Assessment of the Impact of HIV & AIDS on the Economy in Tanzania

First Draft Report

Submitted by:

Feb 2010
TABLE OF CONTENTS

1.0 Background and Rationale ..................................................................................................................3

2.0 The Assessment of Macroeconomic Impacts of HIV & AIDS: Overview of Issues ........5

2.1 Macroeconomic Background ..........................................................................................................5

2.2 Macroeconomic Challenges Posed by HIV & AIDS ......................................................................6

3.0 Impact of HIV & AIDS on Service Delivery .....................................................................................9

3.1 Education Sector .................................................................................................................................9

3.1.1 HIV & AIDS effects on the supply side of education sector .......................................................10

3.1.2 HIV & AIDS effects on the demand side of education sector .....................................................12

3.2 Health Sector .....................................................................................................................................13

4.0 The Impact of HIV & AIDS on the Economy ....................................................................................16

4.1 Review of Studies on Household Economic Impacts .......................................................................16

4.2 Review of Studies on Sectoral Economic Impacts ............................................................................18

4.2.1 Agricultural Sector .........................................................................................................................18

4.2.2 Manufacturing Sector ...................................................................................................................21

4.2.3 Tourism Sector ...............................................................................................................................22

4.3 The Review of Demographic and Macroeconomic Impacts of HIV & AIDS ............................22

4.3.1 Impact of HIV & AIDS on Demographic Variables ....................................................................22

4.3.2 Macroeconomic Impacts ...............................................................................................................24

4.3.3 Estimating Current Impact of HIV & AIDS on Macroeconomic Variables ............................25

4.3.4 Methodological Issues of HIV & AIDS Impact Studies ...............................................................26

4.4 Expenditure on HIV & AIDS ...........................................................................................................27

5.0 Conclusion and Recommendations .................................................................................................31

Annex 1: Summary of the Studies on the Macroeconomic Impact of HIV & AIDS in Africa.37

Annex 2: Terms of Reference ................................................................................................................38

Annex 3: Variables for Measuring Economic Impacts ........................................................................41
1.0 Background and Rationale

The first cases of HIV & AIDS were reported in Tanzania in 1983 and as of December 2007 there were nearly 1.3 million adults and children in Tanzania living with HIV.¹ There are over 200,000 new infections per year (particularly affecting women and young adults), an average of 80,000 AIDS deaths per year and an estimated 2.2 million orphans and vulnerable children² of which about 1 million are orphaned children as a result of HIV&AIDS. The current decade has witnesses decrease in HIV prevalence from 9.6% observed in 2001/2002 among the Antenatal Clinic Attendees (ANC) to 8.2% in 2005/06.³ A decline has also been observed based on the two population-based surveys done in 2003/04 and 2007/08. The findings of the Tanzania HIV & AIDS Indicators Survey (THIS) of 2003-04 showed the overall HIV prevalence to be 7.0 (7.7 for women and 6.6 for men). This has declined to 5.7 (6.6% women and 4.6% men) by 2007/08.⁴

The main and obvious impact of HIV & AIDS is its likely effect on the demography and human resource development of a country. Moreover, HIV & AIDS mainly occur in the sexually active population, which is also the economically active age group. It is this characteristic that makes AIDS of great concern to economists and planners because it has the potential to reduce the human resources available for production as well as affecting their productivity. The reduction in population due to AIDS, unlike programmes for population planning is unusually damaging to the economy in two ways; first, while planned parenthood and population programmes support the increase of social and human capital, AIDS deaths reduce the size of the economically active population. Second, AIDS mortality tends to impose a “shock” to the household economic structure since the death of an economically active individual could force changes in size, composition, and socio-economic status of the household and in the use of time devoted to building human capital.

Bell et al., (2003) emphasize the importance of lost human capital due to HIV & AIDS on economic growth using South Africa as a case study. They argue that, not only does HIV & AIDS destroy existing human capital, but by killing mostly young adults, it also weakens the mechanisms through which knowledge and abilities are transmitted from one generation to the next. Children of AIDS victims will most likely be left without one or both parents to love, raise, and educate them. In the absence of AIDS for instance, the South African economy was estimated to experience a modest growth with universal and complete education attained within three generations. Bell et al., (2003) present a more pathetic

¹ National Multi Sectoral Strategic Framework (NMSF), 2008-2012
² HIV Prevention Strategy for Tanzania Mainland; also annual incidence rate of 1.4% (rural – 1.4%, urban - 0.7%) reported in The HIV Epidemic in Tanzania Mainland, UNAIDS ASAP, 2008
³ National AIDS Control Program (2006), Surveillance of HIV and Syphilis Infections among Antenatal Clinic Attendees in 2005/06, No current data are available. It is important to note that ANC data overestimate the HIV prevalence of the general population. This problem has been curbed by the availability of population based data (THIS, 2003-04 and THMIS, 2007/08).
⁴ See Tanzania HIV & AIDS Indicators Survey 2003-04 (THIS) and Tanzania HIV & AIDS and Malaria Indicators Survey (THIMS), 2007/08.
scenario that, if nothing is done to combat the epidemic, a complete economic collapse would occur within three generations.5

Other earlier studies showed a big impact on the economic growth of Sub-Saharan African countries (see Annex 1 for summary of economic impact studies). However, the estimations were made with “AIDS” and “no-AIDS” scenarios with the major assumption of no cure. In the current state, the pandemic has taken a different shape under the advent of Anti-Retroviral Therapy (ART). People are living longer and are suffering less from HIV & AIDS opportunistic infections. Consequently, people living with HIV & AIDS are participating in daily economic activities with fewer cases of absenteeism and early retirement. They are also living a normal life and contributing to the investment in the human capital of the future generation.

It is therefore imperative to assess the current impact of the HIV&AIDS epidemic on the economy given these current developments which on one hand have bearing on the health of people living with HIV & AIDS but on the other hand have costs of treating the disease. The assessment is timely given that the government is in the process of preparing the second phase of the Poverty Reduction Strategy (MKUKUTA II) which is based on a broadly defined growth strategy. Thus, curbing the effects of the pandemic on the economy through sound interventions is seen as one entry point towards achieving the outcomes of MKUKUTA II.

The report is organized as follows; after presentation of the background and rationale in chapter one, chapter two provides an overview of the macroeconomic impacts of HIV & AIDS. Chapter three provides evidence on the existing and likely impacts of HIV & AIDS on service delivery systems and institutions and the implications for sustainable development drawing on health and education as case sectors. Chapter four provides evidence of the impact of the pandemic on national and sectoral growth by analyzing how the HIV & AIDS epidemic is affecting the principle factors of growth mostly labour, and access to capital for development and investment. The last chapter presents the conclusions and recommendations to counteract the impact of the epidemic in a timely and effective manner. Annex 2 provides details of the ToRs for this assignment.

It is important to note that this study has not done a thorough review of the existing legal and regulatory environment and the necessary legal efforts required to limit the impact of the epidemic as this has been covered in consultant report submitted by the EKAMA Development Consult for Joint Annual Review (2008), and titled the Structural, Policy and Legal Environment: Achievements and Challenges. These issues have also been partly addressed in chapter one of the National Multi-Sectoral Strategic Framework (NMSF) which reviewed the HIV & AIDS policies and laws. It is also important to note further that this study has not done a thorough review of the epidemiology and response to the pandemic to date since this has been covered in several previous reports. For details of the response and challenges to date see the three series of Biennial HIV & AIDS Sector Reviews (2003, 2006, and 2008). Another useful source is the summary of the history, trends of prevalence, and

efforts towards prevention and control of HIV & AIDS in the last 25 years in Tanzania Mainland from 1983-2009 by Dr R. B. M Kalinga, September, 2009, TACAIDS.

The full title of the study’s Terms of Reference was Assessing the Impact of HIV & AIDS Epidemics on Growth and Implementation Effectiveness in Tanzania. The impact of the pandemic on “implementation effectiveness” has been interpreted in two ways: “implementation effectiveness” could mean implementation of HIV & AIDS strategies under MKUKUTA to achieve poverty reduction. If this is the interpretation, this would merit a study in its own right, and it is not feasible to provide such an analysis given the short time of this assignment. Another interpretation is the impact on service delivery—effectiveness and efficiency in delivery of public services. This has been addressed by examining the past studies on how the delivery capacity of some social sectors has been impeded by the pandemic.

2.0 The Assessment of Macroeconomic Impacts of HIV & AIDS: Overview of Issues

2.1 Macroeconomic Background

Tanzania has recorded good overall macroeconomic performance, benefiting from sustained economic reforms over the last ten years, reflected in enhanced investment, improvements in marketing, financial services, telecommunication services and trade and high Gross Domestic Product (GDP) growth. Real GDP grew at an average rate of 6.8% between 2000 and 2008 (Figure 1). Apart from being a consequence of sustained reforms, this performance has also been boosted by the relatively good weather which resulted in increased agricultural production.

However, a great concern now is the slow rate at which the economic transformation is taking place which has been compounded by the global economic crisis. These two factors might reverse the mentioned favourable growth pattern by reducing growth and ultimately endangering the achievement of the Millennium Development Goals (MDGs) and poverty reduction initiatives. Tanzania has revised downwards the GDP growth projections for 2009 from 7.8% to 7.3% and again to 5.0%. This implies expectation of possibility of substantial decline in income, employment generation, and poverty reduction initiatives including combating HIV & AIDS. The severity of the impact of this slow down in GDP will, however, vary between sectors. Indeed, those sectors which are either export or import intensive will suffer most. Tourism and mining have already shown some signs of slowdown.

It is important to note that despite this economic growth and conducive macroeconomic situation, GDP growth has not resulted in significant poverty reduction. The trend for overall national poverty shows a reduction of the proportion of households living below poverty line from 38.6% in 2001 to 36.8% in 2007. Rural poverty has experienced an even slower decline, of less than 2 percentage points from 2001/02 to 2007.
In line with the success in economic growth, Tanzania has managed to maintain the inflation rate at single digit level for most of the period since 1999. However, from 2007 the economy started to experience inflationary pressure emanating primarily from the rise in oil prices in the world market and rising food prices, leading to an increase of the inflation rate to 10.3% in 2008, the highest annual average in a decade.

