, and the acquisition of estimates for school-based programs and social welfare programs directly from the relevant ministries.

Chapter 1

Background

1.1 Introduction

Over 50 million people are infected with the HIV/AIDS worldwide. To date more than 16 million have died from the virus. Over 15,000 people are newly infected each day. The vast majority of all those living with the HIV/AIDS are in the developing countries, particularly in Southern Africa. In Zambia the National AIDS programme reported 15,000 cases in 1991. By 1993 and 1994 AIDS had become the second major cause of mortality among adults in hospitals. It accounted for about 14% of the total deaths. In 1998 the estimated adult (15 – 49 years old) prevalence rate for the whole country was 19.7%, while approximately 90,000 Zambians died of AIDS.

The economic and social impact of HIV/AIDS is now very clear. HIV/AIDS is the greatest threat to development in Zambia today. It erodes macro-economic growth, human capital development, and growth in labor productivity. It affects all sectors of the economy by weakening and killing adults in the prime of their lives, consuming savings, and orphaning hundreds of thousands.

The AIDS epidemic is having a devastating impact on Zambia. While the total population of Zambia is approximately 9.1 million, it is estimated that 650,000 Zambians have died thus far in the epidemic. If current trends continue, 1.6 million more may die before the year 2015. (MOH 1999). The prevalence of HIV infection in urban areas of Zambia is 27.9% and in rural areas is 14.8%. About one million Zambians were infected with HIV in 1999, and the number living with AIDS is estimated to be 93,000. Life expectancy has plunged from 54 years in the mid-1980s to only 37 years in 1998. About 25,000 newborns are born with HIV infection each year, leading to a worsening of the infant mortality rate from 90 per thousand live births in 1990 to 109 in 1996. It has been estimated that in 1999 Zambia had 520,000 orphans defined as the loss of one or both parents, usually due to AIDS. This number is expected to reach almost one million by the year 2014. In 1996 seventy-two percent of households were caring for at least one orphan. Mathematical models indicate that the rate of population growth for the whole country is less than 2% per year whereas in the absence of AIDS it would be in excess of 3%. Since the beginning of the epidemic, tuberculosis case rates have increased five-fold such that more than 40,000 cases occurred in 1996. By the year 2014 the number of new cases each year attributable to HIV infection alone will exceed 41,500. By any standard this is an enormous burden of disease for the population of Zambia. It is commensurate with the impact of the World Wars or the plague of Black Death on European populations.

The impact of AIDS on the health of the population of Zambia has reverberations for the society as a whole. In agriculture, the most important sector for Zambia, production is substantially inhibited. Labor time is reduced due to sickness or the need to care for sick family members. Assets such as land, equipment, and livestock must be sold to raise funds to look after the sick. In the education sector over 1600 teachers died of AIDS in 1999 alone. This is a serious impact on the educational system. Zambia must now plan to train 2 teachers for each one who will actually teach. Students often must leave school because of illness or in order to take care of the sick, or because they can no longer afford school fees and other school requisites due to loss of parents or guardians. Enrollment ratios and education levels are falling. In all the other sectors of the economy productivity is going down due to a continuous loss in work hours. At the same time health expenditures and funeral costs are on the increase as more die and fall sick. Furthermore, the costs of human resource development are increasing.

The impact on the health care system itself has been profound. It is projected that 45% of all hospital beds will be utilized for AIDS patients by the year 2014 leading to concerns that patients needing hospitalization for other conditions may be crowded out. On average it is estimated that it costs about \$200 per AIDS patient for hospitalization, yet the per capita expenditure on health by the government of Zambia is only approximately \$3 per year. For the entire country AIDS expenditures were about 3.4 million USD in 1989, but are projected to be 22.1 million USD in 2014. HIV/AIDS is inexorably consuming more and more of the available resources which means that less is available for other important diseases such as malaria and cholera. Thus, AIDS absorbs a very large proportion of all national expenditures on health and “threatens to divert spending from other important health needs.” (MOH). Health professionals die at increased rates. One study showed that the mortality of nurses had increased thirteen-fold between the years 1980 and 1991. (Foster)

The impact on the economy has been substantial as firms experience massive increases in absenteeism and very large costs to reimburse medical care, pensions and funeral costs. Households are severely impacted due to the costs of medical care, time lost from work and funeral costs. About ½ of families face food shortages. About 1/3 of families face break-up. In some cases a surviving widow may have no alternative but to resort to selling sexual favors in order to support her children. In many cases elderly grandparents are left with the burden of raising large families of young children.

Finally, women are disproportionately impacted by AIDS. Overall, in Zambia it is estimated that 1.2 times as many women are afflicted with AIDS than are men. Women are thought to be 2 to 4 times as susceptible to infection with HIV during unprotected intercourse, as well as being more vulnerable to other STDs. Furthermore, women are relatively powerless to protect themselves even though they may suspect their spouse is HIV positive. In addition, they may be expected to practice

“dry sex” which is thought to increase the risk of infection. In the event of the death of the husband, despite protective laws, the widow may be “disinherited” by the husband’s family and may be expected to undergo “sexual cleansing”, thus exposing her to further risk.

Several socio-economic factors have contributed to the severity of the AIDS epidemic in Zambia. Over half the population is under age 20, a group which is particularly vulnerable to AIDS. Urban migration has been intense, and population mobility has increased. The number of female-headed households is increasing. With the collapse of the international market for copper, Zambia’s economy deteriorated rapidly, and its international debts soared astronomically. With the imposition of a stringent Structural Adjustment Programme, privatization has increased and budget reform has been enacted, but at the same time poverty has increased to include more than 70% of the population (CSO), and per capita GNP is among the lowest in Africa. Estimates by the World Bank show that as the HIV prevalence increases growth in GDP declines. The impact on growth is minimal when prevalence of HIV is below 5%. At 8% prevalence rates there is a corresponding decline in GDP of 0.4%. At rates as high as 20%, the GDP is likely to be lower than it would have been by about 1%. Most importantly, Zambia’s debt burden is more than 6.5 billion USD, and it requires 69% of all government expenditure just to service this debt.

There are, however, some hopeful indications that the epidemic may decrease in the years to come. The most important of these is the finding by the sentinel surveillance system that the prevalence of HIV positive tests in 15-19 year-old youth has dropped substantially over most of the country between the years 1994 and 1998. In Lusaka in 1993, for example, 28% of 15-19 year olds were positive, but in 1998 this figure had dropped to 15%. At the same time the overall prevalence of positive tests in the population as a whole appears to be stable and is no longer increasing. These observations are interpreted to mean a reduction in incidence and transmission among youth and young adults. This has been attributed to behaviour changes. Further evidence of behaviour changes has been documented by the recent Sexual Behaviour Survey. Although the current burden of infection will continue to impact Zambia for some years to come and will not be reduced by this finding, it is indeed hopeful that the tide may be turning.

This scenario demands that government and society act as a whole and act immediately. No policies, no matter how well-planned, will bear fruit if the issue of HIV/AIDS is not tackled adequately. No investment will be profitable if the issue of HIV/AIDS is not adequately addressed. Any delay in actions to combat AIDS will inexorably lead to increased prevalence and decline in GDP. HIV/AIDS is the single foremost obstacle to development in Zambia and any development efforts that do not address AIDS are not likely to succeed. Realising the impact of AIDS, many have called for a “change in attitudes, breaking down the conspiracy of silence, and scaling up the national response”. A number of actions have been recommended. Some of these include::

Increasing government commitment, attention and funding: Two countries in Africa, Uganda and Senegal, are known to have taken bold political action and leadership. These countries have recorded some successes in the fight against AIDS. The Zambian government established the National HIV/AIDS Secretariat and Council to lead a multi-sectoral fight against AIDS.. ‘Leadership’ should include not only government, but also political parties, companies (both public and private), institutions of learning (universities, colleges, schools), churches and other respected institutions of society. Leaders must speak openly about the disease, overcome taboos, and place the epidemic at the top of all their agendas. The need to fight has to be stressed at every opportunity. All should remind their audiences of the need to fight and win and of the cost of the disease to society. Though it is common knowledge that many are dying from the disease, very few acknowledge that death is due to AIDS. Very few admit to having a relative, a friend, or associate who has died from AIDS. For most of those who die from AIDS, the announcement is usually that they ‘died after a short illness’ and the medical records do not reflect that they have actually died of AIDS. But, breaking the silence alone is not enough, more resources must be dedicated to the struggle against HIV/AIDS.

Scaling up Prevention and Care Activities: A number of activities such as condom distribution, treatment of STDs, VCT, BTS, and MTCT have been proved to be effective. Such interventions must be scaled up to levels where they can reach all the vulnerable groups. (Watts) (Binswanger) In the rich countries the availability of triple drug therapies have offered hope to AIDS victims. In poor countries the cost of such therapies puts them beyond the reach of the majority of those affected. Likewise the cost to effectively treat opportunistic infections caused by AIDS is very large and often out of reach.. Given that hospital care is very expensive, focus should be on community and home based care interventions. All these require an increase in funds

Research: For most people, HIV/AIDS is a health issue that should be dealt with by the MOH. This is a completely wrong perspective that must be corrected immediately. Research is needed to show how all sectors are affected by HIV/AIDS through low productivity, high expenditures on benefits and funerals, high expenditures on training, and high human resource turnover. Research has to be carried out to show that the cost of intervening is low as compared to no intervention at all and to document the tremendous costs of the disease in every sector and in the

economy as a whole. What for instance is the cost on the administrative sector, the social sector, and the economic sector? Knowledge of this by all will make them realise that HIV/AIDS is not a health sector issue alone.

The Government of the Republic of Zambia has responded to this catastrophic epidemic by completing the Zambia National HIV/AIDS Strategic Framework in November of 1999. The present report presents the costs of interventions proposed in the Framework

1.2 The Development of the Zambia National HIV/AIDS Strategic Framework

The development of the Zambia National HIV/AIDS Strategic Framework follows the establishment of the National AIDS Control Programme in 1986 and a short-term emergency plan in 1987 to protect the blood supply. The First Medium Term Plan (1988-1992) prioritised 8 areas: TB and leprosy; IEC; counseling; laboratory support; epidemiology and research; STDs and clinical care; programme management and home based care. In 1993 the Second Medium Term Plan was launched (1994-1998). AIDS, TB and STDs were integrated and emphasis was placed upon intersectoral approaches. Access to STD care, condom promotion, TB control and mitigation policies were stressed. The current Framework is written to be more flexible and to address the needs of sub-sections of the population according to their specific needs. It is intended to be realistic and, most importantly, multi-sectoral in scope. The Framework comes in the context of a major reform of the health system in Zambia, which has emphasized decentralization and integration. Therefore, the Framework is intended to be used as a planning document at both the central and the district/community levels. While it is acknowledged that the thrust of health reform has been to integrate previously vertical programs, including the former National Aids Control Program, the overwhelming impact of HIV on the entire Zambian society has led to the emphatic designation of the AIDS epidemic as an emergency. This has been resoundingly affirmed at the International Conference on AIDS held in Lusaka in September 1999. Thus, the Framework is written to establish a single, high-level institution which will effectively coordinate the actions of all segments of government and society in the struggle against AIDS. It carefully analyzes the lessons learned from past planning of AIDS programs and lays future plans with these in mind. The Framework also is written in the context of a possible "debt for development swap". The government of Zambia has been carrying out careful planning of how moneys saved from interest payments on foreign loans could serve the purposes of poverty reduction, education, reducing the impact of AIDS and other social goals. To this end GRZ is developing specific milestones by which progress toward social goals could be measured, as the funds became available.

1.3 Content of the Zambia National HIV/AIDS Strategic Framework

The Framework comprehensively documents the impacts of the AIDS epidemic in Zambia. People living with AIDS suffer stigmatization, income loss, poverty and often abandonment. Children may lose their parents and the opportunity to attend school. Families are impoverished and may experience dissolution of social relationships. Communities are compelled to provide for orphaned children and for chronically ill patients. Communities bear the loss of skilled manpower as well. The Zambian economy is sustaining increased costs of production and decreases in consumer spending. Industry bears the direct costs of medical care and funerals, and the workforce is becoming less skilled. The impact on agriculture may include reduced land use, reduced outputs and loss of knowledge and skills. The education sector will bear the burden of heavy losses of human resources and reduced productivity. The health care system will bear a tremendous burden of direct care for patients while enduring substantial losses in personnel.

Certain populations are particularly vulnerable to AIDS. The most vulnerable children are found in child-headed households, on the streets, in households already affected by AIDS, in female headed households, in rural areas and in congested peri-urban locations. Youth, especially out-of-school youth, are at special risk because of prevalent sexual behaviours, lack of knowledge and inadequate life skills. Young girls bear special risk related to sexual behaviour patterns and inability to protect themselves. Orphans and street children are at unusual risk because of poverty and sexual exploitation. Women are vulnerable because of cultural sexual expectations and poverty. Widows may be at risk due to "sexual cleansing" and dispossession. Commercial sex workers are frequently exposed to unprotected intercourse and have rates of HIV infection up to 67%. Truck drivers often have numerous sexual partners, and mortality from AIDS is very high. Migrant and seasonal workers may live for extended periods away from home, and sexual exposure to AIDS is common. Cross-border traders, especially young girls, are very vulnerable. Fishermen and fish-traders may enter "marriages of convenience" which put them at high risk. Military personnel, because of their high mobility and time spent away from families, are at high risk. Prisoners have very high rates of infection probably due to unprotected sex and, at times, rape. Zambia harbors refugees from neighboring countries who may engage in sexual practices which are sanctioned under normal times. People living with AIDS are vulnerable to stigmatization, as well as to opportunistic infections.

The priority of the government in responding to the epidemic has been first to reduce transmission of the virus through IEC, condom promotion and distribution, enhancement of life skills, workplace prevention, STD treatment, blood screening, strengthening health services and counseling and testing of individuals. Secondly, the government has taken steps to reduce the socio-economic impact of HIV/AIDS through workplace support programmes, special programmes for orphans, widows and widowers, support to PLWHA, and advocacy for reducing discrimination. Thirdly, the government has mobilized local and

external resources to combat the epidemic. The government has also mounted a comprehensive surveillance and research programme.

The response at the level of the community has been characterized by “ownership” of the problem, including substantial contributions of in-kind services, as well as mobilization of churches, NGOs and CBOs. Household coping strategies include new income generating activities, home care of patients and the formation of informal extended families. Traditional healers have been helpful in modifying certain risky cultural practices. The Network of Zambian People Living with HIV/AIDS has assumed a leadership role in reducing stigmatization. Neighborhood health committees and a variety of individuals have been helpful in spreading health education messages in rural areas.