Following various fiscal reform measures, Tanzania’s domestic revenue collections have improved dramatically. In fact, over the past few years, collections have been consistently surpassing the targets. However, Tanzania’s budget remains dependent on foreign financing despite rising domestic revenue (Table 1). Thus, the daunting budget challenge that remains is to strengthen collection of domestic revenue and contain growth of unmatched recurrent Government expenditures. On average, domestic revenues averaged about 12.9% of GDP from 1997/98 to 2006/07. This has been partly attributed to the narrow tax base in the country.

<table>
<thead>
<tr>
<th>Table 1: Government Revenue and Expenditure, % of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2005/06 Actual</strong></td>
</tr>
<tr>
<td>Domestic Revenue</td>
</tr>
<tr>
<td>External financing</td>
</tr>
<tr>
<td>Recurrent expenditure</td>
</tr>
<tr>
<td>Of which: Debt service</td>
</tr>
<tr>
<td>Salaries and wages</td>
</tr>
<tr>
<td>Other charges</td>
</tr>
<tr>
<td>Development Expenditure</td>
</tr>
<tr>
<td>Of which: Locally financed</td>
</tr>
<tr>
<td>Externally financed</td>
</tr>
</tbody>
</table>

Source: Ministry of Finance and Economic Affairs – Budget Digest, 2009

2.2 Macroeconomic Challenges Posed by HIV & AIDS
Countries with high HIV & AIDS burdens have had to be aware of the potential macroeconomic impacts of the disease. All of the countries with HIV prevalence rates high enough to have a potential macroeconomic impact are in sub-Saharan Africa, where the problem has been compounded in some cases by weak economic performance, low levels of per capita income and macroeconomic instability. Annex 3 provides a framework of how HIV & AIDS economic impacts as have been conceptualized and measured in several studies.

Based on the studies done in Tanzania, there is a consensus among experts that the HIV & AIDS epidemic poses a threat to development, security and economic growth, and thus undermines effort to attain MKUKUTA and MDG poverty targets. In the middle 1990s and early 2000s some studies were done on the social-economic impacts of HIV & AIDS in several countries in Sub-Saharan countries including Tanzania. Major impact studies conducted in Tanzania that have been widely cited include publications using the Kagera Health and Development Survey (KHDS) first and second rounds of data collection (1991 and 2004 respectively). These publications include: Over et al., (1996); Ainsworth et al., (2005); and Beegle et al., (2006) among others. Other studies include ILO (1995), Tibaijuka (1997), Rugalema, (1999), and the Economic and Social Research Foundation (ESRF) 2003 and 2004 studies. These studies provide a great deal of data on the social and economic impacts of the pandemic, albeit outdated since they did not take into account more recent developments resulting from increasingly widespread availability of anti-retroviral therapy.6

These studies and others conducted in Sub-Saharan African countries show that HIV & AIDS can have macroeconomic impacts through a wide range of channels. These include:

- **Impact on labour supply:** This variable estimates mortality as a result of AIDS. By reducing population growth, HIV & AIDS leads to a smaller labour force. This is potentially important in a country such as Tanzania which has a highly labour-intensive production structure.

- **Impact on labour productivity:** HIV & AIDS reduce labour productivity (and hence growth) through ill-health and absenteeism due to HIV & AIDS related morbidity.

- **Impact on the composition of the force:** There tends to be fewer older workers (who tend to be more skilled and experienced) since AIDS kills the people at their prime ages.

- **Financial costs:** Finances are spent on care and treatment, paying for sick leave, supporting AIDS related funerals, all costs which would otherwise go into investment or consumption expenditures and savings. Further, private sector investment may also be affected by reduced profitability due to greater spending on the labour force.

It is generally expected that due to reduced labour supply, productivity and investment, HIV & AIDS will have a negative impact on economic growth (see Annex 1). However, the

---

impact on average (per capita) incomes is less well defined as both economic growth and population growth will be reduced. If the magnitude of the impact on the economy is less than the impact on the population, then conceivably per capita incomes could rise. The main channel for this seemingly perverse result works through unemployment: if deaths due to AIDS result in formerly unemployed members of the labour force finding employment, then the unemployment rate could fall. In the Tanzanian context, to the extent that the formal sector loses productive employees this might not be the case because labour is not readily substitutable. People employed in agricultural and informal sector are less skilled and may not necessarily be absorbed in the formal sector. Thus, with a high number of deaths, a vacuum will be created in the formal sector.

More recently, concerns about the macroeconomic impact of HIV & AIDS have changed. In the early days of the epidemic, prevalence rates were rising to much higher levels in sub-Saharan Africa than had been seen in other parts of the world. Furthermore, the cost of effective treatment through ARV was extremely high, and was only available to a small minority of the population who could afford private treatment. Thus, HIV & AIDS programmes were focused on prevention, information, education and communication (IEC), treating opportunistic infections and the impact on health systems, and dealing with orphans and vulnerable children (OVCs).

However, over the past decade, the overall HIV prevalence rate has dropped in many countries partly due to the success of prevention and IEC initiatives but also due to HIV & AIDS related deaths. Furthermore, the cost of effective treatment (ART) has dropped, and it is now a realistic option to provide treatment widely. Overall estimates from the ANC clinic data suggested a statistically significant decline in HIV prevalence, from 9.6% in 2001/02 to 8.7% in 2003/04 and further decrease to 8.2% in 2005/06. Findings from the population based surveys also show a decline from 2003/04 to 2007/08—7% to 5.7% respectively. From 2004 the government rolled out ARV, and by the end of May 2009 a total of 247,210 people were receiving ART which is about 55% of all enrolled individuals (note that some enrolled individuals are not yet eligible for ART because their CD4 counts are above the threshold for treatment). The rollout of ART has meant that People Living with HIV & AIDS (PLHA) are healthier and live longer, and hence the negative economic impacts are again reduced.

Nevertheless, the availability of treatment has raised new challenges in many poorer countries where the cost of ART and HIV programmes is predominantly financed from donor funds. The HIV & AIDS budget in Tanzania for instance, is 95% donor funded. Thus, the main issue is ensuring budget sustainability in the context of stepped up HIV & AIDS spending, and dealing with the trade-offs between competing expenditure priorities. The key macroeconomic challenges arising from HIV & AIDS treatment in low income countries are:

---


8 NACP, cited in HIV & AIDS in MKUKUTA II, a brief paper prepared by TACAIDS/DPG Working Group on MKUKUTA II

9 The eligibility threshold is CD4 count less than 250. However, this has been revised to 350 lately.
1. The sustainability and stability of donor funding (HIV & AIDS treatment is a long-term commitment)
2. The extent of the local funding contribution and the impact on government budget sustainability
3. The extent to which these negative impacts are offset by the beneficial impacts on growth (e.g. reducing labour shortages) and poverty, or justified in social/human terms regardless of negative economic impacts
4. The extent to which spending on HIV & AIDS creates demand for goods and services that are inconsistent with productive capacity of the economy, perhaps causing supply bottlenecks and inflation
5. How central banks should respond to increased inflows of foreign exchange resulting from donor funding.

These are some of the issues that have to be addressed in an elaborate study on the impact of HIV & AIDS on the economy. However, given the short time span of this study, we focus this analysis on issues related to expenditure on HIV & AIDS, impact on labour supply and productivity and on economic growth based on the available literature and data.

3.0 Impact of HIV & AIDS on Service Delivery

The public sector undertakes key functions that are essential for development and, in all countries, a significant proportion of those with technical skills, professional qualifications and management expertise are employed in the provision of public services. Thus, the quality and range of public services, such as education, health, law and order, water and sanitation etc, are all dependent on flows of finance, and on the stock of public employees with the requisite skills and expertise. The effective functioning of the public sector is threatened by the HIV epidemic, which undermines the stock of human capital and the revenues available to finance development while generating more demand for public services, especially in the health sector. Losses of human resources due to HIV & AIDS will thus be especially damaging to the capacity of the state to supply essential goods and services, with effects not only on public services, but more broadly on the rest of the economy.

Using two social sectors, namely education and health, we examine the impact of HIV & AIDS on the capacities of these sectors to deliver public services. These sectors have been selected due to availability of some evidence on the impact and their roles in regeneration of the labour force through human capital development and maintenance of the health of the labour force. The impact of HIV & AIDS on social service delivery can be observed in at least three ways: the supply of experienced personnel is reduced by AIDS related illness and deaths; there is decreased productivity due to illness and absenteeism; and depletion of resources due to increased HIV & AIDS related expenses such as those on medical treatment, transport and burial of workers who die and training costs for workers who replace them.

3.1 Education Sector

Teachers in Africa are regularly singled out as being a “high-risk group” with respect to HIV & AIDS. In particular, in the high prevalence countries, the epidemic has cut a “swathe”
through the teaching profession. Three factors that make teachers more vulnerable to HIV infections relative to some other groups in the general population have been cited.\(^\text{10}\)

(i) Greater mobility—they are often posted to teach in places far away from their home areas, often leaving their families behind because of accommodation problems

(ii) Generally, they have higher disposable income than the general population in their places of work

(iii) The teaching profession is female-intensive compared to the other key service delivery sectors (with the exception of health). Overall HIV prevalence rates among the adult population are generally significantly higher among females.

In Tanzania, no detailed HIV risk assessment of the teaching profession has been undertaken (these assessments are relatively common in the private sector). Such assessments would include voluntary anonymous testing in order to establish the exact profile of HIV infection among the workforce and knowledge, attitude and practices surveys of high-risk behaviours, especially alcohol consumption, multiple sexual partners including commercial sex workers, and condom use. In the absence of this information, the only way to assess the impact of the epidemic is to analyze mortality rates among teachers. But, even for a well-defined and high profile occupation such as teaching, comprehensive mortality data since the start of the epidemic are difficult to obtain.

An effective education system is an important factor in ensuring sustainable human development in any society. Its effectiveness can be assessed both in terms of the quality and quantity of education services provided and outputs. Factors on both the supply and demand sides can work to enhance or reduce the effectiveness of the education system. The HIV & AIDS epidemic continues to erode human resources on both the demand and supply sides and the impact on both sides undermines the very foundation of the education system. However, studies conducted on education provide qualitative information on death tolls and the associated financial costs without necessarily showing the impact on the capacity to deliver educational related services and the long term impact on investment in human capital. Thus, studies linking HIV & AIDS with the country’s human capital development process are lacking. For instance, it is known from anecdotal evidence that the death toll has been high among the teaching community from primary to university levels. However, not much is known or documented about how the deaths have affected the delivery of educational services and the consequences on human capital investment of the future generation.

3.1.1 HIV & AIDS effects on the supply side of education sector

Due to the fact that the epidemic mostly affects the working age population, the supply side of education has been impacted—teachers, education planners, managers, and

administrators. The sector is affected by deaths from AIDS, decreased productivity due to ill health and absenteeism and increased HIV & AIDS related costs.

In 2004 the Ministry of Education and Culture conducted a baseline study on the status of the response to HIV & AIDS in the education sector. The report relied heavily on National AIDS Control Programme (NACP) reports of data on HIV infections and AIDS and assumed that primary school pupils, secondary school students and teachers follow the same trend as their respective cohorts in the general population. The study did not embark on a thorough socioeconomic impact analysis of the sector. From this report, it was suggested that the government’s education sector would be in danger of losing more than 27,000 teachers to HIV & AIDS by 2020.

The ESRF (2003) study shows the HIV & AIDS deaths as percentage of the total number of teachers reported to have died within a year to be quite large. The perceived proportions by the district officials and teachers from sampled schools for 2001 ranged from 40% per district to 100%. Perceived district level number of teachers who died from HIV & AIDS related causes in each district revealed further that, on average 14 and 8 teachers died in 2001 and 2002 respectively per district. The majority of the deceased teachers had more than 10 years of experience. The effect on productivity as indicated by higher absenteeism rates of teachers with HIV & AIDS and replacement of experienced teachers with less experienced ones clearly suggest an adverse impact on productivity and quality of education.

The death of teachers due to HIV & AIDS is compounded by high overall levels of teacher attrition from other reasons. The average rate of teacher attrition in six countries, Tanzania inclusive is 4%. Most of the attrition is attributed to retirement, resignations, death and dismissals. It is possible that AIDS deaths account for only a relatively small proportion of total teacher “wastage” if compared to overall attrition. According to UNESCO figures, in absolute numbers, Tanzania will need the most additional teachers (239,000) by 2015, followed by the Democratic Republic of the Congo (166,000), Uganda (95,000), Burkina Faso (81,000) and Kenya (80,000). These findings have implications on the current poverty reduction strategy in terms of teachers training, deployment and retention. The desired Pupil Teacher Ratio (PTR) at primary school 1:45 but currently it stands at 1:54. For secondary schools, the desired PTR is 1:35 against the desired one—1:43. The shortfall of teachers has been reported to be 30,405 and 7,943 for primary and secondary schools respectively.

It is important to note that HIV prevalence is declining in the majority of African countries and so is mortality per specific groups. There are two main reasons for the decline in mortality, which will affect teachers as others, namely changes in sexual behaviour and the increasing availability of anti-retroviral drugs. Roll out of universal access to ART as been currently advocated in Tanzania could open an avenue for access by teachers. If ARTs are made available, there is every reason to believe that teacher mortality rates could fall quite significantly and quickly throughout the country.

---

11 See EI Worlds of Education No 25, February-March 2008
12 UNESCO (2009), projecting the global demand for teachers: meeting the global universal primary education by 2015, UNESCO Information Sheet No.3.
13 Calculated by Prof A. Mbelle for MKUKUTA Review using BEST 2009 data
Thus, in addition to strong preventive programmes aimed at younger people, Governments and their development partners must act decisively to design and implement effective AIDS-in-the-workplace programmes for teaching staff at all schools. These programmes should be composed of three inter-related components, namely: comprehensive risk assessment; imaginative HIV education activities; and the provision of anti-retroviral drugs for all affected teachers as well as other support such as nutritional support.

3.1.2 HIV & AIDS effects on the demand side of education sector

On the demand side the impact is twofold – on the number of students in school (in terms of falling enrolments as a result of HIV infection and death of teachers), and the ability to learn of the affected students who are able to stay in school. Because of HIV’s main form of transmission (heterosexual contact), it has been observed that those to be affected most are men and women in the reproductive age group. This has a bearing on the numbers of the school-age population. Factors contributing to this include: 14

- A decrease in the number of women in child-bearing age
- Reduced fertility due to AIDS among women of child-bearing age (for example, due to increased use of condoms)
- More child deaths due to mother-to-child transmission (prenatal transmission)
- Increased dropout from school because of the need to stay at home to care for the sick or substitute for adults. Dropout is also increased by the possibility that demand for education might fall if HIV & AIDS has reduced teacher numbers so that pupil: teacher ratios are higher which makes quality of education to suffer and pupils and parents consider alternative uses of time.

While acknowledging that lack of hard data on infection rates for the school age population makes it difficult to determine exactly how AIDS might result in a decline in enrolment (due to both decline in fertility and inability to get enrolled), limited evidence suggests that the effect of AIDS on enrolment is significant. A 1999 UNICEF study in Tanzania suggested that HIV & AIDS may reduce the number of primary school children by 22% and secondary school children by 14% as a result of increased infant and child mortality as well as lower attendance. 15 Again, it is important to reiterate that the early studies were based on unrepresentative ANC data and without ART scenario which resulted to alarming projections. Evidence from the implementation of the Primary Education Development Plan (PEDP) shows a tremendous increase in primary school enrolment.

Another study by Gould and Huber (2003) 16 used data from Tanzania to predict the likely numbers of primary school-age children in the next decade. They surveyed 470 children at


12 schools in Iringa and Dodoma Districts, Tanzania, to discover factors that influence attendance. They found that:

- By 2010, school-aged cohorts are likely to be smaller by 15 to 25% in Tanzania than they would have been without the epidemic.
- The population-reducing effect of HIV & AIDS is dwarfed by the counter-effects of high fertility. The growth in the school-aged population from 2002 to 2010 is slightly less than 1%.
- Better school attendance is linked to higher parental income and education levels. HIV & AIDS has not greatly changed this pattern.

Evidence shows further that households with orphans are less likely to have enough money to send children to school compared to households without orphans. Lack of adequate resources to meet their school expenses is one of the main reasons why orphans drop out of school. Studies done in different countries in Africa show significant numbers of orphans dropping out of school after their parents die. This has been attributed to inability of households to meet children’s school expenses. The same authors refer to this as the income effect of AIDS on infected families.

Beegle et al. (2008) shows the intergenerational impact of HIV & AIDS using a KHDS cohort data. They examined a cohort of 718 children interviewed in the early 1990s and again in 2004. Detailed survey questionnaires and anthropometric measurements were administered at baseline and during a follow-up survey. Final attained height and education (at adulthood) between children who lost a parent before the age of 15 and those who did not were compared. The results show that on average, children who lose their mother before the age of 15 suffer a deficit of around 2 cm in final attained height (mean 1.96; 95% CI 0.06–3.77) and 1 year of final attained schooling (mean 1.01; 95% CI 0.39–1.81). This effect is permanent and the hypothesis that it is causal cannot be rejected by our study. Although father’s death is a predictor of lower height and schooling as well, we reject the hypothesis of a causal link.

The implications of these findings in terms of support to orphans and most vulnerable children through robust social protection mechanisms and enhancing the Prevention of Mother to Child Transmission (PMTCT) programmes cannot be overemphasized. It is important to note that these effects on education are limited to a small subset of all orphaned children – maternal orphans, and depending on the age of the child at orphanhood.

3.2 Health Sector

The already over-stretched health sector, among other sectors, has suffered multiple effects due to HIV & AIDS: increased number of patients due to AIDS opportunistic infections, increased demand and sometimes reallocation of resources from other important health problems, decreased number of health workers, and at times, hesitation to work in HIV &

---

AIDS patient areas has been observed. The health workforce operates in a potentially unsafe environment with occupational hazards, accidents and other diseases posing a constant threat on a workforce with the HIV & AIDS pandemic causing the most danger. A survey carried out in two hospitals in Tanzania in 2004 found HIV prevalence of 13% among health workers. The health sector continues to suffer through workforce attrition and low productivity arising from AIDS related illness and death.

The annual number of TB cases notified in Tanzania has declined by more than 5% since its peak (from 65,666 in 2004 to 61,950 in 2007). In the early 1990s, 60% of the increase in (smear-positive) TB cases was attributable to the HIV epidemic. Between 1991 and 1998, it was estimated that approximately 60% of the increase in notification rates of smear-positive tuberculosis between surveys was directly attributable to HIV infection. It seems likely that the first signs of decline in TB caseload are also AIDS-related, following a modest decline in HIV prevalence and the introduction of ARV treatment. It is also important to note that the performance of the National Tuberculosis and Leprosy Control Programme continues to exhibit solid performance – with recent year-on-year improvements in treatment success. This is accompanied by very low (<1%) rates of treatment failure. The treatment success results for 2006 and 2007 exceed the WHO target of 85% of all TB cases.” The completion rate for 2007 is shown to be 87.1%.