The response in Lusaka comprises integrated, community-based interventions, targeting of CSWs, mass communication for behaviour change and targeting youth, but it has been observed that there is no unified coordinating mechanism. In the Copperbelt there has been a focus on youth, mass media for behaviour change and targeting of CSWs. The Copperbelt Health Education Project has been very effective. However, it is noted that coordination by the District Task Forces is not consistent throughout the region. Interventions directed at youth provide employment opportunities and promote healthy relationships and the avoidance of dangerous sexual practices, but youth programmes are not widely available in rural areas and do not include younger children. Interventions for CSWs have been led by the NGO, Tasintha, which trains peer leaders and provides learning for income generation skills. This has been quite successful in Lusaka, but the geographic scope of the intervention for CSWs outside of Lusaka has been limited. World Vision has initiated a programme targeting truckers to promote safer sexual practices, however, the coverage of the programme at present may be only about 6% of truckers. (Wilson) Migrant and seasonal workers are served by some private programmes such as Zambia Sugar in Nakambala, but it is unknown how broad the coverage is. Cross-border traders are served indirectly by programmes directed at truckers. Programmes such as the one directed by the District Task Force in Livingstone may have good future potential. There are limited responses directed at the fishing trade through district hospitals, but the coverage is low. The Zambia Defence Forces have a programme on prevention and STD treatment targeting 30,000 military personnel, but, due to financial constraints, the bases where the mortality is highest have not been reached. Prisoners are targeted by the Kafimsa pilot project, which uses peer education and VCT, but prisoners’ vulnerability remains high. The YMCA and the UNHCR have targeted refugees with educational and health services, but these have been subject to shortages of materials and human resources and coverage is only about 30%. NZP+ supports VCT and income generation activities, but the scope of the programme is limited to only several communities. A new programme to prevent maternal child transmission is underway in 3 pilot sites, but will require scaling up in order to protect substantial numbers of babies. Home-based care programmes are available in a number of areas, but coverage is low and often the result is simply a shifting of the burden from the hospital to households. Interventions for OVC have been carried out mainly by NGOs and CBOs and include efforts to provide shelter and food and schooling. Government support for these programmes is available, but not widely utilized. In summary, there are many promising interventions which might be scaled-up if resources were available.

Political obstacles to the success of the responses include the need to harmonize programme efforts and political decision-making, the lack of strategic management, the lack of political guidance on macro-economic policies relating to HIV/AIDS and unresolved policy barriers to certain prevention programmes. Structural economic obstacles to success include the predominance of copper as a source of foreign exchange, structural adjustment and market liberalization, the high national debt, heavy reliance on donor funding and threats to regional stability. Institutional obstacles to success include insufficient human resource planning, fragmented collaboration, a poorly developed system for advocacy, ambiguous refugee policy, the under-utilisation of the district system, the lack of gender-based planning, difficulty in scaling-up, limited NGO coverage, inadequate networking, limited private sector involvement, poor local resource mobilisation and poor access to loans by women.

The main opportunities available for improved success include the adoption of a strategic framework, the decline in HIV prevalence among youth, improved targeting, scaling-up of interventions, increased demand for testing, expanded information base, syndromic management of STDs, shifts in cultural norms and practices, an inter-faith response, advances on a National Policy on Gender, an enabling environment for NGOs, a business coalition on AIDS, and the United Nations Theme Group coordination of support.

The Framework outlines National Guiding Principles for the national response, as well as priority areas and strategic goals. Priorities are defined by geographic area and by vulnerable sub-populations. Priority interventions are listed, and a number of “catalytic projects” are identified (see below). Five principal strategies are listed and an institutional framework is outlined. This includes a National HIV/AIDS/STD/TB Council and corresponding Secretariat. The relationship of these to the Technical Working Groups and to the relevant line ministries is defined. National level implementation will be coordinated among 14 ministries by the National Council and Secretariat. The Central Board of Health will remain responsible for health care. District and community level implementation will be coordinated by the District Health Management Teams through the mechanism of the District Basket Funding System. Operational challenges are noted, and coordination, monitoring and evaluation as well as resource mobilisation are discussed.

1.4. Costing the Zambia National HIV/AIDS Strategic Framework

The main purpose of costing the National Strategic framework and other interventions was to provide estimates of the resource requirements for implementation. The costing was also to provide estimates of the direct costs which would be borne by GRZ and by its donor partners in implementing the interventions. The estimates presented are “needs-based”, that is, they assume proper management of activities according to Zambian standards and guidelines. They are not simple extrapolations of current practice which today is often limited by drug stock-outs and other resource constraints. Effort was made to estimate unit costs for each of the activities. Government projections for targeted levels of activities for the period 2001-2003 were utilised. Since the Framework projected substantial expansion of certain activities, for example, MTCT, estimates were made of the costs necessary for the expansion over and above the simple trend of unit costs and presented as distinct from the unit costs. Total costs are the summation of unit costs and expansion costs. Finally, the “gap” between needed resources and the resources which are currently promised was estimated.

The strategies for estimating costs for the activities proposed in the Framework were varied. In general, the recommendations found in the WHO costing manual, **Costing Guidelines for HIV/AIDS Prevention Strategies** by Kumaranayake et al were followed. For some interventions such as ensuring safe blood transfusions, estimates were made from the “bottom-up”. The major steps necessary to ensure blood safety were identified and with the help of Zambian experts estimated the costs for each element of each step. For other interventions, the “bottom-up” approach was not practical within the time frame and resource constraints of the exercise. In some cases international standards taken from the experience of Zambia’s neighbors were utilized. For example, the estimation of the cost of treatment of opportunistic infections was based on the experience of other sub-Saharan African countries. For other activities cost estimates had already been made by the relevant organization and we simply accepted their estimates and incorporated them into our tables. This was the case for estimating the costs of condom social marketing. In some cases a de novo approach was taken. This is exemplified by the estimation of hospital costs where we separately estimated the “hotel costs” costs of AIDS care, the drug costs and the costs of procedures and then summed to arrive at an overall estimate for the hospital care of AIDS patients. In many cases it was necessary to rely on expert opinion to make the estimates. Insofar as possible a modified Delphi technique was used to aggregate the estimates of Zambian experts. Whenever possible we validated our cost estimates by comparison with the work of others in Zambia or in neighboring countries or by comparing results using more than one methodology or by comparing our estimates with those made with computer cost models.

A few caveats are in order. Despite our strongest efforts, costing information for some activities simply could not be obtained. These included school-based education and social welfare. The only cost estimates for school-based education or government social welfare programs that could be made were extrapolated from unpublished data from Kenya.

1.5. Methodology

STEP 1: The initial step in this costing exercise was to determine the data sources for each activity, including the institutions and the key informants.

STEP 2: Using researchers own knowledge and secondary data from literature review, initial research instruments were designed for each activity. These instruments were discussed with experts and the key informants to determine their appropriateness. The instruments basically aimed to collect information on the production process and the different inputs required and costs incurred to get each unit of output. After the comments of the experts were incorporated, final instruments were produced.

STEP 3: The redesigned instruments were again redistributed to the appropriate institutions and experts who were requested to fill in expenditure figures for each step in the production process. Apart from the expenditure figures, the experts were also requested to give the actual types and amounts of inputs used or required wherever this was possible as well as the number of units of output produced in the last year. This information was then used to calculate the unit costs for each activity. The experts were also requested to indicate what the scale up or expansion costs would be

STEP 4: Target levels of activities were estimated by Zambian planners using data obtained from the MOH, CBOH, UNAIDS, UNICEF, HIV/AIDS secretariat, and NGOs. Also obtained at this stage were the list of drug prices from the CBOH.

STEP 5: The last step involved combining for each activity the unit costs per year, the target levels of activities, and the scale-up costs to arrive at the total cost of each strategy. The total resource requirement for fighting the pandemic was arrived at by summing up the requirements for all activities.

Chapter 2 Cost Estimates for HIV/AIDS Interventions

2.1 Activities Costed

The following table displays the activities costed. The list was generated in consultation with the MOH, the CBOH and the UN Theme Group on AIDS. Each of the activities is discussed in further detail below.

Table 1. HIV/AIDS Interventions Costed

Activity Costed	Comments
National HIV/AIDS Council/Secretariat	Staffing and salary estimates are under re-consideration
Catalytic Projects	Includes: Orphans and Vulnerable Children, Other Mitigation activities, Youth, Targeting high- risk populations, Agriculture workers, Workplace interventions, Mass media, and others
Surveillance	
Blood Transfusion Services	
Condom, social marketing	
Condom, GRZ distribution	International unit costs utilized
Condom, female	New programme in Zambia
Voluntary Counseling and Testing	
Sexually Transmitted Diseases	
Tuberculosis	
Tuberculosis prophylaxis	
Hospital Care	
Community-Based Home Care	
Maternal to Child Transmission	
Co-trimazole prophylaxis	
Operations research	
Highly Active Anti-retroviral Treatment	
Education, school-based	Zambia estimates not available; neighbor country data used
Social Welfare	Zambia estimates not available; neighbor country data used

2.21 Costing the National HIV/AIDS/STD/TB Council and Secretariat

In order to have maximum impact on the fight against the HIV/AIDS pandemic it is proposed in the strategic framework that a National Council and Secretariat be formed immediately. The justification for this is not far to find. Though it has not yet been established, the economic and social impact of the pandemic goes far beyond anything that the human race, particularly the developing countries has experienced.

2.22 Costing Scenario for the National Council and Secretariat

It is assumed that the current building occupied by the ICASA Secretariat will be purchased and turned into the HIV/AIDS National Council and Secretariat. It is also assumed that the Council will consist of 15 members, while the Secretariat will employ a total of 21 members of staff (see Table 2). With these assumptions and a 10% contingency for inflation, salary increments and other unforeseen circumstances, the total budget for the next three years has been estimated to be US\$4,181,101. The budgets for the years 2001, 2002, and 2003 are put at US\$1,442,180; US\$1,304,248; and US\$1,434,673 respectively.

The budget estimates have been divided into four major components: capital costs, operating or recurrent costs, capital replacement costs, and other costs. These components and the main items in each are further discussed below.

2.23 Capital Costs

In the year 2001, capital costs account for US\$256,500 or 17.8% of the total budget estimate. The main items under capital costs are purchase of a building at a cost of US\$ 96,500 for the offices, and purchase of 4 vehicles at a total cost of US\$160,000. No other equipment has been budgeted as it is assumed that the Council / Secretariat will be allowed to take over the equipment that is currently utilized by the ICASA Secretariat. In the subsequent years, 2002 and 2003, no other capital costs are expected. Over the three-year period, therefore, capital costs are expected to account for only US\$ 256, 500 or 6.1% of the total budgeted expenditure.

2.24 Operational / Recurrent Costs

Recurrent costs account for 48.4% in the year 2001 and rise to 58.9% in the subsequent two years. The cause of the rise in this item is firstly due to the lack of capital expenditures in 2001 and 2002, and secondly due to the 10% added for contingency purposes. Over the three-year period recurrent expenditures will account for US\$2,312,631 or 55.3% of the total budgeted expenditure. The major expenditure items under recurrent expenditure are salaries / staff emoluments and monitoring. Salaries account for 32.7% of the total budgeted expenditure over the three-year period (28.6% or US\$413,040 in 2001, 34.8% or US\$454,344 in 2002, and 34.8% or US\$499,778 in the year 2003. The proposed staffing and staff emoluments for the secretariat are given in Table 2 below.

Table 2: HIV/AIDS Secretariat – Proposed Staffing and Staff Emoluments

Position	Monthly Salary (in US \$)	Annual Total (In US \$)
1. Director	6,000	72,000
2. Head of Programmes	4,000	48,000
3. Prevention Officer	2,000	24,000
4. Care & Support Officer	2,000	24,000
5. Impact Mitigation Officer	2,000	24,000
6. IEC Officer	2,000	24,000
7. Liaison Officer (Catalytic Projects)	1,000	12,000
8. Assistant Liaison officer	800	9,600
9. Administrative Assistant (Working Group)	600	7,200
10. Manager – MIS	2,500	30,000
11. Programmer	1,500	18,000
12. Data Entry Clerk	600	7,200
13. Accountant	2,000	24,000
14. Assistant Accountant	1,500	18,000
15. Office Manager	2,500	30,000
16. Administrator	1,500	18,000
17. Administrative Assistant	1,000	12,000
18. Secretary	500	6,000
19. Driver Mechanic	180	2,160
20. Driver	130	1,560
21. Office Orderly/Messenger	110	1,320
TOTAL	34,420	413,040

Table 3: Detailed Budget for National Council and Secretariat (in US\$)

Year		2001		2002	2003	3 Year Total
Item	Unit Cost	No. of Units	Total Amount	Total Amount	Total Amount	Total Amount
Budget line Elements / Expenditure						
A. Capital Costs						
1. Buildings	96500	1	96500			96,500
2. Vehicles	40,000	4	160,000			160,000
3. Equipment	Nil	Nil	Nil	Nil	Nil	-
4. Other						-
Total			256,500	-	-	256,500
B. Operating Costs / Recurrent						
1. Salaries / Staff Emoluments						
(i) Regular Staff (see annex)		31	413,040	454,344	499,778	1,367,162
(ii) Community Volunteers				-	-	-
(iii) Statutory Payments				-	-	-
(iv) Staff Welfare				-	-	-
2. Allowances			3,680	4,048	4,453	12,181
3. Travel and Accomodation			40,000	44,000	48,400	132,400
4. Supplies						
Cleaning Materials			20,000	22,000	24,200	66,200
Printing and Stationery			30,000	33,000	36,300	99,300
Food Supplies						
5. Utilities						
i. Water	100		1,200	1,320	1,452	3,972
ii. Electricity	125		1,500	1,650	1,815	4,965
iii. Telephone	350		4,200	4,620	5,082	13,902
iv. Fax	180		2,160	2,376	2,614	7,150
6. Vehicle Operating costs						
Fuel / Lubricants	1,200		12,000	13,200	14,520	39,720
Spares and Maintenance	2,000		24,000	26,400	29,040	79,440
7. Monitoring (Zam-Core Epi)			130,000	143,000	157,300	430,300
8. Workshops and Seminars	2,500		2,500	2,750	3,025	8,275
9. Maintenance and Repair of buildings and equipment						
Buildings	400	1	4,800	5,280	5,808	15,888
Equipment	800	Miscell.	9,600	10,560	11,616	31,776
10. Other (Specify)						
Total			698,680	768,548	845,403	2,312,631
C. Capital Replacement Costs						
1. Buildings						
2. Vehicles (5 years)	8,000	4	32,000	35,200	38,720	105,920
3. Equipment						
I. Computer Scanner and printer						
4. Other						
Furniture						
Total			32,000	35,200	38,720	105,920
D. Other Costs (specify)						
Audit Fees	20,000	2	40,000	44,000	48,400	132,400
Income Generation			100,000	110,000	121,000	331,000
Studies/research						
IEC Material development	35,000	9	315,000	346,500	381,150	1,042,650
Expert Working Groups (MTCT, VTWG, VCT etc)						
Total			455,000	500,500	550,550	1,506,050
GRAND TOTAL			1,442,180	1,304,248	1,434,673	4,181,101

2.31 Costing the Catalytic Projects

The list of Catalytic Projects annexed to the Framework was prepared over nearly a year of planning. The National AIDS Programme and Strategic Team applied the prioritization principles in the Framework related to geographic distribution, sub-population emphasis and type of intervention. Some 42 Catalytic Projects were identified nation-wide which had strong potential for scaling-up and for substantive contribution in the struggle against AIDS. The implementing agencies for the Catalytic Projects ranged from government ministries to NGOs and CBOs to the private business sector. Early in 1999 consultants visited some of these organizations to assess their potential. All expressed readiness for expansion of their activities, and nearly all were constrained by limited resources.