The HIV epidemic poses significant challenges to the human resources for health in three dimensions. First, the attrition rate among health care workers, their level of motivation, and absenteeism from work, which creates further shortages of human resources; also the reduction in productivity which results from low morale and absenteeism. Secondly, the existing constraints in staffing are likely to be further aggravated by the impact of the HIV epidemic in increased mortality and morbidity of the work force. Additionally, there are increasing demands placed on the health sector, for the additional care of those infected. Thirdly, the increasing number of HIV & AIDS patients intensifies the already existing shortage of human resources creating further demand for more health workers to attend all patients attending health facilities. A study on the impact of HIV & AIDS among health workers which was conducted in 2006 reported the following findings;

- The workplace was found to be a potential source of infection
- HIV & AIDS has affected the health workers and or their relatives and this has contributed significantly to health workers absenteeism from work
- Health workers are dying from AIDS which reduces the available workforce
- Poor health and morbidity due to HIV & AIDS leads to low productivity among the infected workforce
- Mortality due to HIV & AIDS results in reduction of years of productivity

The above effects lead to shortage of health workers and increased work load, which in turn demands new strategies for employing, motivating and retaining health workers. It is also important to note that there is a high tendency of health workers to move from clinical work.

---

19 See Fimbo et al, HIV Impact on Health Workforce, 2006
20 Strategic Plan for the Control of HIV & AIDS for Health Workers at the workplace (2006 – 2011)
22 See Muhondwa and Fimbo (2006)
in health facilities to non-clinical work in public health facilities or other organisations working in preventive activities. HIV & AIDS and increasing workload in clinical management have been cited, among other factors, to have facilitated this movement. This tendency has negative repercussions for the clinical sub sector of the health sector.

In Tanzania, it might not be possible to expand health service delivery unless there is a rapid scaling up of human resources for health. There are indications that lack of health care providers is significantly impeding the disbursement of funds from global health initiatives such as the Global Fund for AIDS, Tuberculosis and Malaria\(^23\) as services simply cannot be delivered without the necessary trained people who are in short supply.

In addition to the necessary strengthening of the health staffing, task shifting and more support for home-based care is called for. There is potential for making home based care more efficient, relieving the overburdened health sector. Evidence from Uganda shows that over 2.5 years of follow up, home-based ART by trained lay workers achieved equal health gains-measured as viral suppression, reduced mortality, and hospital admission-compared with a clinic-based strategy led by nurses and doctors. Home based care was slightly cheaper to the health service, and costs incurred by patients were 52-67% lower than under facility-based care. These results from Uganda provides a compelling evidence for rolling out home-based ART to complement facility-based delivery and to facilitate access, especially in rural settings with weak health systems, shortage of clinical staff, and poor patients for whom transport cost and lost work-time provide obstacles to treatment seeking, initiation and adherence.\(^24\)

\(^{23}\) See Global Fund Audit Report (2009)

4.0 The Impact of HIV & AIDS on the Economy

4.1 Review of Studies on Household Economic Impacts

Households are the epicentre of both HIV & AIDS but they are also the place where labour is reproduced and regenerated. Thus, any HIV & AIDS impact study has to look first on what is happening at the household level. A significant number of studies were done in the early 1990 to early 2000 on the household and sectoral impacts of HIV & AIDS. Major impact studies conducted in Tanzania which have been widely cited include publications using the Kagera Health and Development Survey (KHDS) first and second rounds of data which were collected in 1991 and 2004 respectively and a study by the ESRF in 2003 which collected data from six districts. These studies and other related studies provide the bulk of data on the social and economic impacts of the pandemic as summarized in Table 2.

Table 2: Summary of Studies on the Impact of HIV & AIDS at the Household Level

<table>
<thead>
<tr>
<th>The study</th>
<th>Findings</th>
<th>Major impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tibaijuka (1997)</td>
<td>A study conducted in Kagabiro village in Kagera Tanzania found that on average, 29% of household labour was spent on AIDS related matters, including care for sick patients, and funeral activities. If two individuals were devoted to nursing as occurred in 66% of the cases, the total loss was 43% on average. Frequent illness and poor health forced PLHAs to reduce their production time and sometimes change their main occupation.</td>
<td>Time/labour cost</td>
</tr>
<tr>
<td>Isaksen et al., (2002)</td>
<td>A woman with a sick husband spent 60% less time on agricultural activities than she would normally do.</td>
<td>Time/labour cost</td>
</tr>
<tr>
<td>ESRF (2003)</td>
<td>Using data from six districts the study shows that 67% of PLHAs were forced to reduce time previously allocated to production activities because either they had to use time to seek care (treatment) or because they were too sick to work. PLHAs lost between 1 to 183 working days with an average of 43 days within six months period attending their own illness.</td>
<td>Time/labour cost</td>
</tr>
<tr>
<td>Tibaijuka (1997)</td>
<td>In households with PLWA, virtually all households' cash income was used to pay for medical bills due to AIDS. Households had to sell assets or borrow funds to cope with the increased expenditure. Households with an AIDS death spent on average 50% more for the funeral than for the medical care.</td>
<td>Financial cost, loss of assets</td>
</tr>
<tr>
<td>Rugalema (1999)</td>
<td>A study in Kagera reveals that AIDS affliction leads to accelerated consumption of household cash, mainly in the process of seeking treatment and in attempts to restore health. In addition, AIDS illness in the household leads to disposal of other productive assets. A wide variety of assets, except land, are disposed off to generate cash for use in treatment</td>
<td>Financial cost, loss of assets</td>
</tr>
<tr>
<td>ESRF (2003)</td>
<td>Households incurred more costs on HIV &amp; AIDS related problems compared with other health-related costs, an average of TShs 79,206 which was more than 200% of the costs for respiratory related health problems, due to length of illness.</td>
<td>Financial costs</td>
</tr>
</tbody>
</table>

25 This report summarized findings from several studies
26 The exchange rate was about $1=TShs 1320 in February 2010.
<table>
<thead>
<tr>
<th>The study</th>
<th>Findings</th>
<th>Major impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lundberg et al., (2000)</td>
<td>A study conducted in Kagera region shows that, among the poor, AIDS deaths led to general consumption drop of 32% and food consumption drop of 15%.</td>
<td>Nutritional related cost</td>
</tr>
<tr>
<td>Isaksen et al., (2002)</td>
<td>Food consumption has been found to drop by 41% in families hit by AIDS related diseases.</td>
<td>Nutritional related cost</td>
</tr>
<tr>
<td>ESRF (2004)</td>
<td>Sampled households in Ludewa were found to have lost about 75 kg of cereal per capita in terms of production in one year due to HIV &amp; AIDS</td>
<td>Nutritional related cost</td>
</tr>
<tr>
<td>Beegle et al., (2006)</td>
<td>Using a 13-year panel of individuals in KHDS to assess how adult mortality shock affects both short and long-run consumption growth of the surviving household members, they found robust evidence that an affected household will see consumption drop by 7% within the first five years after the adult death.</td>
<td>Consumption cost</td>
</tr>
<tr>
<td>Beegle et al. (2008)</td>
<td>The results using KHDS cohort study show that on average, children who lose their mother before the age of 15 suffer a deficit of around 2 cm in final attained height and 1 year of final attained schooling. ²⁷</td>
<td>Child growth retardation and loss of time for human capital investment</td>
</tr>
<tr>
<td>Kessy (2009)</td>
<td>A study done in Makete district shows that property grabbing is not a myth but a reality; women have lost land to in-laws after the death of their husbands and more so if the death of the husband was associated with HIV &amp; AIDS.</td>
<td>Loss of property</td>
</tr>
</tbody>
</table>

Although most of these studies were undertaken in the past when the pandemic was having a big toll on the Tanzanian population, there are some implications on current household economic and social well being which in turn affects the overall national economic growth and poverty reduction.

HIV & AIDS related financial expenditures are likely to affect savings and investment since expenditures for mitigating the impact of HIV & AIDS are likely to reduce the amount of capital available for more productive investment. Thus, in the absence of external investment flows, the higher the proportions of care financed from savings, the larger the reduction in growth resulting from the epidemic.

The pandemic has added to the burden of food accessibility by reducing the purchasing power of infected and affected households, and hard-hit communities at large through diverting finances for household care to cater for HIV & AIDS related expenses. This has further consequences for the health of all household members but more so for household members living with HIV & AIDS since they need eat well.

Socially, HIV & AIDS results in a large number of orphans, most of whom are cared for by their extended families, including by grandparents, whose capacity to sustain the

development of orphan children may be compromised. The impact on children’s education and nutritional development has been highlighted above.

To some extent, these impacts may be mitigated by the fact that HIV is more prevalent in urban and less poor households. HIV prevalence is 8.7% of urban adults and 4.7% of rural adults. HIV prevalence is highest among adults in the top wealth quintile (8.1%) and lowest in the bottom quintile (4.6%). Thus, generally, those households most negatively affected by HIV are also those who have relatively easier access to health services. Urban households have also experienced a greater fall in poverty than have rural households.

Nonetheless, a substantial number of households have been very seriously affected by HIV and AIDS. Those communities with high HIV prevalence and which have been hardest hit by other economic losses, such as Makete where the market for a major cash crop was lost, have suffered economically. Researchers in Mwanza noted that the level of relative disadvantage of orphans and foster children is slight compared to the level of need of all children. A strong local economy and access to health services are thus essential in mitigating negative impacts on households and communities.

4.2 Review of Studies on Sectoral Economic Impacts

In order for the country to formulate a growth strategy, it should first identify the critical growth sectors and growth drivers. Tanzania’s rich resource endowment offers the opportunity to garner additional growth from the more intensive exploitation of its resource base. Agriculture has strong forward and backward linkages with other sectors, and stronger links can be established with sectors such as tourism and manufacturing, with spin-off effects with non-agricultural sectors. Also exports of agricultural commodities, increased activity in the mining sector, and expansion of tourism are three areas that already have registered relatively high growth rates in recent years, but which still have substantial potential for additional growth in the near future. We explore potential impacts of the pandemic in these sectors whenever data allow.

4.2.1 Agricultural Sector

Agriculture, particularly food production, is affected in several ways by HIV & AIDS but a major one is a toll on the agricultural labour force. FAO (2001) estimated that in the 27 most affected countries in Africa (Tanzania inclusive), 7 million agricultural workers have died from AIDS since 1985, and 16 million more deaths are likely in the next two decades. In the

---

28 THIMIS, (2007/08)
29 Household Budget Survey (2007), National Bureau of Statistics
31 “Operational Research to Compare the Circumstances of Orphan and Non-orphan Children and their Care Providers in Mwanza, Tanzania”, The National Institute for Medical Research (NIMR), Mwanza Centre, for UNICEF Tanzania

18
ten most affected African countries, labour force decreases ranging from 10-26% are anticipated (Table 3). HIV & AIDS is estimated to have caused 5.8% decline in agricultural labor force in Tanzania and this is projected to increase to 12.7% by 2020. The methodology on how these projections were obtained is not detailed in the paper. However, as other previous studies, these were based on high prevalence rates by then and the findings might not hold in the current state of low and declining prevalence rates.

Table 3: Impact of HIV & AIDS on Agricultural Labour Force in the Most Affected African Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Projected Losses (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2000</td>
</tr>
<tr>
<td>Namibia</td>
<td>3.0</td>
</tr>
<tr>
<td>Botswana</td>
<td>6.6</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>9.6</td>
</tr>
<tr>
<td>Mozambique</td>
<td>2.3</td>
</tr>
<tr>
<td>South Africa</td>
<td>3.9</td>
</tr>
<tr>
<td>Kenya</td>
<td>3.9</td>
</tr>
<tr>
<td>Malawi</td>
<td>5.8</td>
</tr>
<tr>
<td>Uganda</td>
<td>12.8</td>
</tr>
<tr>
<td><strong>Tanzania</strong></td>
<td><strong>5.8</strong></td>
</tr>
<tr>
<td>Central African Rep</td>
<td>6.3</td>
</tr>
<tr>
<td>Ivory Coast</td>
<td>5.6</td>
</tr>
<tr>
<td>Cameroon</td>
<td>2.9</td>
</tr>
</tbody>
</table>

Source: FAO (2001)

A number of studies conducted by ESRF in 2003 and 2004 looked at the impact of the pandemic on agriculture, focusing mainly on loss of labour and food security. While the 2003 study was conducted in six districts, the 2004 was done in Ludewa district. Loss of labour measured through indicators such as chronic sickness or death of members of the households and loss of working days has been affected negatively. Lost labour due to HIV & AIDS is measured in terms of the duration individuals could not work because of illness; time spent visiting HIV & AIDS ill persons; time spent attending HIV & AIDS patients; and time taken to attend a funeral of an AIDS related death. Findings from the 2003 study show that;

- The workdays lost due to HIV & AIDS pandemic within 30 days prior to the survey were equivalent to loss of 35 farming households’ labor force.\(^{33}\)

\(^{33}\) In the study area, the average household size of the surveyed households was found to be 6, out of which 4.2 are the labor units working for 8 hours each of the 6 days in a week. The labor units include the age group 10 and above as treated in the 2000/01 Integrated Labor Survey. Thus, based on this information labor supplied (available man-days for agricultural activities) in one month by the average farming
- In terms of agricultural labour lost due to attending HIV & AIDS cases, the loss was equivalent to 5 farming households losing total available labour force, 8 farming households’ loss of the total available labour force due to time spent to attend funerals of an AIDS death and 2 farming households’ loss of the total available labour force for agriculture due to time spent to visit HIV & AIDS sick persons.

The findings from the Ludewa study also show lost productive labour;
- HIV & AIDS illness resulted to a loss of 877 working days from the 208 sampled household (an average of 4.2 working days per household) in the one month period prior the study.
- From the 208 household surveyed, a total of 579.9 days were used to attend and/or care for HIV & AIDS patients while 383.3 days were used to visit HIV & AIDS sick persons within one month period. About 593 days were spent for funerals of AIDS related deaths within a one year period.
- Taken together, 20% of the surveyed households could not undertake their economic activities due to various circumstances related to having HIV & AIDS ill people in the household or community.

HIV & AIDS does not merely affect certain agriculture and rural development sub-sectoral components, leaving others unaffected. If one component of the system is affected, it is likely that others will also be affected directly or indirectly. Thus, these findings have implications for the implementation of the Kilimo Kwanza declaration. Due to the disquieting poverty situation in rural agricultural communities, efforts to mitigate the impact of HIV & AIDS can only succeed in the long run if they also focus on improving agricultural productivity and the livelihoods of the people in the rural areas.

Overall, the HIV & AIDS response has mainly concentrated on prevention and care and support, with little for the mitigation of impact (except for MVCs). Thus, no strong programmes have yet been implemented that adequately deal with economic empowerment of infected and affected households to be able to cope with the risks associated with HIV & AIDS. There is therefore a need for the government to invest in measures that incorporate empowerment activities for agricultural households in the rural areas. Programmes need to be developed which blend social marketing and agricultural activities, exploring the potential for expanding livestock husbandry for income generation, and creation of employment opportunities for young people, such as developing HIV-aware and gender-youth proactive agricultural extension capacity. Other measures include training in agricultural skills taking into account the comparative advantage of local natural endowments, improving labour and time management as appropriate, improving outlets for agricultural produce, supporting “farmers’ life schools” and building agriculture into school curricula to bridge gaps in intergenerational knowledge transfer. Introduction of micro agricultural related projects for instance gardening and fish keeping aquaculture that could easily be implemented by vulnerable groups such as PLHA is also essential.

---

household within the sampled districts was found to be 109 man-days. The study assumed that one month has 26 working days.

34 See the Biennial HIV & AIDS Sector Review (2008).
4.2.2 Manufacturing Sector

The other sector that has been identified as a growth sector is the manufacturing sector, including SMEs. HIV & AIDS has been mentioned to have affected the sector since the finances that would otherwise be put in investment, are put in supporting the HIV & AIDS related expenses. No data are available on the impact of HIV & AIDS on these sectors but the ESRF (2003) sheds some light on the impact at different work places sampled. The findings from this study point to large financial costs to fund HIV & AIDS related cases.

Findings from the 31 workplaces surveyed reveal that 21% of the surveyed companies provided specific medical support to employees living with HIV & AIDS. On average, about TShs 11.76m per company was spent on such services in 2002, with a minimum of TShs 80,250 and maximum of TShs 65m. Further, the majority of the surveyed workplaces (86%) provided funeral support for deceased workers. On average, TShs 1.8m was provided in 2002 with a range of TShs 60,000 to TShs 4.6m. It was further noted that the surveyed workplaces had spent very little on preventive programmes to combat HIV & AIDS. In addition, 10% of the surveyed companies had employees who retired prematurely due to HIV & AIDS related problems and this was associated with payment of premature retirement benefits. The total of such benefits paid ranged from TShs 1.3m to TShs 16.5m with an average of TShs 10.3m in 2002.

Again, these findings are dated and given the current developments, it is imperative to conduct a manufacturing sector survey (both public and private) to establish how much the sector has been affected in terms of expenditure on ARV and other HIV & AIDS workplace programs. This study will also establish the extent to which the negative impacts are offset by the beneficial impacts from access to ARV on growth (e.g. reducing labour shortages and increased labor productivity). Anecdotal evidence has it that some companies are supporting ARVs for the employee and the spouses. Access to ARV programmes must be coupled with much stronger preventive work, which is needed not only in the workplace, but for young people before they become employees.
4.2.3 Tourism Sector

Although there is no study in Tanzania mainland that has examined the impact of HIV & AIDS on the tourism sector, a study done in Zanzibar in 2007 can shed some light on the magnitude of the impact although HIV prevalence is much lower in Zanzibar and among young people there compared with overall infection rates on the Mainland. In this study, quantitative information on HIV & AIDS trends including the impact in terms of deaths, treatment costs, burial costs, etc, was not provided, making determination on the impact of HIV & AIDS on the tourism sector difficult. However, the study did demonstrate qualitatively that rising tourism is associated with increased business and social interactions and is believed to fuel both commercial sexual activities industry and drug use among young people. These are likely to increase HIV transmission. Thus, while tourism has positive effects economically, measures to curb its negative effects should be in place.

4.3 The Review of Demographic and Macroeconomic Impacts of HIV & AIDS

4.3.1 Impact of HIV & AIDS on Demographic Variables

This section reviews the previous studies on the likely demographic impact of the epidemic and its implications for the overall availability of labour in the economy, and the macroeconomic impacts on specific variables. Note that these studies were done when the HIV prevalence rates were high and the projections did not include the ART scenario. The findings from these studies are presented to show the evolution of the projections over time. Table 4 summarizes the projections on selected demographic indicators which show a large difference between AIDS and no-AIDS scenarios.

Important to note is that the total projected labour force (individuals aged 15-64) continues to grow over the projected years as would be expected given the underlying demographics. However, the active labour force is estimated at 25.44 million by 2015, about 2.33 million fewer or 9% lower than it would have been in the absence of AIDS. The definition of the labour force employed in the simulations applies to the economically active population, which includes the employed and unemployed. Because the economically active group tend to be almost the same as the sexually active group in the society, the relative effect of HIV & AIDS is larger among this group than the general population. The projections thus indicate that AIDS is likely to have serious relative effect on productive labour force over the long term. The reasons for the expected decline in population growth are the projected rapid rise in new AIDS cases, the limited time from full-blown AIDS and death, and relative low fertility associated with AIDS which would have occurred in the absence of strong programmes and ART.


These estimates were projected using Spectrum Models developed by Futures Group International. First, it estimates the annual incidence of AIDS on the basis of recent estimates of HIV prevalence; and second, by making assumptions about the probability of progress from HIV infection to AIDS and from AIDS to death, various demographic indicators are derived. See AIM Manual Version 4.0 (1999) for description of all active modules in the Spectrum Models.