In order to estimate the scale and cost of the Catalytic Projects the leaders of the implementing agencies were contacted and meetings were arranged. Plans were discussed and the implementing agencies were asked to submit their budgets for scale-up activities for the years 2001, 2002 and 2003 according to the standard GRZ format. The agencies also identified numerical "scale-up targets" for the three years as well as their best estimate of how budget constraints might affect achievement of these targets. Existing and potential funding for scale-up activities was also queried.

Of the 42 projects sufficient data could be obtained on 34 projects. The responding projects are shown in Table .4 below.

Table 4: Responding Catalytic Projects

<i>NGOs</i>	
1.	ADOLESCENT REPRODUCTIVE HEALTH PROJECT
2.	CARE INTERNATIONAL
3.	CHILDREN IN NEED (CHIN)
4.	COMMONWEALTH YOUTH CONCERN
5.	COPPERBELT HEALTH EDUCATION PROJECT
6.	FAMILY HEALTH TRUST
7.	FAMILY LIFE MOVEMENT OF ZAMBIA
8.	HARVEST HELP ZAMBIA
9.	KARA COUNSELLING
10.	LINK ASSOCIATION FOR RELIEF OF CHILDREN (LARC)
11.	NDOLA DIOCESE
12.	NETWORK OF ZAMBIANS LIVING WITH AIDS
13.	NZPLA
14.	PLANNED PARENTHOOD ASSOCIATION OF ZAMBIA (PPAZ)
15.	PRISONS FELLOWSHIP OF ZAMBIA
16.	SOCIETY FOR FAMILY HEALTH
17.	SOCIETY FOR WOMEN AND AIDS
18.	TASINTHA
19.	WOMEN FOR CHANGE
20.	WORLD VISION INTERNATIONAL
21.	YMCA
22.	YWCA
23.	ZAMBIA FEDERATION OFEMPLOYERS (ZFE)
GOVERNMENT MINISTRIES & AGENCIES	
24.	COPPERBELT UNIVERSITY - PRISONS
25.	MINISTRY OF COMMUNITY DEVELOPMENT AND SOCIAL SERVICES
26.	MINISTRY OF COMMERCE, RADE & INDUSTRY
27.	MINISTRY OF DEFENCE
28.	MINISTRY OF EDUCATION
29.	MINISTRY OF HOME AFFAIRS
30.	MINISTRY OF LABOUR & SOCIAL SERVICES
31.	MINISTRY OF SCIENCE , TECHNOLOGY AND VOCATIONAL TRAINING
32.	MINISTRY OF SPORT , YOUTH & CHILD DEVELOPMENT
33.	UNZA INSTITUTE OF ECONOMIC RESEARCH
34.	ZAMBIA INFORMATION SERVICES

The cumulative target levels for catalytic project activities are shown in Annex 3.. The overall number of clients that would be served with full funding is shown in the second column. The last three columns show the number of clients that would be left out at the different levels of funding. To take one example, the number of new youths that would be served at 100% funding level is 733,806. However, if the projects got only 75% of the required funding, 205,858 new youths out of the 733,806 would not be reached. If there is a 50% financing gap, about 50% will not be served. If only 25% of the funding is made available 525,871 youths will not be served.

Annex 3 on Scaling-up Targets clearly reflects some redundancy. Some of the Catalytic Projects must be targeting identical groups because in some categories, the scale-up targets exceed the best estimates of the entire number believed to be in each category. This probably results from the fact that the projects were planned independently, and it underscores the importance of coordination. It would be advisable, now that rather complete information is available on scale-up targets and budgets, to review and rationalise the list of Catalytic Projects. Redundancy is not necessarily undesirable because it is possible that some Catalytic Projects could be complementary or synergistic with each other. On the other hand, with limited resources available, it will be important to assure that duplicative activities are eliminated.

The cumulative budgets for full implementation are shown in Table 5. For each of the Catalytic Projects all costs are shown for each of the three years and as a total over the entire time period. For all the 34 projects put together a total of US\$50,980,794 is required if the full targets indicated are to be achieved. This total sum is distributed over the years as follows: US\$16,927,882 in the year 2001; US\$15,169,673 in 2002; and US\$18,883,239 in 2003. These financial requirements are distributed between capital costs, recurrent costs, replacement costs, and other costs as follows: In the year 2001 the highest proportion goes for recurrent costs (61%), followed by capital costs (29%), capital replacement costs (6 %), and then other costs (4 %). This distribution pattern does not change much in the subsequent years.

The respondents to the research instrument were asked to indicate their income expectations and the certainty of those expectations. Table 6 gives the expected income, the budget and the difference between the two for each catalytic project over the whole period. In all years the total budgets are higher than the expected incomes. The deficits are US\$7,821,388 in year 2001; US\$5,427,729 in year 2002; and US\$9,035,929 in year 2003. This gives a total deficit of US\$22,285,046 over the three-year period. In spite of this, there are a few Catalytic Projects that have excess resources compared to the budget requirements in all or some of years. These include Family Health Trust, Care International, Adolescent Reproductive Health Project, YMCA, Women for Change, Children in Need (CHIN), Kara Counselling, and YWCA. Substantial amounts have already been committed for some of the projects, and, indeed, some are virtually completely funded, but others have no committed funds. Committed funds total US\$8,899,138, of which US\$8,360,238 is committed by donors and US\$679,867 has been committed by the GRZ. Households are expected to fund US\$284,400 and “other sources” of committed income total US\$254,500. Another US\$8,190,781 was considered “almost certain”. Of this amount US\$7,353,112 was from donors; US\$320,740 was from the GRZ; US\$506,929 was “other income” and US\$10,000 was from employers. A further amount of funding of US\$18,652,486 was reported to be “under negotiation”. Of this amount US\$12,417,962 was from donors; US\$6,144,514 was from the GRZ; and US\$90,000 was from households. Table 7 shows these breakdowns. In the best case scenario where all projects under negotiation were funded, the shortfall of US\$22,285,046 would still need to be funded in order to assure that all targets would be met.

Table 5: Catalytic Projects Cumulative Budgets, 2001 to 2003 (in US\$)

	2001					2002					2003					3 YEAR TOTAL	WITH 100% FUNDING
	CAPITAL COSTS	RECURRENT COSTS	CAPITAL REPLACEMENT COSTS	OTHER COSTS	TOTAL COSTS	CAPITAL COSTS	RECURRENT COSTS	CAPITAL REPLACEMENT COSTS	OTHER COSTS	TOTAL	CAPITAL COSTS	RECURRENT COSTS	CAPITAL REPLACEMENT COSTS	OTHER COSTS	TOTAL		
1. TASINTHA	43,500	198,200	47,500	-	289,200	10,000	214,700	5,000	-	229,700	25,000	184,200	-	-	209,200	728,100	11,300
2. FAMILY HEALTH TRUST	-	1,269,749	90,390	97,855	1,457,994	-	1,267,606	93,290	89,293	1,450,189	-	1,311,775	200	85,088	1,397,063	4,305,246	286,800
3. NETWORK OF ZAMBIANS WITH AIDS	133,855	101,960	-	-	235,815	3,855	101,960	-	-	105,815	2,735	102,680	-	-	105,415	447,045	5,960
4. MINISTRY OF DEFENSE	114,550	504,149	24,000	-	642,699	114,550	504,149	24,000	-	642,699	114,550	504,149	24,000	-	642,699	1,928,097	60,000
5. SOCIETY FOR WOMEN AND AIDS	157,000	380,800	-	3,000	540,800	12,000	554,040	62,000	3,600	631,640	-	664,658	-	10,000	674,658	1,847,098	26,928
6. COMMUNITY YOUTH CONCERN	44,000	163,320	15,000	-	222,320	44,000	163,320	15,000	-	222,320	44,000	163,320	15,000	-	222,320	666,960	45,600
7. MINISTRY OF COMMUNITY DEVELOPMENT	46,539	145,960	-	-	192,499	-	155,384	32,692	-	188,076	-	204,231	76,924	-	281,155	661,730	600
8. COPPERBELT UNIVERSITY – PRISONS	70,000	63,700	-	-	133,700	-	63,700	-	-	63,700	-	64,600	-	-	64,600	262,000	17,000
9. COPPERBELT HEALTH EDUC.PROJECT	72,862	277,580	-	11,500	361,942	-	269,780	-	10,000	279,780	-	281,243	113,000	12,000	406,243	1,047,965	53,231
10. ZAMBIA INFORMATION SERVICES	58,694	101,730	-	-	160,424	-	81,211	-	-	81,211	-	81,211	-	-	81,211	322,846	9
11. CARE INTERNATIONAL	210,526	1,378,685	1,176	53,858	1,644,245	-	1,327,639	1,211	44,344	1,373,194	-	1,335,028	935	41,440	1,377,403	4,394,842	43,800
12. CHILDREN IN NEED (CHIN)	15,000	51,500	-	-	66,500	35,000	56,455	-	-	91,455	10,000	64,926	-	-	74,926	232,881	255
13. SOCIETY FOR FAMILY HEALTH	80,000	686,500	-	-	766,500	-	565,250	-	-	565,250	-	605,500	-	-	605,500	1,937,250	6,060,620
14. KARA COUNSELLING	192,000	542,543	-	32,689	767,232	19,000	588,953	-	40,409	648,362	-	625,078	45,164	-	670,242	2,085,836	57,062
15. NDOLA DIOCESE	-	533,949	-	67,959	601,908	-	533,949	-	67,959	601,908	-	533,949	-	67,960	601,909	1,805,725	-
16. NZPLA	132,735	103,080	-	-	235,815	2,735	103,080	-	-	105,815	2,735	81,600	-	-	84,335	425,965	5,960
17. ADOLESCENT REPROD. HEALTH PROJECT	128,900	559,480	-	6,673	695,053	-	546,980	-	5,440	552,420	-	533,480	5,470	-	538,950	1,786,423	1,600,000
18. PPAZ)	294,400	445,669	-	-	740,069	-	546,952	-	-	546,952	-	385,000	-	-	385,000	1,672,021	63,960
19. FAMILY LIFE MOVEMENT OF ZAMBIA	326,800	495,669	-	-	822,469	-	546,952	-	-	546,952	-	463,000	-	-	463,000	1,832,421	34,440
20. HARVEST HELP ZAMBIA	81,387	89,909	9,300	-	180,596	33,587	113,644	9,300	-	156,531	2,000	82,536	300	-	84,836	421,963	-
21. YMCA	71,000	177,460	7,000	-	255,460	1,000	191,460	-	-	192,460	-	204,912	-	-	204,912	652,832	88,000
22. WOMEN FOR CHANGE	77,500	86,500	10,660	-	174,660	-	86,500	10,660	-	97,160	-	86,500	10,680	-	97,180	369,000	6,000
23. YWCA	15,385	7,601	-	-	22,986	-	7,601	-	-	7,601	-	9,528	-	-	9,528	40,115	4,400
24. MINISTRY OF SCIENCE	31,500	40,400	-	-	71,900	-	52,850	-	-	52,850	-	51,350	-	-	51,350	176,100	75
25. MINISTRY OF EDUCATION	30,000	185,100	-	130,000	345,100	270,000	269,600	-	-	539,600	2,880,000	329,600	-	-	3,209,600	4,094,300	-
26. UNZA INSTITUTE OF RESEARCH	35,000	32,232	-	-	67,232	-	70,810	-	-	70,810	-	70,810	-	-	70,810	208,852	18
27. PRISONS FELLOWSHIP ZAMBIA	42,500	61,120	-	-	103,620	-	68,000	-	-	68,000	-	106,340	-	-	106,340	277,960	-
28. MINISTRY OF HOME AFFAIRS	208,700	79,500	201,500	299,900	789,600	410,000	107,800	284,000	-	801,800	465,000	134,500	345,000	-	944,500	2,535,900	1,700
29. LARC	366,614	134,002	-	-	500,616	-	134,042	-	-	134,042	-	134,263	-	-	134,263	768,921	70
30. ZAMBIA FEDERATION OF EMPLOYERS)	85,000	236,200	16,200	-	337,400	-	271,630	16,200	-	287,830	-	311,860	16,200	-	328,060	953,290	4,500
31. MINISTRY OF COMMERCE	17,692	11,770	-	-	29,462	19,461	12,947	-	-	32,408	21,407	14,242	-	-	35,649	97,519	750
32. MINISTRY OF LABOUR & SOCIAL SERVICES	19,231	54,230	1,923	-	75,384	23,077	45,383	2,308	-	70,768	-	44,614	4,616	-	49,230	195,382	135
33. WORLD VISION	7,625	115,673	-	-	123,298	-	127,240	-	-	127,240	-	139,601	-	-	139,601	390,140	-
34. MINISTRY OF SPORT, YOUTH & CHILD	1,759,615	971,461	523,077	19,231	3,273,384	1,477,664	1,367,777	734,616	23,077	3,603,134	1,007,692	2,214,243	1,278,847	30,769	4,531,551	11,408,069	3,197,132
TOTAL	4,970,110	10,287,381	947,726	722,665	16,927,882	2,475,929	11,119,344	1,290,277	284,122	15,169,673	4,575,119	12,124,527	1,885,702	297,891	18,883,239	50,980,794	11,676,305