See Gregson and Zaba (1998).
There are several other studies that have shown a more stunning and pathetic situations. These include ILO (1995) and Cohen (2003). The ILO study gave more worrying figures whereby it is estimated that by year 2010, the size of the workforce in Tanzania would be only 80% of what it would have been without AIDS. In addition, the mean age of the working population (15-64) was expected to fall, in the with-AIDS scenario, from 32 years to 29 years by 2010, and to 28 years by 2020, versus about 31 years without AIDS scenario. Projections by Cohen (2003) show the same trend whereby the active labour force in Tanzania (individuals 15-49) is expected to decrease by 9% by year 2020. The losses due to HIV & AIDS are shown to be concentrated in the age range15-34 but over time the projections display greater percentage losses of the labour force in the older age cohorts. Thus, the labour force will contain younger workers who are less well educated and with less experience which could have a long-term pressure on productivity.

Table 4: Summary of Selected Demographic Indicators

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Crude Death Rate (%)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With AIDS</td>
<td>18.7</td>
<td>16.2</td>
<td>13.8</td>
<td>11.4</td>
</tr>
<tr>
<td>No AIDS</td>
<td>15.9</td>
<td>12.6</td>
<td>9.8</td>
<td>7.5</td>
</tr>
<tr>
<td><strong>Infant Mortality Rate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With AIDS</td>
<td>117.1</td>
<td>94.9</td>
<td>74.1</td>
<td>55.2</td>
</tr>
<tr>
<td>No AIDS</td>
<td>111.7</td>
<td>89.0</td>
<td>68.2</td>
<td>49.2</td>
</tr>
<tr>
<td><strong>Life expectancy at birth (Years)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With AIDS</td>
<td>43.2</td>
<td>46.1</td>
<td>49.7</td>
<td>54.3</td>
</tr>
<tr>
<td>No AIDS</td>
<td>49.2</td>
<td>54.1</td>
<td>59.1</td>
<td>64.2</td>
</tr>
<tr>
<td><strong>Population growth rate (%)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With AIDS</td>
<td>2.19</td>
<td>2.19</td>
<td>2.13</td>
<td>2.06</td>
</tr>
<tr>
<td>No AIDS</td>
<td>2.48</td>
<td>2.55</td>
<td>2.52</td>
<td>2.42</td>
</tr>
<tr>
<td><strong>Total Population (millions)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With AIDS</td>
<td>32.51</td>
<td>36.32</td>
<td>40.50</td>
<td>44.99</td>
</tr>
<tr>
<td>No AIDS</td>
<td>33.27</td>
<td>37.82</td>
<td>43.01</td>
<td>48.72</td>
</tr>
<tr>
<td><strong>Labour force (15-64 years) (millions)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With AIDS</td>
<td>17.43</td>
<td>19.88</td>
<td>22.52</td>
<td>25.44</td>
</tr>
<tr>
<td>No AIDS</td>
<td>17.90</td>
<td>20.79</td>
<td>24.07</td>
<td>27.77</td>
</tr>
<tr>
<td><strong>Loss of labour force due to AIDS (millions)</strong></td>
<td>0.47</td>
<td>0.91</td>
<td>1.55</td>
<td>2.33</td>
</tr>
<tr>
<td><strong>Loss due to AIDS (%)</strong></td>
<td>2.67</td>
<td>4.62</td>
<td>6.90</td>
<td>9.15</td>
</tr>
<tr>
<td><strong>Total deaths</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>With AIDS</td>
<td>607,900</td>
<td>588,490</td>
<td>560,700</td>
<td>511,550</td>
</tr>
<tr>
<td>No AIDS</td>
<td>528,000</td>
<td>476,880</td>
<td>422,470</td>
<td>364,050</td>
</tr>
<tr>
<td>AIDS deaths (annual)</td>
<td>92,040</td>
<td>130,280</td>
<td>162,420</td>
<td>175,220</td>
</tr>
<tr>
<td>Cumulative AIDS deaths</td>
<td>650,000</td>
<td>1,230,000</td>
<td>1,980,000</td>
<td>2,840,000</td>
</tr>
<tr>
<td>New AIDS cases</td>
<td>99,460</td>
<td>137,680</td>
<td>166,100</td>
<td>177,180</td>
</tr>
</tbody>
</table>


It is important to note at this point that the current demographic impacts might not be as severe as it would have been given the advent of ARV and the fact that prevalence has gone down due to strong national multi-sectoral responses. Nevertheless, there is no room for complacency and prevention campaigns have to go in line with care and treatment and mitigation measures in order to avoid resurgence as is currently observed in countries like
Uganda. Among other factors, the resurgence in Uganda has been attributed to the slowing down pace in the fight.

4.3.2 Macroeconomic Impacts

Two approaches have been adopted in previous studies to estimate macroeconomic impacts. Cuddington, (1993) extended the Solow growth model to study the effect of the AIDS epidemic on the growth path of the economy and GDP per capita in Tanzania. The model used conjectures about the morbidity, mortality and expenditures related to HIV & AIDS to estimate the macroeconomic impacts. The results suggest that the economy would be between 15 to 25% smaller in 2010 because of the epidemic and per capita GDP would be up to 10% lower in 2010 due to the HIV pandemic.

Using the Cob-Douglas production function embedded in Excel Version of the Spectrum AIM model, the GDP growth is shown to be 8.3% smaller than it would have been without AIDS. Analysis of change in GDP per capita shows that, GDP per capita will grow at a rate that is 4% smaller than it would have grown without AIDS.

Msami (2007) used a variant of the neo classical growth model to analyse the impact of HIV & AIDS on per capita income, human capital and private sector nexus using regional HIV & AIDS prevalence and economic data from Tanzania. The long held belief that HIV & AIDS adversely affects the earning potentials of individuals was confirmed by the study. Although the negative impact of AIDS on regional per capita incomes was found to be fairly small quantitatively, the extended involvement of AIDS in all key economic variables is what is worrying. Surprisingly, however, the private sector which accounts for significant proportions of the Tanzania gross domestic product/income was found to be insignificant. This can be attributed to the choice of the proxy variable used to represent the private sector which was itself limited by actual data availability. A desirable proxy for private sector contribution is needed given that agriculture still employs large numbers of individuals in Tanzania as well as accounting for significant proportions of the national income.

This means that policy wise, tackling the epidemic cannot be restricted to anyone age group, sector or region. There needs to be a cognitive approach to reduce the number of people getting infected before the toll of AIDS on their incomes becomes even higher than it already is.

---

38 Spectrum models analyze existing information to determine the future consequences of current state, programs and policies on future population and economy. Data needed for demographic projections include population estimates, Total Fertility Rates, Age Distribution of Fertility/Age Specific Fertility Rates, Sex Ratio at Birth, Life Expectancy at Birth, % of women 15-19 never married, % of women in monogamous union, Infant Mortality Rate (IMR), Crude Death Rate (CDR), and Net International Migration. The AIDS Impact Model requires Adult HIV Prevalence Rate (%), start year of HIV epidemic, % infants with AIDS dying in the first year, life expectancy after AIDS onset (years), reduction in fertility among HIV positive women (%), prenatal transmission (%), HIV incubation period, expenditure per AIDS patient, % AIDS hospitalized, Ministry of Health budget, number of hospital beds and other economic variables as required by any Cobb-Douglas Function. Where data are not available, international calibrations are used.

No evidence is available but some literature has reported that HIV & AIDS can result to shrinking of tax base. This will occur in a large number of tax payers die of HIV & AIDS. This is a likely impact in Tanzania given that the prevalence rates are higher in urban areas and this is where majority of the tax payers live. THMIS (2007/08) data show that the HIV prevalence is higher among the rich population which means the tax payers are hit hard and this can reduce future tax contribution.

4.3.3 Estimating Current Impact of HIV & AIDS on Macroeconomic Variables

More recent projections have been done by Haazen, (2010)\(^4\) and this is still a work in progress. With regard to the productivity losses and economic losses due to premature death, the data for Tanzania allowed for the calculation of point estimate for 2009. Using a production function that enables output (GDP) to be calculated as a function of inputs (labour and capital) and productivity changes and assumptions as presented by Jafferis and Matovu (2008) but adapted to Tanzanian context and using the data from Tanzania, estimations on losses with and without ART scenarios were done. Table 5 summarizes the losses with and without ART, although estimates of deaths with and without are not available. The paper concluded that the economic impact will be between 1.4% and 1.9% of the GDP, with the largest impact due to premature death. Clearly, with increased access to ARVs the average age at death can be increased, resulting in lower economic and social costs.

<table>
<thead>
<tr>
<th></th>
<th>Without ART</th>
<th>With ART</th>
</tr>
</thead>
<tbody>
<tr>
<td>Productivity losses</td>
<td>$170</td>
<td>$72</td>
</tr>
<tr>
<td>Economic losses due to</td>
<td>$202</td>
<td>$202</td>
</tr>
<tr>
<td>premature death</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total loss</td>
<td>$372</td>
<td>$274</td>
</tr>
<tr>
<td>Percent of GDP</td>
<td>1.90%</td>
<td>1.40%</td>
</tr>
</tbody>
</table>

Source: Haazen (2010).

Further estimations show the annual economic impact to be in the range of 6%-7% of GDP (Table 6). This uses the available funding figure for the “without ART” cost of prevention, treatment and care, and the most recent NMSF costing figures for “with ART” (adjusted to include prevention). These figures can be updated once further information is available.

Table 6: Net Impact of HIV & AIDS on the Tanzania Economy

<table>
<thead>
<tr>
<th>Percent of GDP</th>
<th>Without ART</th>
<th>With ART</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV &amp; AIDS prevention, treatment and care</td>
<td>3.1%</td>
<td>5.3%</td>
</tr>
<tr>
<td>Household losses</td>
<td>1.0%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Productivity losses and premature death</td>
<td>1.9%</td>
<td>1.4%</td>
</tr>
<tr>
<td><strong>Total impact</strong></td>
<td><strong>6.0%</strong></td>
<td><strong>7.0%</strong></td>
</tr>
</tbody>
</table>

Source: Haazen (2010)

Note that significant resources are needed under prevention and treatment and care which has a bearing on the envisaged universal access move. These are losses to the economy – ie they are resources which would otherwise have been put to more productive use in absence of HIV & AIDS. Although these figures do not represent use of resources from the local economy (because the response is significantly funded from the external support), the extent of mobilization of these external resources and their sustainability leave a lot to be desired.