Table 6: Gap Between Income Expected and Total Budgets for Catalytic Projects

IMPLEMENTING AGENCY	2001			2002			2002			TOTAL	TOTAL	3
	INCOME EXPECTED	TOTAL BUDGET	DIFFERENCE	INCOME EXPECTED	TOTAL BUDGET	DIFFERENCE	INCOME EXPECTED	TOTAL BUDGET	DIFFERENCE	INCOME EXPECTED OVER 3 YRS	BUDGET OVER 3 YRS	YEAR DIFFERENCE
1. TASINTHA	25,000	289,200	(264,200)	31,500	229,700	(198,200)	38,000	209,200	(171,200)	94,500	728,100	(633,600)
2. FAMILY HEALTH TRUST	1,466,989	1,457,994	8,995	1,496,886	1,450,189	46,697	1,434,616	1,397,063	37,553	4,398,491	4,305,246	93,245
3. NETWORK OF ZAMBIANS LIVING WITH AIDS	58,120	235,815	(177,695)	50,000	105,815	(55,815)	50,000	105,415	(55,415)	158,120	447,045	(288,925)
4. MINISTRY OF DEFENCE	60,000	642,699	(582,699)	60,000	642,699	(582,699)	60,000	642,699	(582,699)	180,000	1,928,097	(1,748,097)
5. SOCIETY FOR WOMEN AND AIDS	65,400	540,800	(475,400)	61,800	631,640	(569,840)	4,800	674,658	(669,858)	132,000	1,847,098	(1,715,098)
6. COMMUNITY YOUTH CONCERN	10,000	222,320	(212,320)	10,000	222,320	(212,320)	10,000	222,320	(212,320)	30,000	666,960	(636,960)
7. MINISTRY OF COMMUNITY DEVELOPMENT	192,307	192,499	(192)	188,077	188,076	1	281,154	281,155	(1)	661,538	661,730	(192)
8. COPPERBELT UNIVERSITY – PRISONS	-	133,700	(133,700)	-	63,700	(63,700)	-	64,600	(64,600)	-	262,000	(262,000)
9. COPPERBELT HEALTH EDUCATION PROJECT	-	361,942	(361,942)	-	279,780	(279,780)	-	406,243	(406,243)	-	1,047,965	(1,047,965)
10. ZAMBIA INFORMATION SERVICES	-	160,424	(160,424)	-	81,211	(81,211)	-	81,211	(81,211)	-	322,846	(322,846)
11. CARE INTERNATIONAL	1,968,775	1,644,245	324,530	1,711,144	1,373,194	337,950	1,610,441	1,377,403	233,038	5,290,360	4,394,842	895,518
12. CHILDREN IN NEED (CHIN)	50,500	66,500	(16,000)	101,000	91,455	9,545	101,000	74,926	26,074	252,500	232,881	19,619
13. SOCIETY FOR FAMILY HEALTH	-	766,500	(766,500)	-	565,250	(565,250)	-	605,500	(605,500)	-	1,937,250	(1,937,250)
14. KARA COUNSELLING	550,618	767,232	(216,614)	701,329	648,362	52,967	660,928	670,242	(9,314)	1,912,875	2,085,836	(172,961)
15. NDOLA DIOCESE	500,309	601,908	(101,599)	500,309	601,908	(101,599)	500,308	601,909	(101,601)	1,500,926	1,805,725	(304,799)
16. NZPLA	50,000	235,815	(185,815)	50,000	105,815	(55,815)	-	84,335	(84,335)	100,000	425,965	(325,965)
17. ADOLESCENT REPROD. HEALTH PROJECT	919,002	695,053	223,949	460,062	552,420	(92,358)	371,499	538,950	(167,451)	1,750,563	1,786,423	(35,860)
18. PPAZ	16,800	740,069	(723,269)	16,800	546,952	(530,152)	-	385,000	(385,000)	33,600	1,672,021	(1,638,421)
19. FAMILY LIFE MOVEMENT OF ZAMBIA	16,800	822,469	(805,669)	16,800	546,952	(530,152)	-	463,000	(463,000)	33,600	1,832,421	(1,798,821)
20. HARVEST HELP ZAMBIA	-	180,596	(180,596)	-	156,531	(156,531)	-	84,836	(84,836)	-	421,963	(421,963)
21. YMCA	770,000	255,460	514,540	770,000	192,460	577,540	770,000	204,912	565,088	2,310,000	652,832	1,657,168
22. WOMEN FOR CHANGE	498,000	174,660	323,340	498,000	97,160	400,840	499,000	97,180	401,820	1,495,000	369,000	1,126,000
23. YWCA	13,371	22,986	(9,615)	13,372	7,601	5,771	13,372	9,528	3,844	40,115	40,115	-
24. MINISTRY OF SCIENCE , TECH. & TRAINING	14,600	71,900	(57,300)	15,500	52,850	(37,350)	17,000	51,350	(34,350)	47,100	176,100	(129,000)
25. MINISTRY OF EDUCATION	65,000	345,100	(280,100)	-	539,600	(539,600)	-	3,209,600	(3,209,600)	65,000	4,094,300	(4,029,300)
26. UNZA INSTITUTE OF ECONOMIC RESEARCH	-	67,232	(67,232)	-	70,810	(70,810)	-	70,810	(70,810)	-	208,852	(208,852)
27. PRISONS FELLOWSHIP OF ZAMBIA	-	103,620	(103,620)	-	68,000	(68,000)	-	106,340	(106,340)	-	277,960	(277,960)
28. MINISTRY OF HOME AFFAIRS	-	789,600	(789,600)	-	801,800	(801,800)	-	944,500	(944,500)	-	2,535,900	(2,535,900)
29. LARC	17,374	500,616	(483,242)	17,374	134,042	(116,668)	17,397	134,263	(116,866)	52,145	768,921	(716,776)
30. ZAMBIA FEDERATION OF EMPLOYERS (ZFE)	-	337,400	(337,400)	-	287,830	(287,830)	-	35,649	(35,649)	-	660,879	(660,879)
31. MINISTRY OF COMMERCE , TRADE & INDUSTRY	-	29,462	(29,462)	-	32,408	(32,408)	-	35,649	(35,649)	-	97,519	(97,519)
32. MINISTRY OF LABOUR AND SOCIAL SERVICES	75,385	75,384	1	70,770	70,768	2	-	49,230	(49,230)	146,155	195,382	(49,227)
33. WORLD VISION INTERNATIONAL	123,298	123,298	-	-	127,240	(127,240)	-	139,601	(139,601)	123,298	390,139	(266,841)
34. MINISTRY OF SPORT	1,578,846	3,273,384	(1,694,538)	2,361,620	3,603,134	(1,241,514)	3,115,384	4,531,551	(1,416,167)	7,055,850	11,408,069	(4,352,219)
TOTALS	9,106,494	16,927,882	(7,821,388)	9,202,343	15,169,672	(5,967,329)	9,554,899	18,590,828	(9,035,929)	27,863,736	50,688,382	(22,824,646)

Table 7: Sources of Funds for Catalytic Projects

FUNDING FOR 34 CATALYTIC PROJECTS			
	COMMITTED FUNDS	ALMOST CERTAIN	UNDER NEGOTIATION
SOURCE			
GRZ	679,867	320,740	6,144,524
DONORS	8,360,238	7,353,112	12,417,962
EMPLOYERS		10,000	
HOUSEHOLDS	284,400		90,000
OTHER INCOME	254,500	506,929	
TOTALS	\$8,899,138	\$8,190,781	\$18,652,486

2.32 Mobilisation of Resources from the Private Sector for Catalytic Projects

The potential amount of resources which might be mobilized from the private sector may be quite substantial, and the potential importance of prevention activities in the workplace is very significant. A brief survey conducted by the consultant team showed that of 19 businesses surveyed in greater Lusaka, 8 currently had prevention programs in place and 11 more planned to implement programs in the next 2 years. The total number of employees of these 19 businesses was approximately 5000. A telephone call to Zambia Sugar in Nakambala which has a model program covering not only the employees, but also their dependents and the entire community of 22,000 persons as well, gave a rough estimate of company spending of US\$20 per employee on prevention. Barclay's Bank also has a program and spends a substantial amount of resources per employee, though it was not possible to establish the exact amount. Barclay's Bank has taken the leadership role in forming the Zambia Business Coalition on AIDS which is listed as a Catalytic Project.

2.33 Rationalization of the Catalytic Projects

Despite the fact that the catalytic projects were selected, at least in part, to address specific geographic areas, sub-populations and types of intervention, it is quite likely that overlap exists in the targets of their activities. In some cases this may be synergistic and desirable. For example, IEC activities carried out by the Ministry of Information may act in concert with youth peer education activities carried out by NGOs. However, in some cases these activities may be duplicative or redundant and may not represent the most effective utilization of limited funds. Implementing agencies have been asked to submit detailed plans for scale-up activities, and when these are available it would be desirable for decision-makers to carefully review the plans and budgets to carefully select and coordinate a final plan for catalytic activities.

2.34 Coverage of the Catalytic Projects

For some of the Catalytic Projects a fairly precise figure can be estimated for the total population which should be covered. For example, the number of military personnel in the Zambia Defence Force is known. However, for other activities, the total population cannot be estimated with precision. For example, it is difficult to estimate the total number of commercial sex workers in Zambia because of ambiguity in definition and ascertainment. Nonetheless, some rough estimates of the coverage of the Catalytic Projects can be made.

The number of orphans in Zambia has been recently estimated to be 548,938. (National Planning Workshop on Orphans and Other Vulnerable Children, Mulungushi Conference Center, 8-10 December, 1999). In Zambia an orphan is a child up to 18 years of age who has lost one or both parents often because of AIDS. The cumulative number of orphans who would be newly served by scaled-up catalytic projects is estimated to be 7,491,137. Thus, the "scale-up coverage" for orphans would be much greater than 100% of

all existing orphans. This implies that there is certainly some redundancy and overlap in the plans for Catalytic Projects benefiting orphans which should be rationalised.

In Zambia youth are defined as persons between the ages of 15 and 24. The medium variant estimate for Zambia in the year 2000 from the UN Population Division is 2,040,000 youth. The scale-up targets for the Catalytic Projects include 733,806 youth for a “scale up coverage” of 36% percent.

The estimated number of persons infected with HIV in Zambia was 1,009,000 in 1999. The scale-up target for organizations serving PLWHA is 3,044,174. This again exceeds the number of existing persons living with HIV/AIDS, implying redundant plans and the need for rationalisation.

The number of families needing service is difficult to estimate, but an upper limit, assuming one HIV/AIDS case per family, would be 1,009,000. The scale-up targets would include extending service to 377,234 families. This would imply coverage of 37%.

The number of commercial sex workers has not been systematically assessed, but Tasintha estimates there are 4000 to 6000 in Lusaka alone (Wilson). Tasintha now regularly serves about 250 for a coverage rate of approximately 2-5% in Lusaka. The enumeration of commercial sex workers is complicated by the common practice of gifts or occasional paid sex by numerous other women who are not full-time commercial sex workers. More recently, Tasintha estimated that there are approximately 4800 CSWs in Lusaka and four other large towns. Tasintha’s scale-up targets would cover 100% all of the ascertainable CSWs in the towns served, but the total number of CSWs for all of Zambia is unknown, and estimates of scale-up coverage for all of Zambia cannot be made.

The number of truckers is likewise unknown in Zambia, though it is known that there are about 1000 registered trucks in Zambia. Estimates of current and potential coverage of truckers have been made on the basis of the frequency that truckers stay over night in towns on certain routes. It has been estimated in 1999 that coverage may be about 6%, but that scaled-up expansion to the Chirundu and Copperbelt routes might increase coverage to 75% (Wilson).

The ideal number of sites and communities served by anti-AIDS activities cannot be specified but overall an additional 4093 sites would be served and an additional 32,097 communities would be served. The aggregate number of new clients served in all areas and in all activities would be 11,676,305 for all Catalytic Projects.

2.3.5 Unit Costs of the Catalytic Projects

Data was obtained which allowed estimation of some of the unit costs for activities included in the Catalytic projects. Some unit costs of interest include:

- Tasintha training of one CSW for US\$35
- Tasintha treatment of STDs in one CSW for one year for US\$112
- SWAAZ training of one community support person for US\$2
- SWAAZ provision of counselling support in one home US\$0.35
- YMCA care of one refugee for a year for US\$650

2.4 Surveillance

Epidemiologic assessment of the HIV/AIDS epidemic is a critical element of the National Strategic Framework. It is essential for planning, monitoring and evaluation. Epidemiologic Sentinel Surveys (ESS) and Population Based Surveys (PBS) are planned for the period 2000-2004. Costs for training, analysis, dissemination and carrying out the surveys have been projected by Zambian planners and consultants. The figures shown in the Table 8 are based on the most recent draft for discussion of 12/11/99.

The total cost for 2001 -2003 is estimated to be \$960,000. Preliminary donor commitments total \$358,550. Thus, there is an unfunded gap of \$601,450 for the three-year period.

Table 8: Cost of Surveillance

	1999-2000	2001	2002	2003	Totals 2001-2003
Current level of activity	1				
Unit cost (USD)					
Yearly Cost (USD)	205,731				
Target level of activity		1	1	1	
Yearly Target cost		320,000	320,000	320,000	960,000
Expansion cost					
Total cost		320,000	320,000	320,000	960,000
GRZ share					
Partner share		320,000	320,000	320,000	960,000
Commodity cost					
Estimated partner commitments (USD)		225,783	90,633	42,134	358,550
Gap		94,217	229,367	277,866	601,450
Assumptions:					
Projected costs based on discussion draft 12/11/99					
Includes both ESS and PBS surveys					
3200 Kwacha = 1 USD					

2.5 BTS

The estimates for Blood Transfusion Services were based on data supplied by Dr. Mulenga at the UTH. The principal steps in providing one unit of safely transfused blood were identified as follows:

1. Identification of low risk/incidence donors
2. Collection of blood.
3. Screening or testing of blood. (The blood is tested for HIV, Hepatitis, and Syphilis)
4. Blood grouping.
5. Blood storage (by UTH Management)
6. Blood matching
7. Distribution and administration

Estimates for the costs of each of the principal inputs for each step were made. (See Appendix 4). In 1999-2000 some 45,186 units of blood were transfused at a unit cost of \$11 per unit. (Note that several years ago, researchers estimated US\$44 per unit. The effect of this difference is shown in the sensitivity analysis below) Targets for the number of transfusions for the period 2001-2003 were estimated by expert opinion. Based on recent experience it was assumed that GRZ would bear 59% of running costs and 25% of expansion costs. Expansion costs were estimated by expert opinion (see Appendix 4) and were assumed to be linear for expansion in the range of 20% to 50% over the three-year period. Estimates for donor commitments were drawn from a recent World Bank compilation of donor engagements

The number of transfusions per year is expected to increase to 65,000 by the year 2003, an expansion of approximately 44%. Running costs for 2001-2003 assuming 3% inflation of the dollar would be US\$ 2.24 million , of which US\$0.87 million would be for commodities. Expansion costs would be US\$0.32 million . Estimated partner commitments exceed the projected expectations of partner share by US\$0.25 million . (see Table 9)

Table 9: Cost of BTS

	1999-2000	2001	2002	2003	Totals 2001-2003
Current level of activity	45,186				
Unit cost (USD)	11				
Yearly Cost (USD)	502,831				
Target level of activity		60,000	65,000	65,000	190,000
Yearly Target cost		687,712	767,371	790,393	2,245,476
Expansion cost		107,926	107,926	107,926	323,778
Total cost		795,637	875,297	898,319	2,569,253
		GRZ share			
		432,731	479,731	493,313	1,405,775
		Partner share			
		362,906	395,567	405,005	1,163,478
Commodity cost		264,988	295,682	304,553	865,224
Estimated partner commitments (USD)		571,368	631,358	211,778	1,414,504
Gap		(208,462)	(235,791)	193,227	(251,026)
Assumptions:	3% inflation of USD; Expansion costs pro-rated over 3 years; 1 EURO = 0.8644 USD; 3200 Kwacha = 1 USD; GRZ share is 59% of yearly cost + 25% of expansion cost Expansion costs are linear between 20% and 50%				

2.6 Condom Social Marketing

Condom social marketing in Zambia is carried out almost exclusively by the SFH. Rather precise estimates were available both for unit costs and for expansion costs for SFH for the period 2001-2003. Target distribution is also known for the period. (see Table 10). It can be seen that over 24 million condoms will be distributed for the years 2001-2003 at a total projected cost of nearly US\$9.5 million. Since this activity is not subsidized at all by the GRZ, the entire cost would be borne by the SFH.

Table 10: Cost of Condom Social Marketing

	1999-2000	2001	2002	2003	Totals 2001-2003
Current level of activity	6,600,000				
Unit cost (USD)	0.253				
Yearly Cost (USD)	1,670,625				
Target level of activity		7,451,840	8,162,208	8,850,000	24,464,048
Yearly Target cost		1,942,834	2,191,882	2,447,879	6,582,596
Expansion cost		940,019	968,219	997,266	2,905,504
Total cost		2,882,853	3,160,101	3,445,145	9,488,099
GRZ share					
Partner share		2,882,853	3,160,101	3,445,145	9,488,099
Commodity cost					
Estimated partner commitments (USD)		2,882,853	3,160,101	3,445,145	9,488,099
Gap					

Assumptions:

- 3% inflation of USD
- Expansion costs estimated for 11.3% expansion per year
- 3200 Kwacha = 1 USD
- GRZ share is nil

2.7 Condoms through Government Distribution

Essentially 100% of condoms purchased and distributed by the GRZ are handled through the British agency, DFID. We were unable to obtain the estimates for management and handling, but the planning estimates for the numbers of condoms to be distributed for 2001-2003 is known. In order to prepare an

estimate we used international estimates from Confronting AIDS and chose the average unit cost per condom distributed which was US\$0.16.

It can be seen that 48 million condoms will be distributed by the GRZ for the period at a total projected cost of US\$8.17 million. This amount would be fully financed by donor partners. GRZ would continue to bear the same costs of distribution that it currently does, but this amount could not be quantified.

Table 11: Cost of Condoms through GRZ Distribution

	1999- 2000	2001	2002	2003	Totals 2001-2003
Current level of activity Unit cost per condom distributed Yearly Cost (USD)	0.16				
Target level for condom distribution Yearly Target cost Expansion cost		14,000,000	16,000,000	18,000,000	48,000,000
Total cost		2,307,200	2,715,904	3,147,054	8,170,158
GRZ share Partner share		2,307,200	2,715,904	3,147,054	8,170,158
Commodity cost (drugs) Estimated partner commitments (USD)					
Gap		2,307,200	2,715,904	3,147,054	8,170,158

Assumptions:

Unit cost assumed to be the mid-point of the range of unit costs (Confronting AIDS)
Expansion costs assumed to be nil
GRZ would continue to bear distribution costs, but these could not be estimated

2.8 Female Condoms

The female condom has been introduced in Zambia but is not yet part of an established program. Zambian planners felt that a program should be established for the period 2001-2003. Utilization would depend on the amount of social marketing that were done to promote the female condom and that remains very uncertain at present. In order to estimate an amount for a female condom intervention we assumed that the cost would be 5% of the cost of male condom social marketing intervention (above). SFH has not yet committed to such a program, so at present the entire 5% would be un-funded and the gap would be US\$474 thousand for the three-year period.

2.9 VCT

Voluntary counseling and testing is expected to become one of the most important interventions for the period 2001-2003. Zambian planners have targeted 20,000 units for 2001; 100,000 units for 2002; and 300,000 units for 2003. By the year 2003 this would mean that approximately 15% of persons aged 15-49 would know their HIV status and that approximately 84,000 additional persons would have been shown to be positive for HIV. In the current year (1999-2000) the level of activity is well below 10,000 units and it has been estimated that about 5% of Zambians aged 15-49 have been tested and know their HIV status. Thus, very rapid expansion of capacity will be required.

There is substantial interest among donors in expanding VCT as a means of promoting behaviour change and reducing HIV transmission. Studies from Kenya, Tanzania and Trinidad have documented that behaviour change does occur when persons know their HIV status (The Voluntary HIV-1 Counseling and Testing Efficacy Study Group, Lancet 256:103-121 and Van de Perre, Philippe, Lancet 256:86-87). While only a small fraction of Zambians aged 15-49 currently know their HIV status, there is evidence from other African countries that if VCT is made properly available and is well promoted, perhaps using social marketing technology, many more people will accept HIV testing.

We sought to establish unit costs and expansion costs for this important intervention by studying the experience of 2 institutions: 1) The Family Support Unit at UTH, a prototype which has been in operation for one year under grant support and has provided 492 tests, and , 2) Kara Counseling, an established NGO with good donor support, which has been in operation for several years and provided 5169 tests in the past year.

The steps involved in producing one VCT unit are as follows:

KARA

1. Community workers (mobilisers) go out into the communities to encourage people to go for VCT. The mobilisers do this at a fee.
2. Pre-test counseling where information on HIV/AIDS is given.
3. Collection of Blood samples
4. Post-test counseling
5. Test results revealed
6. Post-test club (irrespective of HIV status.)
7. Training for those who feel they need to acquire skills

UTH - The Family support Unit, opened in March 1999

1. Interview by counselor (Pre-Test Counseling)
2. Bleeding i.e. the counselor obtains blood sample and labels it.
3. Post-Test Counseling
4. Disclosure of results.
5. Further counseling and Post-Test Club

There were quite significant differences in the unit costs. The UTH unit cost was US\$31.79 while at Kara it was US\$11.71, nearly a three-fold difference. Several factors may explain this difference. UTH

produced a much smaller number of units in a prototype initiative and may have incurred costs related to start-up. As a part of the physical plant at UTH, but having its own department space, the Family Support Unit incurred rather large capital and building costs of US\$20.25 per unit whereas Kara incurred capital and building costs of only US\$3.92 per unit. Salary rates were US\$6.89 per unit at UTH, and for Kara were US\$3.31 per unit. On the other hand, the cost of test kits was unexpectedly low at UTH, US\$0.08 compared to Kara at US\$0.72 which is closer to the commonly cited figure of US\$1 per test kit.

Projected expansion costs were also quite different between UTH and Kara. UTH projected a cost of US\$27,000 to expand output by 100% (about 500 more tests) while Kara projected a cost of US\$449,000 to increase output by 100% (about 5000 more tests). Expansion costs expressed as cost per additional test would be US\$55 at UTH and US\$87 at Kara. Thus, the cost to expand capacity is substantial in either scenario. It is expected that expansion of VCT will occur both in the Government and the NGO sectors, and we have assumed that expansion would be shared equally by the two sectors. We expect that the unit cost of GRZ operations will decrease and approach that of Kara as the scale of operations increases and as the capital and building costs at UTH are decreased by integrating operations and decentralization in expansion operations. The unit costs of Kara are also closer to the costs reported from other African countries (often US\$8-10 per unit.) We have, therefore, used Kara figures to forecast costs. It can be seen that the total cost estimated to achieve Zambian targets would be US\$41.8 million over the period 2001-2003. Of this US\$36.5 million would be required to establish capacity for expansion and US\$5.3 million would be required to produce the desired number of units. Test kits would cost approximately US\$2 million. Assuming that GRZ would pay salary costs only, its share would be US\$2.8 million and the share of partners would be US\$38.9 million. Currently, donor commitments are estimated to be US\$4.3 million, leaving a gap of US\$34.7 million.

Table 12: Cost of VCT

	1999-2000	2001	2002	2003	Totals 2001-2003
Current level of activity	5,169				
Unit cost (USD)	12				
Yearly Cost (USD)	60,563				
Target level of activity		20,000	100,000	300,000	420,000
Yearly Target cost		241,361	1,243,010	3,840,901	5,325,273
Expansion cost		1,738,731	8,693,654	26,080,963	36,513,349
					-
Total cost		1,980,092	9,936,665	29,921,865	41,838,621
	GRZ share	137,825	689,125	2,067,375	2,894,325
	Partner share	1,842,267	9,247,540	27,854,490	38,944,296
Commodity cost (test kits)		14,506	478,955	1,479,971	2,051,927
Estimated partner commitments (USD)		1,608,749	1,362,878	1,286,719	4,258,346
Gap		233,518	7,884,661	26,567,771	34,685,950

Assumptions:

Assume 50% of expansion is through GRZ and 50% is through NGOs
Unit costs and expansion costs are similar to those for Kara Counseling
GRZ share is salary costs for GRZ operations

2.10 STDs

In the early 1993 Hira et al reported on the management of STDs in Zambia. They found that in 1980 approximately 10% of OPD visits were related to STDs. An intensive effort was made to improve STD control and by 1992 54 STD clinics had been established and 140 clinical officers had been trained. The annual operational cost was US\$1.3 million and a decline in STD rates showed that the program was effective. Hira estimated that in 1992, 125,000 cases of STDs occurred of which 57,000 were officially reported.

For the period of 2001-2003 STDs were costed based on 2 major interventions: 1) the clinical recognition and treatment of STDs in government institutions, and, 2) the screening and treatment program for syphilis carried out in ante-natal clinics.

In the last several years there have been no published surveillance reports on the frequencies of STDs in Zambia. In order to estimate the number of cases the Zambia DHS survey figures from 1996 on the frequency of symptomatic STDs were used. This estimate is that 8.9% of males 15-49 had symptoms of an

STD each year. The same frequency was assumed to pertain to women. The SBS of 1998 was used to estimate the current frequency of proper treatment of STDs. This estimate was that only 16% of cases presenting for treatment are adequately treated. The vast majority of inadequate treatment is explained by lack of drugs. The Zambia guidelines for management of STDs updated in the year 2000 were used to identify standards of adequate treatment for 2001-2003. The cost of the required drugs was calculated from prices charged by the CMS. The cost of treatment for a case was calculated "bottom up" based on the steps required for management of an STD and the estimated costs of each input for each step. The following are the steps in managing an STD:

1. Patients present themselves to clinics.
2. Health Education.
3. History of patient is taken (by clinical officers and, sometimes, nurses)
4. Examination (Swab or blood test in some cases).
5. Treatment
6. Counseling
7. Follow up visit (Partners).

It was assumed that 5% of STD cases required referral to the next level of care and incurred a like cost at that level.

In order to reach the goal of 100% adequate treatment of symptomatic STDs by 2003 substantial expansion costs were forecast. It was assumed that 2 workshops a year per district would be required at a cost of 25 million kwacha or US\$7812 for each workshop. Each workshop would serve 20 persons and would last 2 weeks.

Screening for syphilis in ANC clinics was initiated several years ago through a UNICEF program and is felt to be very successful. It is assumed that 10 % of women in the ANC will require treatment for syphilis at a cost of 14,580 kwacha or US\$4.56. The costs for drugs to support this program were extrapolated through 2003. It was assumed that GRZ share will continue to bear the operational costs of ANC clinics which is not shown under the HIV/AIDS budget.

It can be seen from the table that the total cost of treatment of STDs for 2001-2003 is estimated to be US\$11.1 million of which US\$2.9 million would be borne by GRZ and US\$8.9 million would be borne by partners. This assumes that partners would bear the costs for drugs and for training to expand services. Current donor commitment is US\$1.1 million leaving a gap of US\$7.1 million required for adequate treatment of symptomatic STDs according to Zambian standards and forecasts.

For the proper continuation of the syphilis screening program in ANCs US\$696 thousand will be required to support drug costs from 2001-2003.

The combined gap for STD treatment and STD screening is US\$7.8 million for the period 2001-2003.

Table 13: Cost of STD Treatment

	1999-2000	2001	2002	2003	Totals 2001-2003
Current level of activity	60,149				
Unit cost per adequately treated STD(USD)	8				
Yearly Cost for adequately treated STDs (USD)	504,975				
Target level of activity		168,701	281,567	398,946	849,214
Yearly Target cost		1,458,803	2,507,829	3,659,886	7,626,517
Expansion cost		1,125,000	1,158,750	1,193,513	3,477,263
Total cost		2,583,803	3,666,579	4,853,398	11,103,780
	GRZ share	560,065	962,808	1,405,107	2,927,979
	Partner share	2,023,738	2,703,771	3,448,292	8,175,801
Commodity cost		898,738	1,545,021	2,254,779	2,938,639
Estimated partner commitments (USD)		364,922	364,922	337,500	1,067,344
Gap		1,658,816	2,338,849	3,110,792	7,108,457

Assumptions:

16% adequate treatment in base year improves to 100% by 2003
Expansion costs are training requirements
GRZ share is non-drug cost of operations

Table 14: Cost of STD Screening in ANC Clinics

	1999-2000	2001	2002	2003	Totals 2001-2003
Current level of activity	45,239				
Unit cost (USD)	5				
Yearly Cost for adequately treated STDs (USD)	206,120				
Target level of activity		47,066	48,008	48,968	144,042
Yearly Target cost		220,878	232,057	243,799	696,734
Expansion cost					-
Total cost		220,878	232,057	243,799	696,734
		GRZ share (budgeted through ANC)			
		220,878	232,057	243,799	696,734
		Partner share			
Commodity cost		220,878	232,057	243,799	696,734
Estimated partner commitments (USD)					
Gap		220,878	232,057	243,799	696,734

Assumptions:

**10% of women require treatment for syphilis
GRZ share is currently paid under ANC budget**

2.11 TBC

Tuberculosis treatment is one of the most important activities in managing the impact of the AIDS pandemic. In addition it is recognized as being one of the most cost effective public health interventions available (see below). We obtained our estimates from the TB unit at UTH and extrapolated for the numbers of cases projected by the MOH as shown in the Table 15 below. The unit cost for adequately treating one case of TB was estimated to be US\$131. Most of this cost is attributable to drug costs (see appendix 4). (Note: the estimation of costs using this method is somewhat greater than the extrapolation of budgeted amounts for national TB control for 1999-2000.)

The total cost for the treatment of TB for 2001-2003 is estimated to be US\$27 million USD. GRZ would be expected to bear the operational costs of running the clinics. Partners would be expected to bear the costs of drugs and of expansion of the program. GRZ would bear slightly over 10% of the total costs. The gap between needs and donor commitments would be US\$13.9 million.

Table 15: Cost of TB Treatment

	1999- 2000	2001	2002	2003	Totals 2001- 2003
Current level of activity at UTH	7,387				
Unit cost per adequately treated TB case	131				
Yearly Cost for adequately treated TB cases	966,811				
Target level of activity, national		51,000	52,000	53,000	156,000
Yearly Target cost		6,875,126	7,220,231	7,579,854	21,675,211
Expansion cost		496,706	496,706	496,706	1,490,117
Total cost		7,371,832	7,716,937	8,076,560	23,165,328
		GRZ share			
		728,763	765,344	803,465	2,297,572
		Partner share			
		6,643,069	6,951,592	7,273,095	20,867,756
Commodity cost		6,146,363	6,454,886	6,776,389	19,377,639
Estimated partner commitments (USD)		3,519,691	3,417,731		6,937,422
Gap		3,123,378	3,533,861	7,273,095	13,930,334

Assumptions:

baseline unit costs taken from UTH
 assumes partners bear cost of drugs and expansion
 expansion costs for 54% expansion are pro-rated over 3 years
 GRZ share is non-drug cost of operations

2.12 Tuberculosis Prophylaxis in HIV Patients

The prevention of active tuberculosis in HIV infected persons promises to be one of the most cost effective interventions available in the struggle against the AIDS pandemic. Several experts believe that it is not only cost effective, but may result in net economic gain for governments which employ it (see discussion below).

The main cost of the intervention would be the exclusion of active tuberculosis which is very important in order to avoid under-treatment of active TB and the possible emergence of multi-drug resistant strains of TB. There would also be costs to administer and monitor treatment and for providing further training to primary care providers. It would seem most prudent for the MOH to combine several elements of training into one integrated training program on the primary care of HIV/AIDS. TB prevention would be a part of this training. It has been assumed that TB prevention would contribute marginally to such a training program.