It is also important to note that in addition to the direct costs on prevention and care and treatment that entered into the model, there are indirect costs to the economy in terms of lower productivity for PLHA, lost productivity for those who die prematurely due to HIV & AIDS and the additional expenses for the household due to disease (medical cost, nutritional cost, or labor loss). Households would have to reallocate its expenditures from other items to health related spending. This affects (reduces) household savings and the resources available for investment.

4.3.4 Methodological Issues of HIV & AIDS Impact Studies

The macro estimations models have been criticized for underestimating the impact of the epidemic. Critiques of such models point out that those estimations generally show that GDP growth is slowed by loss of labour but GDP per capita does not change too much. This approach misses some important factors such as the loss of entrepreneurs, current human capital, and disruption of human capital investment processes as children are orphaned.

Beegle and De Weerdt (2009) provide a broad overview of the challenges in studying the impact of the epidemic on individuals, households and economies, drawing examples from existing studies. They argue that macro-economic studies reach vastly different conclusions about the impact of AIDS, depending on what parameter assumptions they make. They further argue that whereas micro-studies could provide insights into some of these parameters and effects, there are many technical hurdles to overcome. The use of comparator groups, spillover effects, availability of longitudinal datasets and the time horizons of studies all have gaps in technical requirements. Thus, the existing empirical

evidence of the impoverishing effects of AIDS deaths on African households seems unexpectedly limited. They conclude that literature thus far has not convincingly shown that AIDS is the main contributor to low levels and high inequities of socioeconomic outcomes in Africa and that demand for research on the causal impact of HIV & AIDS on poverty is only increasing with the scaling up of antiretroviral treatment.

Despite these critiques, these projections are important in providing the direction of the growth path of the economy with and without AIDS and with the current development with and without ART.

4.4 Expenditure on HIV & AIDS

Figure 2 shows the Government and development partners’ expenditure on HIV & AIDS from 2003/04 to 2007/08. The most remarkable feature is the continued rapid growth in donor HIV & AIDS spending. Budgeted aid for HIV & AIDS reached TShs 568bn in 2007/8 (the equivalent of US $473 million), and 95% of the available funding for HIV & AIDS is from donors, of which only 26% is captured by the government budget. Expected expenditure for the fiscal year 2008/09 was TShs 549.2 billion, down from TShs 568.2 billion budgeted for 2007/08, a decrease of 3%. The Government contribution has been TShs 22 to 25 billion per year since 2006, of which: 50% to 60% is for the health sector response; 6% has been spent at the regional level; and transfers to MDA account for 38.5%.

Figure 2: Total Spending on HIV & AIDS (TShs, Bn)

![Graph showing total spending on HIV & AIDS (TShs, Bn)]

Sources: URT 2004, 2008 (HIV & AIDS PER)

Total Government plus donor spending on HIV & AIDS is equivalent to over 3% of GDP, and (including off-budget donor spending) is over 10% of Government expenditure (Figure 3 and Table 7). According to HIV & AIDS PER 2007/08 (based on IMF estimates and projections of official external grants and loans), nearly one third of total aid flows to Tanzania are being spent on HIV & AIDS (an increase from 15.1% in 2003/04 to 32.9% in 2007/08). This level of spending on HIV & AIDS is high and out of line if compared to other African countries with high prevalence, for instance, Uganda and Botswana. In Uganda, spending on HIV & AIDS has risen from around 0.6% of GDP in 2003/04 to an estimated 1.5% in 2006/07. It is projected to increase further to 3.0% of GDP in 2011/12.
In Botswana, spending on HIV & AIDS was 2% of the GDP where a much higher prevalence rate is balanced by a much higher GDP per capita (approximately US$5500). \(^{42}\)

Table 7: HIV & AIDS Budgets and Expenditure relative to Government spending, GDP, and Total Aid flows 2005/06-2007/08

<table>
<thead>
<tr>
<th>Total HIV spending as a % of:</th>
<th>Actual 2005/6</th>
<th>Budget 2006/7</th>
<th>Actual 2006/7</th>
<th>Budget 2007/8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Govt Spending</td>
<td>5.8</td>
<td>7.4</td>
<td>8.3</td>
<td>10.9</td>
</tr>
<tr>
<td>GDP</td>
<td>1.6</td>
<td>2.2</td>
<td>2.5</td>
<td>3.3</td>
</tr>
<tr>
<td>HIV aid as % of total aid</td>
<td>15.1</td>
<td>21.8</td>
<td>24.9</td>
<td>32.9</td>
</tr>
</tbody>
</table>

Source: URT (2008), HIV & AIDS PER

Figure 3: Spending on HIV & AIDS as % of GDP

Large levels of aid in total have consequences for macro-economic management. \(^{43}\) The very high proportion of HIV & AIDS spending which is dependent on ODA may lead to distortion of priorities in the health sector, squeezing out other important priorities from the budget and from donor support and from the time of Tanzanian civil servants and health sector professionals. There are also big risks of establishing expectations that may well not be sustainable if support is not maintained.

The literature indicates that countries that have been hard hit by HIV & AIDS epidemic may make tradeoffs by cutting budgets in other sectors in order to finance HIV & AIDS programmes. There is no evidence to suggest that this has happened in Tanzania because HIV & AIDS is largely donor funded although a decline in overall real per capita health expenditure as observed in health PER 2008 could be a signal that HIV & AIDS has crowded out expenditure for other components of the health budget. It is also important to note that two large donors fund almost 80% of the response (the Global Fund and PEPFAR). The concern is what will happen if these large sources of funding stop or reduce

\(^{42}\) See Jefferis and Matovu (2008)

their aid. Under this scenario, budget cuts for other sectors to fund HIV & AIDS response might be needed.

Tanzania cannot be blinded by the vast sums of money that have been allocated to HIV & AIDS in the last few years. The latest update on the Tanzania NMSF costing indicates an average cost of about $852 million per year, excluding prevention. In Uganda, prevention was about 25% of the total estimate (given that the nature of epidemic in Uganda is similar to Tanzania), so applying the same proportion, the total cost in Tanzania would be around $1.14 billion per year. This translates into $26.32 per capita or $920 per PLHA. Haazen (2010) paper further points out that the identified HIV & AIDS funding for Tanzania is about $677 million per year on average, about 2 times the annual funding that is currently committed to HIV & AIDS. There are no existing funding scenarios that project resource flows at the level of the NMSF costing. The latest NMSF figures (including the 25% allowance for prevention) would be equal to 5.3% of GDP while the available funding indicated in the costing report would amount to 3.1%. It is also important to note that sometimes actual disbursements fall short of what has been committed because of several reasons.

These findings call for an urgent application of the scarce resources principles: prioritise, focus, and have an appropriate product mix. Prioritisation may necessitate reduction of the administrative channels for disbursement and management of HIV & AIDS funds so as to reduce administrative costs and hence more funds reach those in need of support and services. This could mean more use of government and local systems. The product mix entails balancing the expenditures across different elements of NMSF. There is need to explore a wide range of strategies in addressing the human resource issue in the health sector, such as task shifting as proposed in the Addis Ababa Declaration and as discussed above.

In addition to prolonging life and alleviating suffering due to illness, antiretroviral therapy represents a critical means of alleviating the epidemic’s economic effects. For instance, among tea workers in Kenya, rapid improvements in productivity were seen in the first year after starting antiretroviral therapy. However, recovery of health and productivity are not certain nor immediate, which has led some employers to permit workers to delay returning to work until 3–6 months after initiation of antiretroviral drugs.

The care and treatment component of the budget for HIV & AIDS commands a large share of the response, mainly because of expenditure on ARV (Table 8). As mentioned earlier, the government introduced a free ARV programme that has reached about 55% of eligible beneficiaries.

<table>
<thead>
<tr>
<th>Table 8: HIV &amp; AIDS Expenditure by NMSF Categories, 2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>NMSF Expenditure Categories</td>
</tr>
<tr>
<td>----------------------------------</td>
</tr>
<tr>
<td>HIV prevention</td>
</tr>
<tr>
<td>Care and Treatment</td>
</tr>
<tr>
<td>Policy and Administration</td>
</tr>
</tbody>
</table>

45 Simon et al., (2007)
We see more resources committed to care and treatment component. Essential features of five year forecast from 2009/10 to 2013/2014 show the following figures⁴⁶:

- Care and treatment commitment: 60% to 72% total resources;
- Prevention: 10% to 13%;
- Impact mitigation: 8% to 9%.

PEPFAR support is estimated at $313m per annum, representing 66% of the national response, of which:

- Approximately 38.5% goes into ARV services (including procuring equipment);
- 10.9% for ARV drugs;
- 28.9% for impact mitigation (mainly MVC); and
- 20.7% for prevention (mainly blood safety and PMTCT)

Table 9 shows the median cost per patient per year and by patient type. With about 1.3 million people infected with HIV in Tanzania⁴⁷, considerable resources are required to extend ART coverage within Tanzania, and to maintain treatment cohorts in the future.⁴⁸ Furthermore, more people need to be reached under the current revised eligibility criteria; CD count of 350 instead of 250. ART is a long term commitment; the ones on the first line treatment will enter into the second line treatment which makes the endeavour more costly.