The unit cost for treating one patient would be US\$4.69. The total cost for the program is estimated at US\$1.3 million which is a relatively modest amount. The actual cost of the drug INH would only be about US\$47 thousand. It is assumed that the GRZ would continue to bear the costs of salary and operation of health facilities, a cost which has been included under Hospital Care and is not shown in this exercise. Donor partners would support the additional costs of excluding active TB and of administering and monitoring treatment as well as drug and expansion costs. This would result in a gap of US\$1.3 million.

Table 16: Cost of TB Prevention

	1999-2000	2001	2002	2003	Totals	2001-2003
Current level of activity Unit cost per HIV positive Yearly Cost (USD)	4.69					
Target level of HIV positives Yearly Target cost		103,000	119,000	139,000		361,000
Expansion cost		105,152	250,261	451,637		807,049
		160,714	165,536	170,502		496,752
Total cost		265,866	415,797	622,139		1,303,801
GRZ share						
Partner share		265,866	415,797	622,139		1,303,801
Commodity cost (drugs) Estimated partner commitments (USD)		5,692.26	13,547.58	24,448.82		43,688.66
Gap		265,866	415,797	622,139		1,303,801

Assumptions:

Training of primary care providers would be combined with STD expansion training = "primary care of HIV training"
Expansion costs assume 2 additional days of training to the STD expansion training assumptions
Baseline unit cost is costs of tests to exclude active TBC and cost of drug for one year and monitoring
60% of HIV positives would have access to needed services by 2003
70% of HIV positives would not have active TB
60% of HIV positives would sustain treatment for one year.
number of HIV positives = projected number of AIDS cases plus number HIV positives detected through increased VCT
assumes donor partners would provide 100% funding for testing, drugs and monitoring
GRZ would continue to pay personnel costs (not included in this calculation)

2.13 Costs of Hospital Care of AIDS patients

Estimating the cost of hospital care of AIDS patients is complicated by the fact that most AIDS patients do not carry the diagnosis of AIDS for reasons of avoidance of stigmatization. But, the costs of hospital care of HIV/AIDS patients was studied carefully by Foster et al in 1991 at Monze District Hospital where HIV status was determined by the researchers. Principal findings from that study included an average cost for an AIDS admission of 4689 kwacha and an average length of stay of 16 days. About 30% of admission were HIV positive. Since that time, however, there have been no systematic studies of the cost of hospital care. In 1997 the MOH published some rough estimates of the costs of hospital care of AIDS patients in Zambia. These figures were based on international data from neighboring African countries and projected a cost of approximately 27 million USD per year.

In order to estimate the magnitude of the costs of hospital care for the years 2001-2003 we first asked Zambian physician experts to estimate the percentage of hospital admissions due to HIV/AIDS. The consensus opinion was 40%. Next, we estimated the “hotel cost” of hospital care, exclusive of drugs and ancillary costs such as surgery. Then, we estimated the cost of treating opportunistic infections and other ancillary costs. Our estimates of the total cost of hospital care are the sum of the “hotel costs” and the drug and ancillary costs.

We were able to estimate hotel costs based on data from the UTH where we had accurate data for 1999 on the number of bed-days and OPD visits as well as the operational costs including annualized capital costs. (see Appendix 4) We assumed that three OPD visits were equivalent to one hospital bed-day and computed the number of bed-day equivalents (BDE) for 1999. We deducted drug costs from the operational costs to calculate “hotel costs” of care and then estimated the “hotel costs” per BDE. We assumed that UTH hotel costs were 50% greater than the average district hospital, and that UTH costs applied to 17.5% of BDEs in Zambia, including the hospitals in Ndola and Kitwe.

In order to estimate drug costs Zambian expert clinicians were asked to estimate the frequency of opportunistic infections in Zambian AIDS patients. Tuberculosis is costed separately and is not included in this exercise as an opportunistic infection. The cost of proper treatment of each opportunistic infection was taken from UNAIDS guidelines, using the least expensive alternative available. A separate estimate of the frequency and cost of procedures including operating theater and consultant charges was made for AIDS patients. Finally, the hotel costs, drug costs and ancillary costs were summed. See appendix 4 for details of the methodology.

It can be seen from Table 17 that the total estimated cost for hospital care of AIDS patients for 2001-2003 is nearly US\$184 million. If it is assumed that the GRZ would bear the cost of operations excluding drugs and that donor partners would support drug costs, then we see that the cost to the GRZ would be US\$116 million which is by far the largest cost for GRZ to bear for any activity. Donor partners would bear the cost of drugs at nearly US\$68 million

Table 17: Cost of Hospital Care of AIDS Patients

	1999-2000	2001	2002	2003	Totals 2001-2003
Current level of AIDS admissions	440,969				
Unit cost (USD)	127				
Yearly Cost (USD)	56,033,931				
Target level of activity		445,378.69	449,832.48	454,330.80	1,349,542
Yearly Target cost		60,040,861.19	60,641,270	63,085,113	183,767,244
Expansion cost					
Total cost		60,040,861	60,641,270	63,085,113	183,767,244
	GRZ share	38,168,208	38,112,437	39,880,416	116,161,061
	Partner share	21,872,653	22,528,832	23,204,697	67,606,183
Commodity cost		21,872,653	22,528,832	23,204,697	67,606,183
Estimated partner commitments (USD)					
Gap		21,872,653	22,528,832	23,204,697	67,606,183

Assumptions:

- Expansion costs are nil
- 12 day length of stay for an AIDS admission
- GRZ share is operations less drugs
- Partner share is drugs for AIDS
- 40% of bed-days are attributable to AIDS

2.14 Community Based Home Care

Most Zambians with AIDS die at home. Families bear the burden of caring for the patients under very difficult circumstances in the home before they die. Zambia was one of the first African countries to develop initiatives to support home care by families. Some of the earliest experience was at Chikankata Hospital (Chela CM et al, AIDS Care 1989 1(3):319-25). It soon became evident that initial efforts using vehicles and teams based at district hospitals were very expensive and limited in their capacity to cover all patients. Subsequently, Community Based Home Care has offered the possibility of less expensive support with better coverage (Sichone M et al,)

Zambian planners have targeted for the year 2003 that 80% of urban patients and 70% of rural patients would have access to CBHC. Currently, it is estimated that 60% of urban patients and 30% of rural patients have access to CBHC. Thus, a 20% increase in capacity would be needed in urban areas and a 40% increase in rural areas.

Estimating the cost of CBHC was done in 3 ways. (see Appendix 4) First the experience of BWAFFWANO in Lusaka was studied. It was found that it cost about US\$53 per patient per year in this institution. Most of the cost was attributed to the cost of food purchased from the WFP and supplies (77%). Expansion costs as forecast by BWAFFWANO were substantial at US\$454 per capacity to serve one more patient assuming 100% expansion over 3 years (about 1000 new patients). Most of the expansion costs were attributable to equipment and personnel costs (68%). We used the BWAFFWANO experience to extrapolate costs to the desired targets.

Secondly, we examined planning documents for the Ndola area. This is a population-based program intended to cover 450,000 persons for three years. The total per capita costs for providing CBHC for all AIDS patients in the area US\$1.18 per year. Commodities and drugs accounted for 21% of costs; salary 14%; transport 15%; volunteers 13%; patient needs 21%; and orphan care 13%.

Thirdly, we used the costing study done in 1994 by Sichone et al. They found that CBHC cost about US\$24 per patient year or US\$28.60 in current dollars. Salary accounted for 63% of the cost; non-salary items 37%. The package of commodities, drugs and food accounted for 25% of costs or about US\$7.08 in current dollars.

It can be seen that the total cost to reach the 2003 targets using the BWAFFWANO experience would be US\$25.6 million. (see Table 18) The amount for running costs for CBHC patients would be US\$12.4 million, while the costs to expand capacity would be US\$13.2 million. If we extrapolate the planning figures from the population based Ndola planning documents, we would get a total 3 year cost of US\$23.9 million which appears to validate the BWAFFWANO estimates. If we inflate the costs from the study of one small unit providing CBHC in 1994 and use the expansion estimates given by BWAFFWANO (no direct expansion estimates are available from that study), we would get a 3 year cost of US\$19.9 million. Thus, there is convergence among the 3 approaches.

All of the programs studied are donor supported. None are funded by GRZ. Therefore, the gap for the period 2001-2003 for CBHC is \$25.6 million.

Table 18: Cost of Community Based Home Care

	1999-2000	2001	2002	2003	Totals 2001-2003
Current level of activity	1,007				
Unit cost per patient-year	53				
Yearly Cost	53,341				
Target level of activity		72,150	73,350	74,550	220,050
Yearly Target cost		3,936,439	4,121,967	4,315,084	12,373,491
Expansion cost		4,412,594	4,412,594	4,412,594	13,237,781
Total cost		8,349,033	8,534,561	8,727,678	25,611,272
	GRZ share				
	Partner share	8,349,033	8,534,561	8,727,678	25,611,272
Commodity cost		3,027,121.64	3,169,793	3,318,299.91	9,515,214.39
Estimated partner commitments (USD)					
Gap		8,349,033	8,534,561	8,727,678	25,611,272
Assumptions:					
	Unit costs based on BWAFFANO experience				
	Expansion costs are based on BWAFFANO estimates (\$454 per additional patient recruited)				
	GRZ share is non-drug cost of operations				
	Current coverage assumed to be 60% for urban and 30% for rural				
	Target coverage for 2003 assumed to be 80% for urban and 70% for rural				

2.15 Maternal to Child Transmission (MTCT)

MTCT promises to be one of the most cost effective interventions available in the fight against the AIDS pandemic. Some experts even believe that it will have a net economic benefit (see below). Important advances have been made in the past several years in developing less expensive, but effective regimens for preventing the transmission of HIV from mother to child. About 10,000 Zambian women have been enrolled in pilot projects in three urban areas of Zambia utilizing short course AZT treatment. Zambian planners suggest targets of 10,000 pregnant women screened in 2001; 100,000 in 2002; and 250,000 in

2003. About 30% of women would be expected to test positive. About 70% of those testing positive might be expected to go ahead with treatment. About 50% of women to be treated would receive short course AZT and 50% would receive the Nevirapine regimen. Approximate costs suggested by UNAIDS including costs of testing, counseling, drug cost and breast milk substitute are \$130 for the short course AZT regimen and, as adjusted, \$84 for the Nevirapine regimen. It is agreed that strengthening of the ANC clinics would be necessary to make them attractive to potential clients. It has been assumed that 10% of the running costs of the MTCT program would be allocated for strengthening of the ANC units by supplying iron, folate, needles syringes etc. We assumed that expansion costs could be estimated using the costs of setting up services for the first 10,000 pilot patients or \$500,000 to expand by 10,000 patients.

Using these assumptions (see Table 19) we estimated a total cost for 2001-2003 of US\$27.3 million of which US\$8.3 million would be attributed to yearly running costs and US\$18.8 million would be attributed to expansion costs. Commodity costs for the years 2001-2003 including drug and breast milk substitute would be US\$6.1 million. This entire cost would be borne by donor partners. Nothing was committed. So, the gap was US\$27.3 million.

In order to triangulate the estimates we applied a model developed by The Futures Group in Washington, DC (Stover et al, personal communication). Running costs using this model would be US\$4.2 million for the years 2001-2003, compared to US\$8.3 million using our own estimates.

Table 19: Cost of MTCT

	1999-2000	2001	2002	2003	Totals 2001-2003
Current level of activity	10,000				
Unit cost (USD)		107	110.21	114	
Yearly Cost (USD)					
Target level of activity		10,000	100,000	250,000	360,000
Yearly Target cost		224,700	2,314,410	5,959,606	8,498,716
Expansion cost		522,470	5,231,441	13,095,961	18,849,872
Total cost		747,170	7,545,851	19,055,566	27,348,587
	GRZ share				
	Partner share	747,170	7,545,851	19,055,566	27,348,587
Commodity cost		161,700	1,665,510	4,288,688	6,115,898
Estimated partner commitments (USD)					
Gap		747,170	7,545,851	19,055,566	27,348,587
Assumptions:					
	Assume 50% treated with short course AZT and 50% by Nevirapine				
	Assume cost for one woman managed under short course AZT is \$130 and by Nevirapine \$84				
	Assume 70% acceptance rate among HIV positive women				
	Assumes expansion cost is \$500,000 for each 10,000 new clients plus 10% of running costs to cover strengthening of ANC				

2.14 Co-trimazole prophylaxis

Recently, co-trimazole prophylaxis in HIV patients in Ivory Coast has been shown to reduce serious events related to opportunistic infections, principally bacterial infections causing pneumonia and diarrhea, but also isosporosis and malaria. The drug cost for one year for one patient was US\$17.50 in Abidjan in 1999. The intervention can be carried out in urban health centres, does not necessarily require laboratory monitoring and can be managed by primary care providers. (Anglaret, X et al, Lancet 353:1463-68) Zambian planners have estimated that 68% of HIV positive persons would be both appropriate for this intervention

and able to sustain it for one year. This intervention has substantial promise for reducing the burden of disease and suffering in an economical way.

Using the assumptions of increasing utilization of VCT (above) and the current rate of occurrence of AIDS per year (99,000) the number of persons targeted for prophylaxis would be 71,000 in 2001; 81,000 in 2002; and 94,000 in 2003. It is assumed that primary care providers could carry out this intervention in urban health centres, and that it would be integrated with other elements of AIDS care. It is further assumed that training for co-trimazole prophylaxis could be integrated with the STD training for expansion (above) at a marginally greater cost, adding one day to the projected 2-week training. In this assumption STD training would be expanded into training for several aspects of the primary care of AIDS patients. Implementation would also require a 2-week workshop for experts to develop guidelines as well as the cost of publishing the guidelines.

The total cost of this intervention for 2001-2003 is estimated at US\$4.8 million. (see Table 20) It is assumed that the GRZ share would be included under the costs of care in hospital and OPD (see section on "Hospital Costs) and would encompass a portion of salary and non-salary operational costs of hospitals and OPD clinics. It is assumed that donor partners would bear the costs of drugs and the training necessary for expansion of this intervention. Currently, there are no known donor commitments for this intervention, so that the gap is US\$4.8 million.

Table 20: Cost of Co-trimazole Prophylaxis

	1999-2000	2001	2002	2003	Totals 2001-2003
Current level of activity Unit cost for drugs (USD) Yearly Cost (USD)	18				
Target level of activity (patient- years) Yearly Target cost		70,040	80,920	94,520	245,480
Expansion cost		1,262,471	1,502,340	1,807,480	4,572,291
Total cost		1,360,641	1,585,108	1,892,731	4,838,480
GRZ share Partner share		1,360,641	1,585,108	1,892,731	4,838,480
Commodity cost (drugs) Estimated partner commitments (USD)		1,262,471	1,502,340	1,807,480	4,572,291
Gap		1,360,641	1,585,108	1,892,731	4,838,480

Assumptions:

the number to be treated is 68% of the number of AIDS cases
plus the number of newly discovered HIV positives from increased VCT
Expansion costs include a workshop to develop guidelines and the printing of
guidelines
Training of primary care providers would be combined with STD expansion training
GRZ share is covered under hospital and OPD care of AIDS patients

2.15 Operations Research

Given the overwhelming impact of the AIDS epidemic in Zambia and the numerous new and promising interventions on the horizon, operations research is essential to learn the optimal approach to prevention treatment and mitigation. In some areas such as MTCT new data is becoming available even before current research and pilot projects have been completed. While it is agreed that operations research is a vital component of the Strategic Framework, it is very difficult to estimate the costs.

We conducted an informal, small survey of Zambian experts on the cost of appropriate amounts of operations research. Table 21 presents the median estimates of that survey.

The total estimated cost for 2001-2003 is US\$750,000. At present there are no specific commitments for donor contributions, so the gap is the entire US\$750,000.

Table 21: Cost of Operations Research

	1999-2000	2001	2002	2003	Totals 2001-2003
Current level of activity Unit cost (USD) Yearly Cost (USD)					
Target level of activity Yearly Target cost Expansion cost		250,000	250,000	250,000	750,000
Total cost		250,000	250,000	250,000	750,000
GRZ share					
Partner share		250,000	250,000	250,000	750,000
Commodity cost Estimated partner commitments (USD)					
Gap		250,000	250,000	250,000	750,000
Assumptions:					
Cost taken as median estimate of Zambian experts					

2.16 Highly Active Anti-Retroviral Therapy (HAART)

While advances in anti-retroviral treatment have been made in the last five years and are widely employed in the wealthier countries of the world, most Africans have not had access to these treatments due to cost barriers. It has been estimated by UNAIDS that it would cost about \$8000 per patient per year for HAART treatment in Africa. In addition, there would be considerable costs associated with the technologies which would be needed in order to properly employ HAART, such as CT scanners, CD4 cell counters and bronchoscopy units. The costs to African countries could change dramatically if local production were to be forthcoming or if international coalitions are successful in reducing prices. Nevertheless, the figure of US\$8000 per patient is used in these estimates.

We asked Zambian experts to estimate the percentage of HIV positive persons who would be medically appropriate for HAART treatment (30%) and the percentage who would sustain treatment for one year (50%). Planners felt that 50% of HIV patients should have access to HAART by 2003, and we estimated that 10% might have access in 2001 and 30% in 2002. Expansion costs were estimated as 100% of the non-personnel costs for the three largest hospitals in Zambia (UTH, Kitwe and Ndola) in order to cover the cost of new technologies needed to support HAART.

Using these assumptions we estimated that the total cost of HAART therapy for the period 2001-2003 would be US\$158 million of which US\$10 million would be for expansion costs and US\$148 million would be for drug costs. This is very large figure for the GRZ to contemplate, and it would be extremely difficult for GRZ to subsidize HAART therapy. If Zambia were to employ HAART, the entire cost would have to be borne by donor sources. The gap would be US\$158 million.

Table 22: Cost of HAART

	1999-2000	2001	2002	2003	Totals 2001-2003
Current level of activity					
Unit cost for HAART (USD)	8,000	8,240	8,487	8,742	
Yearly Cost (USD)					
Target level of activity (patient years)		1,503	5,301	10,455	17,259
Yearly Target cost		12,384,720	44,990,647	91,395,686	148,771,053
Expansion cost		3,240,000	3,337,200	3,437,316	10,014,516
Total cost		15,624,720	48,327,847	94,833,002	158,785,569
	GRZ share				
	Partner share	15,624,720	48,327,847	94,833,002	158,785,569
Commodity cost		12,384,720	44,990,647	91,395,686	148,771,053
Estimated partner commitments (USD)					
Gap		15,624,720	48,327,847	94,833,002	158,785,569

Assumptions:

30% of all HIV positive persons are appropriate for HAART
50% of these would have access by 2003; 30% in 2002, and 10% in 2001
50% of those appropriate and with access would sustain treatment for one year
the number of HIV positive persons would be number of AIDS cases
plus the new HIV positive persons found by VCT
cost of HAART treatment per patient (1999) = \$8000
Cost of HAART would be entirely borne by donor partners
Expansion costs include technology to support HAART
Expansion cost = 100% of non-personnel costs of operations for
UTH, Ndola and Kitwe Hospitals pro-rated over 3 years

2.17 Education

No Zambian data could be obtained for estimating the cost of school-based education in Zambia. In order to make some estimates for this important program, unpublished, preliminary figures from Kenya for school programs were obtained and pro-rated for Zambia on the basis of population ratios. The Kenyan programs as extrapolated to Zambia would cost US\$1.105 million in 2001; US\$1.118 million in 2002; and, US\$1.118 million in 2003 for a total of US\$ 3.341 million for the period 2001-2003.

2.18 Social Welfare

No Zambian data could be obtained for estimating the cost of social welfare programs in Zambia. In order to make some estimates for this important program, unpublished, preliminary figures from Kenya for orphan programs were obtained and pro-rated for Zambia on the basis of population ratios. The Kenyan programs as extrapolated to Zambia would cost US\$0.193 million in 2001; US\$0.334 million in 2002; and, US\$0.333 million in 2003 for a total of US\$0.862 million for the period 2001-2003.

Chapter 3

Summary of Costing Estimates

The tables display separate estimates for costs to be borne by GRZ and by donor partners. Where possible, the tables identify the important and expensive portion of costs attributable to commodities such as drugs or test kits, which usually are purchased from abroad and absorb substantial proportions of the limited amount of foreign exchange available to the GRZ. Finally, tables display the estimated “gap” between what are the needed amounts to implement the Framework and the amounts that are currently committed.

Three scenarios are presented. Table 23a displays the best estimates. Table 23b displays the estimates for a low cost scenario, and Table 23c displays estimates for a high cost scenario.

The low cost scenario differs from the best estimates in the following categories. Estimates for expansion of VCT activities is based on the UTH expansion figures rather than Kara. Estimates for condom distribution by GRZ use the lowest international figure (\$0.01 per condom delivered). TB treatment is extrapolated from the national budget for TB for the years 1999 and 2000 which is less than the bottomup costing done at UTH. Expansion figures for community based home care utilize the estimates of Sichone et al which are lower than the estimates made by BWAFFWANO. The estimates for technology to support HAART are 50% of the figures used in the best estimate scenario. And, estimates for operations research are based on the lowest figure offered by Zambian experts. This scenario assumes that the Catalytic projects receive all the funds which are committed, almost certain and under negotiation.

The high cost scenario differs from the best estimate scenario in the following ways. The expansion costs for MTCT include a higher amount for strengthening ANC clinics (30% rather than 10% of running costs). The unit cost of BTS is assumed to be US\$44 as calculated several years ago by UTH. The estimate for condom distribution by GRZ uses the highest international figure (US\$0.30 per condom). The estimate for operations research is based on the highest estimate given by Zambian experts. This scenario assumes that the Catalytic Project receive only the funds which are now known to be committed.

**Table 23a: Summary Table of Costs, Commitments and Gaps
Best Estimate Scenario**

Activity	Total Cost 2001-2003	% of Total Cost	GRZ share	Partner share	Commodity Cost	Partner Commitment	Gap
Council/ Secretariat	4,181,101	0.747		4,181,101			4,181,101
Catalytic Projects	50,688,382	9.052	671,867	31,184,884		8,360,238	22,824,646
Surveillance	960,000	0.171		960,000		358,550	601,450
BTS	2,569,253	0.459	1,405,775	1,163,478	865,224	1,414,504	(251,026)
Condom, SM	9,488,099	1.694		9,488,099		9,488,099	-
Condom, GRZ	8,170,158	1.459		8,170,158			8,170,158
Female condom, SM	474,405	0.085		474,405			474,405
VCT	41,838,621	7.472	2,894,325	38,944,296	2,051,927	4,258,346	34,685,950
STD, Treatment	11,103,780	1.983	2,927,979	8,175,801	2,938,639	1,067,344	7,108,457
STD, Screening	696,734	0.124		696,734	696,734		696,734
TB-Treat.	23,165,328	4.137	2,297,572	20,867,756	19,377,639	6,937,422	13,930,334
Hospital Care	183,767,244	32.819	116,161,061	67,606,183	67,606,183		67,606,183
HBC	25,611,272	4.574		25,611,272	9,515,214		25,611,272
MTCT	27,348,587	4.884		27,348,587	6,115,898		27,348,587
Co-rimazole prophylaxis	4,838,480	0.864		4,838,480	4,572,291		4,838,480
TB prophylaxis	1,303,801	0.233		1,303,801	43,689		1,303,801
Operations.	750,000	0.134		750,000			750,000
Research							
Education	3,341,000	0.597		3,341,000			3,341,000
Social Welfare	862,419	0.154		862,419			862,419
HAART	158,785,569	28.357		158,785,569	148,771,053		158,785,569
GRAND TOTALS	559,944,233	100.000	126,358,580	414,754,023	262,554,491	31,884,504	382,869,520

The table above gives the total cost of all interventions. Implementation of only some of the interventions would mean a lower total cost.

Table 23b: Summary Table of Costs, Commitments and Gaps

Low estimate Scenario

Activity	Total Cost 2001-2003	% of Total Cost	GRZ share	Partner share	Commodity Cost	Partner Commitment	Gap
Council/Secretariat	4,181,101	0.824		4,181,101			4,181,101
Catalytic Projects	50,688,382	9.986	671,867	50,016,515		35,741,000	14,947,382
Surveillance	960,000	0.189		960,000		358,550	601,450
BTS	2,569,253	0.506	1,405,775	1,163,478	865,224	1,414,504	(251,026)
Condom, SM	9,488,099	1.869		9,488,099		9,488,099	-
Condom, GRZ	494,400	0.097		494,400			494,400
Female condom, SM	474,405	0.093		474,405			474,405
VCT	28,784,772	5.671	2,894,325	25,890,447	2,051,927	4,258,346	21,632,101
STD, Treatment	11,103,780	2.187	2,927,979	8,175,801	2,938,639	1,067,344	7,108,457
STD, Screening	696,734	0.137		696,734	696,734		696,734
TB	7,891,298	1.555	2,297,572	5,593,725	5,946,420	6,937,422	(1,343,697)
Hospital Care	183,767,244	36.203		67,606,183	67,606,183		67,606,183
			116,161,061				
HBC	19,918,579	3.924		19,918,579	9,515,214		19,918,579
MTCT	27,348,587	5.388		27,348,587	6,115,898		27,348,587
Co-trimazole prophylaxis	4,838,480	0.953		4,838,480	4,572,291		4,838,480
TB prophylaxis	1,303,801	0.257		1,303,801	43,689		1,303,801
Operations. Research	120,000	0.024		120,000			120,000
Education	3,341,000	0.658		3,341,000			3,341,000
Social Welfare	862,419	0.170		862,419			862,419
HAART	148,771,053	29.309		148,771,053			148,771,053
					148,771,053		
GRAND TOTALS	507,603,387	100.00	126,358,579	381,244,807	249,123,272	59,265,265	322,651,409

Table 23c: Summary Table of Costs, Commitments and Gaps

High estimate Scenario

Activity	Total Cost 2001-2003	% of Total Cost	GRZ share	Partner share	Commodity Cost	Partner Commitment	Gap
Council/Secretariat	4,181,101	0.726		4,181,101			4,181,101
Catalytic Projects	50,688,382	8.799	671,867	50,688,382		8,360,238	42,328,144
Surveillance	960,000	0.167		960,000		358,550	601,450
BTS	9,202,351	1.597	5,319,303	3,883,048	3,421,079	1,414,504	2,468,544
Condom, SM	9,488,099	1.647		9,488,099		9,488,099	-
Condom, GRZ	14,832,000	2.575		14,832,000			14,832,000
Female condom, SM	474,405	0.082		474,405			474,405
VCT	41,838,621	7.263	2,894,325	38,944,296	2,051,927	4,258,346	34,685,950
STD, Treatment	11,103,780	1.928	2,927,979	8,175,801	2,938,639	1,067,344	7,108,457
STD, Screening	144,042	0.121		696,734	696,734		696,734
TB	23,165,328	4.021	2,297,572	20,867,756	19,377,639	6,937,422	13,930,334
Hospital Care	183,767,244	31.900	116,161,061	67,606,183	67,606,183		67,606,183
HBC	25,611,272	4.446		25,611,272	9,515,214		25,611,272
MTCT	29,048,330	5.043		29,048,330	6,115,898		29,048,330
Co-trimazole prophylaxis	4,838,480	0.840		4,838,480	4,572,291		4,838,480
TB prophylaxis	1,303,801	0.226		1,303,801	43,689		1,303,801
Operations. Research	1,875,000	0.325		1,875,000			1,875,000
Education	3,341,000	0.580		3,341,000			3,341,000
Social Welfare	862,419	0.150		862,419			862,419
HAART	158,785,569	27.564		158,785,569	148,771,053		158,785,569
GRAND TOTALS	575,511,224	100.000	130,272,107	446,463,676	265,110,346	31,884,503	414,579,173

Table 23a shows that the best estimate of the grand total cost to implement the Framework would be \$558 million USD. The overwhelmingly predominant costs would be attributable to Hospital care of AIDS patients and to HAART. Together they would account for about 61% of total costs. The cost of drugs needed for treatment of opportunistic infections would be \$67 million or 46% of the cost of hospital care. The costs to be borne by the GRZ for hospital care (US\$116 million) are by far the predominant amount among all the costs to be borne by the GRZ. Approximately 93% of funds committed by the GRZ for activities to combat AIDS would be expended on hospital care of AIDS patients. The aggregate costs for the Catalytic Projects would be 9.1% of total cost. Scaled-up VCT would account for 7.5% of the total. The projected costs of MTCT would be 4.9% of total costs. Expanded community based home care would account for 4.6% of the total. The treatment of TB accounts for 4.1% of costs, while STD treatment is 2.0% of total costs. Condom by social marketing make up 1.7% of the total costs, and condoms as distributed by GRZ account for 1.4%. Other individual activities would account for less than 1% each.

The estimated cost to the GRZ would be \$126 million and most of this would be expended on personnel costs to support hospital care and other government salaries. The amount to be financed by donor partners would be US\$414 million. Approximately US\$31.8 million is currently committed by donors to support the Framework- 7.7% of the total amount estimated to be financed by donors.

The gap between the estimated total cost for implementing the Framework and the financing known to be available is US\$382 million. Approximately 39% of this gap is attributable to the estimated cost of drugs for HAART. If the costs of drugs needed to treat opportunistic infections were added, then the costs of drugs would account for 57% of the gap

A sensitivity analysis shows that using the low assumptions the total cost would be US\$506 million, and using the high assumptions the total cost would be US\$575 million. The best estimate for total cost is US\$558 million. Using the low assumptions the gap between need and commitment would be US\$322 million, whereas with the high assumptions it would be US\$413 million. The best estimate of the gap is US\$383 million.

Chapter 4

Discussion – Financial Implication

Zambia and the other countries in the region face a major challenge in making the best decisions for the future. While the proximate cause of AIDS is the HIV virus, the extent and impact of the epidemic are rooted in underlying causes including poverty, the unequal status of women, lack of knowledge and information, wars and migrations, hunger and poor health which, in turn, lead to increased risky behaviors. A downward spiral has developed where the root causes lead to increase transmission of the virus and the impact of the virus aggravates the root causes. AIDS is indeed a fundamental obstacle to the future development of Zambia. The Government has to choose the best policies to reduce the impact of the epidemic and to attack the root causes. Choosing the optimal methods for scaling-up activities already known to be effective will be a central concern.

The financial resource estimates made are high by any standard, especially for a poor country like Zambia. For instance the estimates are higher than the Aid flows into the country. In the year 2000 Zambia received a total of US\$339 million. This declined to US\$271 million in 2001, and like many other developing countries, likely to decline further in 2002. A comparison to total health expenditures in the country shows that the estimates are higher. Between 1995 and 1998 the total health expenditures varied between US\$176 million and US\$252 million. This implies that the estimates are far higher than government expenditures on health services. Yet the estimates don't include the financial requirements to replace the lost human capital. While the financial cost cannot be avoided, more still needs to be done.

4.1 Breaking the silence

Some developing countries, including Uganda, Senegal and Thailand, have scored successes in the struggle against AIDS. A most important common factor in these successes has been strong and unequivocal advocacy by national leaders. Policies on regularly informing the country on AIDS issues - "breaking the silence" have to be adopted. Clear and specific messages such as the "100% condom" message used in Thailand are needed often, by as many leaders as possible, through all channels of communication. Zambia also is scoring some successes. As has been noted, incidence rates of HIV infection in youth, particularly 15-19 year old girls, have decreased. The sexual behavior survey of 1998 and subsequent surveys have documented a concomitant reduction in risky behavior in this group. This is widely believed to reflect the effectiveness and importance of education and, especially peer education initiatives, for behavior change. Continued vigorous support of these activities seems warranted.

4.2 The future of Zambia: difficult choices

As noted in the Introduction, the AIDS epidemic has already caused substantial deterioration in many sectors of Zambian society and its economy. Not only is Zambia unable to make progress, it is actually falling backwards in some vital areas as indicated by shortening life expectancy, increasing child and infant mortality and deteriorating statistics on education. The very future of Zambia is at stake in the struggle against AIDS. The choices that Zambian decision-makers must take in the context of dire resource constraints, the need to rely very heavily on foreign assistance, the importance of reducing the future burden of disease due to AIDS, the need to provide compassionate care and support to persons currently afflicted with AIDS and their families and the importance of assuring the future development of Zambia will be difficult indeed. Interventions available may be classified as 1) prevention, 2) treatment of cases, and 3) mitigation of impact. All three types of intervention demand resources. Often there is insufficient scientific evidence upon which to base such decisions. Often the decisions may require wrenching choices between preventing future cases of AIDS and expending substantial resources on current cases.

Zambia is one of the poorest countries in the world. Its human resources have been heavily impacted by the AIDS epidemic. Teachers, doctors, nurses, managers and other educated Zambians in the prime years of their productive capacity have been lost. The replacement and augmentation of human resources will be of vital importance to the future development of Zambia. The investment decisions that will be taken by the GRZ and its donor partners will be the most important factor determining Zambia's future human resources.

4.3 The process of decision-making

How will these difficult allocation decisions be taken? What will be the criteria upon which they will be based? How will the values of Zambian society be translated into investment decisions? What will be the implications of financing decisions taken today on the future debt and the viability of Zambia? The answers to these questions are fundamental to the choices that will be made.

4.4 Cost effectiveness.

Allocation decisions cannot be based solely on economic issues, yet economic criteria will be a prime concern. There is insufficient data available to authoritatively compare the cost effectiveness of all the various anti-AIDS activities. Furthermore, cost effectiveness can only be one criterion among others in making such choices. Nonetheless, a brief review of some of the information available on cost effectiveness may be helpful. It should be remembered that cost effectiveness may vary considerably from country to country and depends upon the prevalence of HIV, the stage of the epidemic and other factors.

Some activities may even be cost saving, that is, net economic benefit is expected. INH prophylactic treatment of HIV positive, tuberculin positive persons has the greatest promise of producing net economic benefit among the options available for combating AIDS in Africa. Much of the research has been done by Zambians and is directly applicable today. (Mwinga) (Whalen) Depending on the assumptions related to secondary infections, INH prophylaxis may generate \$1.71 for each \$1.00 invested. (Foster). (Brewer) Others have estimated that as much as \$24 might be accrued for each patient treated. (Bell) In conjunction with VCT in a Uganda trial the cost was estimated to be \$18 per case treated. (Aisu) Furthermore, like the treatment of TB cases, prophylaxis does have the "positive externality" of reducing secondary cases among contacts. As a "public good" which protects innocent persons, this is a very desirable intervention.

Some of the MTCT regimens also fall into this category of producing net economic benefit. (Soderlund). Mansergh et al have estimated that the cost of preventing one neo-natal HIV infection might be \$1269 while the expected savings from preventing such a case would be \$1582. Marc et al have estimated that short course AZT regimens for prevention of MTCT may have a cost effectiveness of \$25-100 per disability adjusted life year saved which compares favorably with childhood immunization cost effectiveness. Clearly, proper investment in MTCT is likely to be very cost effective and is a desirable policy option. It also produces a "public good" in the protection of innocent babies.

Targeting high-risk groups leads to vastly improved cost-effectiveness (Kahn). Depending upon the stage of the epidemic and the prevalence of HIV infection, targeting may be 40 to 200 times as cost effective as non-targeted interventions. Targeting commercial sex workers in Kenya to use condoms and to have STDs treated was estimated to cost \$8-12 per case of HIV averted. Many of the activities included in the Catalytic Projects fall into the category of targeting high-risk groups.

The treatment of TB cases is another intervention that has very favorable cost effective characteristics as well as being a "public good" through the prevention of secondary cases in the general public (Omerod) . (Floyd) UNAIDS has estimated that each untreated case of TB may result in 10-15 new infections each year The treatment of tuberculosis is felt to be one of the most cost effective interventions available in the field of public health. The World Development Report cited a figure of \$3-5 per life-year saved using DOTS. DOTS regimens have been estimated to cost \$740 per case cured. Others have estimated as low as \$80 per case.(Wilkinson). Sawert has estimated a range of \$1 to \$1786 per QALY saved depending on assumptions. Investing in TB treatment is a very favorable option for Zambia.

Investments in BTS have been shown to be very cost effective. Foster et al have shown in Zambia that the cost of preventing one case of HIV through investing in BTS was about \$31. Most authorities consider that less than \$50 per case averted is a very good investment.

The treatment of STDs is an area currently under debate. However, a large study in Mwanza, Tanzania showed that aggressive STD control programs may yield a cost benefit of approximately \$10 per disability adjusted life year (DALY) saved- again a very favorable ratio.

Recent studies published in the Lancet have shown that VCT also has a very favorable cost benefit ratio at between \$12 and \$17 per disability adjusted life year saved. (Lancet 2000, 356:103-112).

Condom social marketing has been shown to be very effective in increasing the use of condoms at costs ranging from \$.02 to .30 per condom distributed

On the other hand the treatment of opportunistic infections appears to confer only marginal extension of quality life while incurring very high costs. Freedberg et al have estimated the cost effectiveness to be in the range of \$30,000 to \$400,00 per quality adjusted life year saved. However, the prophylaxis of opportunistic infections with the use of co-trimazole has recently been shown to be effective in West Africa (Lancet, 1999, 353:1463-68)) and since this is a relatively inexpensive regimen, the cost effectiveness may be quite favorable, but this has not yet been definitively studied.

4.5 Community-based projects

The “Catalytic Projects” constitute \$50.1 million of the costs to support the Framework. As a group of activities these are almost entirely characterized by the use of African organizations as implementing agencies. They are often strongly based in the community. The UN Theme Group on AIDS has selected them as the most effective and outstanding initiatives in the struggle against AIDS in Zambia. They address issues that are vital to controlling AIDS, but where it is difficult for government to intervene directly, for example, the targeted interventions for CSWs, truckers, migrant workers, fishermen, agricultural workers, refugees and peer projects for youth. Bilateral donors, as can be seen in the tables, already support many of these Catalytic Projects, and it is hoped that further support to fill in the gaps will be forthcoming.

4.6 Decentralization

Hospital care consumes a large proportion of GRZ resources expended on HIV/AIDS (and if Zambia were to choose to pursue HAART, that proportion would become much larger yet). Preliminary observations suggest that there is a lot of bed capacity available at the health centre level and that the cost of care would be substantially less expensive in health centres. Across the nation as a whole only 22% occupancy is recorded for health center beds.. Health centres would be more conveniently located for patients and families. Future plans to move the care of AIDS patients to health centres might be advantageous from both an economic and humanitarian standpoint.

4.7 Training in the primary care of AIDS

The decentralization of AIDS care would require the development of guidelines for AIDS care and the training of primary level care-givers. These costing estimates already provide for extensive and regular re-training of personnel for STD care. Rather than provide training separately for each aspect of AIDS care, it might be advisable to combine and integrate the training to save money. According to the priorities identified in the Framework, such an “integrated training for AIDS primary care” might include STD management, MTCT, the treatment of common opportunistic infections, co-trimazole prophylaxis, TB treatment, and preventive treatment for TB.

4.8 Core package for Home Care

Most Zambians who die of AIDS die at home. Families struggle to provide support and relieve suffering. Zambia has been a leader in developing approaches to home care. Clearly, the community-based approach as opposed to the hospital-based approach is more efficient. Often what is most needed by families are commodities including such items as food, soap, blankets and drugs. In planning to scale-up community based home care the definition of a “core package” of commodities would provide a useful guideline for agencies wishing to support home care. In the context of heavy reliance on volunteer activity, provision of such a “core package” by the donor community might be the best expression of partnership.

4.9 HAART

The issue of HAART will be an important decision because of the very high level of resources that might be consumed. Not only would the cost of the drugs themselves be very expensive, but also the technologies to support the use of these drugs, such as CT scanners, CD4 cell counters and bronchoscopy units, would be very costly. Furthermore, it is possible that Zambia could incur large debts, which would

have to be repaid by future generations. Nevertheless, the prospect of reduced prices offered by the pharmaceutical corporations or the production of HAART drugs in developing countries with reduced cost or the possible efforts of international coalitions in somehow improving access to these drugs, all make it important for Zambia to plan in advance to be prepared to take advantage of opportunities as they might arise and to carefully weigh the implications. While some authors have suggested that the wide-spread use of HAART drugs could materially reduce transmission (Wood), at present this appears to be a very expensive strategy compared to others available. If HAART drugs were to be utilized, it seems clear that the most cost effective application would be for MTCT. In the short-term it would seem wise for the GRZ to avoid direct subsidy of these drugs except for MTCT.

4.10 Acquisition of drugs in Zambia.

In the analysis of drug costs in Zambia it became clear that well-intentioned efforts to reduce the cost of drugs through competitive open tenders might have backfired. Companies, which win the contracts now, must add 17% value added tax to the cost of the drugs which has resulted in increased cost to the CMS, rather than cost reduction. Policies on drug procurement should be reviewed.

4.11 Decision Matrix for AIDS Investments

Given the scarcity of resources, it is clear that the Zambian planners will have to make investment choices, which interventions to invest in and how much to invest. Some criteria has to be put in place and each criterion weighted, and then used to position each intervention or a combination of interventions. We suggest here a possible list of criteria and how they may be used to make investment decisions. The Secretariat may wish to revise these criteria and to use the relative weights to generate a quantitative score for each type of investment. Table 24 is presented as an illustrative example of how such criteria might be used. The “+” indication signifies a favorable rating, while the “-” indication signifies an unfavorable rating.

As an example of how this process might work let us examine the row entitled “Condom, Social Marketing”. It shows that the net cost to Zambia is very favorable (the entire cost is borne by private companies). The cost to donors is neutral (again because private companies bear the entire cost). The effectiveness of condom social marketing is strongly favorable and it is felt to be highly cost effective. The future financial implications for Zambia are very favorable because there are no loans to re-pay, nor is there any obligation to hire personnel in the future or maintain equipment or buildings. This activity will have a favorable effect on the future development of Zambia by protecting human resources and providing employment and generating human capital. It is favorable from a humanitarian viewpoint because it protects persons who are not yet infected. Thus, overall, condom social marketing could be rated as one of the best choices Zambia could make.

Table 24: Decision Matrix for AIDS Investments

Activity Costed	Net Cost to GRZ	Cost to Donors	Effective-Ness	Cost Effective	Future Fin. Obligation for Zambia	Future Development of Zambia	Human-Itarian Concern	Best Choice
	+ means low cost	+ means low cost			+ means low future obligation			
Council/ Secretariat	++	--	++++	++++	-	+++	+++	++++
Catalytic Projects	--	---	+++	+	+	++++	+++	++
Surveillance	++++	+	++++	++	++	+++	++	++++
Blood Transfusion	-	+	++	+++	+	+	+++	++
Condom, SocMarketing	++++	0	++++	+++	++++	+++	+	++++
Condom, GRZ	-	--	+++	++	++	++	+	+++
Condom, female	++++	0	+	+	0	+	+	+
VCT	--	---	+++	+++	-	+	++	+++
STD	--	--	++	++	-	++	+	++
Tuberculosis Treatment	---	--	++++	++++	-	+++	+++	++++
Tuberculosis Prophylaxis	+++	+++	++++	++++	++++	+++	++++	++++
Hospital Care	----	----	0	---	----	+	+++	-
C-B Home Care	--	--	+	--	-	+	+++	-
MTCT	-	--	+++	++++	-	++++	++++	++++
Co-trimazole prophylaxis	+	+	+	+	+	+	+	+
Operations research	++	-	+++	+	++	++	0	++
HAART	----	----	+	----	----	+	+	----
Education, school-based	--	--	++	+	++	+++	++++	+++
Social Welfare	---	---	+	--	-	++	++++	+

Chapter 5

Conclusions / Recommendations

In conclusion, a number of lessons have been gained from this experience. First, data in the area of HIV/AIDS is still very scarce. This makes exercises like this one difficult and expensive in terms of financial resources and time. Deliberate effort by lead institutions has therefore to be made to ensure that information is available as and when it is needed. Due to lack of data in countries studies conducted in other countries have to be utilized. In such cases, however, care should be taken to ensure that the two environments are similar. Secondly, to successfully tackle issues in the area of HIV/AIDS there is need for multi-discipline teams. This is as a result of the nature of the disease.

Given resource deficiency in developing countries and the high resource requirements for HIV/AIDS interventions, activities must be prioritized, and policies that will enable many affected and infected people receive essential services must be formulated. While cost effectiveness criteria is very important, other criterion should also be incorporated when allocating resources to different activities.

Strong leadership and advocacy in breaking the silence on AIDS is essential. The national leaders should communicate with the public regularly and frequently through all channels of communication on the causes of AIDS, the effects of AIDS at both micro and macro levels, and how to protect against AIDS.

Expertise to perform economic analysis and to direct operational research to inform future decision-making is also very important. This could be done by the lead institutions or by contracting consultants. Countries / regions must create this capacity.

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