---

⁴⁷ NMSF (2008)
⁴⁸ Berruti and Fruh (2009), The cost of comprehensive HIV treatment in Tanzania, presentation made in Dar es Salaam, Tanzania, November 21, 2009
Table 9: Median Cost per Patient per Year, by Patient Types (Economic Costs)

<table>
<thead>
<tr>
<th>Total Cost</th>
<th>Pre-ART</th>
<th>All ART</th>
<th>Newly Initiated Adults ART</th>
<th>Established Adults ART</th>
<th>Newly Initiated Pediatric ART</th>
<th>Established Pediatric ART</th>
</tr>
</thead>
<tbody>
<tr>
<td>Including ARV Drugs</td>
<td>min</td>
<td>$60.23</td>
<td>$229.88</td>
<td>$243.79</td>
<td>$235.76</td>
<td>$173.77</td>
</tr>
<tr>
<td></td>
<td>max</td>
<td>$506.77</td>
<td>$737.24</td>
<td>$820.10</td>
<td>$746.02</td>
<td>$914.21</td>
</tr>
<tr>
<td></td>
<td>median</td>
<td>$118.96</td>
<td>$442.94</td>
<td>$460.73</td>
<td>$437.83</td>
<td>$515.11</td>
</tr>
<tr>
<td>Excluding ARV Drugs</td>
<td>min</td>
<td>$60.23</td>
<td>$107.76</td>
<td>$79.40</td>
<td>$98.76</td>
<td>$79.40</td>
</tr>
<tr>
<td></td>
<td>max</td>
<td>$506.77</td>
<td>$468.00</td>
<td>$492.36</td>
<td>$461.61</td>
<td>$794.84</td>
</tr>
<tr>
<td></td>
<td>median</td>
<td>$118.96</td>
<td>$177.37</td>
<td>$233.07</td>
<td>$160.06</td>
<td>$233.07</td>
</tr>
</tbody>
</table>

Source: Berruti and Fruh (2009)

5.0 Conclusion and Recommendations

Given that HIV & AIDS is a long wave crisis, all stakeholders concerned about its impact on the economy need to adopt a long term development-oriented approach in addressing its effects on the present and future labour force, and this is in line with the envisaged Tanzania growth strategy. The review of literature for this study has had to rely on much that is now outdated, both in projections of HIV prevalence and impact of AIDS. New developments, especially with respect to the availability and falling costs of ART, mean that earlier projections of impact may have been overly pessimistic. Only one current work in progress was available at the time of this study and it has also shown some significant impacts on the labour productivity and the economy at large especially that significant amount of resources have to be used in procuring ARVs.

Nonetheless, HIV & AIDS has taken and will continue to take a big toll in Tanzania. There will be some loss of productive labour, there are substantial financial and time costs, and loss of productive assets. The share of the national budget, revenues and the use of international aid to tackle HIV & AIDS is disquieting. Thus, we recommend not only measures that will aim at mitigating the impact on the productive labour force and maintain a healthy labour force, but also interventions that aim at preventing a further spread of the virus and avoid resurgence.

It is important to note that the effect of HIV will continue to be felt during the 2008/2012 NMSF and MKUKUTA II planning horizon. It is therefore important to remember that Tanzanians will need to manage the cumulative impacts of HIV & AIDS over time, and not just the multitude of problems arising from new infections. Antiretroviral treatment programmes are critical to mitigating the epidemic’s impact on the labour force but should be complemented by initiatives that specifically address the needs of the households, communities, and sectors that drive economic growth.

(a) Financial Management

The sustainability and stability of donor funding given that HIV & AIDS treatment is a long-term commitment (HIV&AIDS budget is largely donor dependent—more than 90% of the budget) is a major issue. There have to be strategies around the management of ODA for
HIV & AIDS by ensuring that plans for its use are soundly based and productively spent. In this line, introduction of “donor expenditure review” and the use of national PER and Controller and Accountant General (CAG) reviews is imperative. It is inconceivable that in the foreseeable future Tanzania can/will foot the bill for universal access to ART – so ensuring external financing is essential. But this must be within national budgeting and planning systems.

Financial strategies need to be more cost-conscious: home and community-based care; more local management of finances and focus on prevention – including provision of condoms, especially for young people in the rural areas. It is also important that budgets for aspects of HIV & AIDS which should be implemented locally, such as MVC programmes, be included in formula-based grants for LGAs.

(b) Overall impact mitigation measures

Households affected by HIV & AIDS suffer financial losses and lose assets and time which reduce their capacity to continue with productive activities. This is coupled with a low resource base, particularly of rural households. The development of a National Social Protection Framework has been undertaken in order to provide support for vulnerable groups, such as those affected by HIV & AIDS so that they may build and retain capabilities for productive endeavours, contributing to and benefiting from the realisation of MKUKUTA cluster one outcomes. Extending promotive social protection for poor and vulnerable households is seen as an avenue for the economic empowerment of rural communities. Particular attention should be given to women since they are more likely than men to be illiterate and have less access than men to credit and other means of improving their productivity. The epidemic is having particularly harsh effects on women, and scaled-up measures to increase women’s independent income-generating potential should be implemented.

It is important to note programmes which involve the specific identification of individuals or households affected by HIV & AIDS can be stigmatizing and care must be taken to avoid this possibility. Programmes which help poor and vulnerable households, no matter the cause of the vulnerability, will also help those who are affected by HIV & AIDS. Such programmes could be given greater emphasis in areas with high poverty rates and HIV prevalence.

Social protection programmes that provide cash assistance to poor and vulnerable households have the potential to alleviate the epidemic’s impact. Such programmes have been tested in several of Tanzania’s neighbouring countries and shown to reach many households affected by HIV & AIDS. UNICEF estimates that well-designed social cash transfer programmes could reach 80% of HIV-affected households in need of assistance in

Note that in the absence of promotive measures to alleviate poverty, some affected and infected women resort to destructive coping strategies such as sex work which in turn put them at the risk of contracting HIV and spreading the virus (see Mbilinyi and Kafula, 2004).

low- and middle-income countries with high HIV prevalence. Tanzania’s programme for most vulnerable children (MVC) provides support mostly in-kind through local committees, community-based organisations and NGOs. Now heavily dependent on external support, this programme needs to be increasingly brought into national and local authorities’ planning, budgeting and implementation systems.

(c) Specific Measures for the Agricultural Sector

Agriculture has been identified as the major growth sector in MKUKUTA II due to its contribution to the growth and high level of backward and forward linkages with other sectors. This sector has also been hit by HIV & AIDS as discussed above. It is important to note that majority of workplace programmes (Ministry of Agriculture and Food Security being one of the workplaces) have concentrated on prevention measures for employees without necessarily going beyond to address the needs of the population at large and as per the mandate of specific sectors. Thus, strategies to improve productivity in the agricultural sector and those which will benefit poor, vulnerable households are needed. Emphasis on measures to improve productivity in areas with high HIV prevalence and for poor vulnerable households, such as access to credit and inputs, are imperative. Some of the strategies include:

- Development of programmes that blend social marketing and agricultural activities, for instance, training on improved agriculture blended with HIV education, in simple language while addressing unique socio-cultural considerations in a given locality.
- An emphasis must also be put on the productive employment for young people in agriculture. This can be done through ensuring that they have access to land – in their own right, not only as members of their fathers’ households - and agricultural inputs.
- Improving labour and time management, as appropriate, through reducing labour-intensity of systems of cropping (including improved seed varieties, zero or minimum tillage, intercropping), soil conservation (using soil-holding grasses not labour-intensive ridging), animal husbandry (rearing smaller stock such as poultry), pest control (using trap crops to attract pests away from crops) and post-harvest storage.
- Supporting “farmers’ life schools” and building agriculture into school curricula to bridge gap in intergenerational knowledge transfer.
- Exploration of micro-finance options, for instance, savings clubs, savings organization/cooperatives such as Savings and Credit Cooperative Societies (SACCOS), agricultural input grants or subsidies, or cash grants to meet input expenditures, and to promote diversification out of agriculture. These should be accessible to all, not only the (male) head of household.
- Soft loans to support development/expansion of vegetable gardens and fish farms. These are activities which do not demand too much labour and they could be performed by individuals living with HIV & AIDS.
- Distribution of hybrid seeds, which produce high yields in a small area.

Agricultural production and food consumption have been reduced in households affected by HIV & AIDS. This is compounded by already high malnutrition rates in some rural
households. Excessive malnutrition lowers immunity as does HIV and is likely to lead to symptoms that are very similar to those brought about by HIV & AIDS. Further, malnutrition results in a weak labour force which is less capable of being effective in the production process.

- Thus, MKUKUTA II should include strong nutritional measures both to prevent malnutrition and to ensure that people who are ill, including those with HIV, have access to food which meets their nutritional requirements.
- Research on medicinal crops that can provide nutritional and medicinal products that prolong life of HIV affected persons is imperative.

Climate change is also impacting agricultural production. Thus, the combination of climate change and HIV & AIDS, referred to as the HIV and Climate Change Complex (HACC), presents further serious challenges in poverty reduction. These complicated interactions, including the effects of climate change on immunity and disease, the heightened vulnerability of people to HIV & AIDS when agricultural livelihoods fail, and the undermining of ART effectiveness through malnutrition, place the country at risk of a worsening or prolongation of the epidemic. Thus, MKUKUTA II should address the risk the climate change is posing on agriculture by proposing some measures to mitigate the envisaged impacts.

(d) Service delivery including care and treatment

HIV infection is not a death sentence. Infected individuals have been found to live with the virus for more than ten years after the infection. This means that with proper care and treatment of the opportunistic infections and with the advent of ART, individuals living with HIV could live even longer. In addition to prolonging life and alleviating suffering due to illness, antiretroviral therapy represents a critical means of alleviating the epidemic’s economic effects on households. This, together with ensuring access to preventive measures, notably condoms, must be the priority for service delivery.

There is a major human resource for health constraint for effective delivery of VCT, ART, and home based care services. This implies the need to explore a wide range of strategies in addressing the human resource issue in the health sector. Task shifting phenomena whereby health facility, community and family and home based care providers are trained to take up some responsibilities which do not need expert knowledge has is one area that has to be explored. The need to strengthen linkages and referrals between health facility and home based care services is also crucial.

---

51 See HIV & AIDS in MKUKUTA II, a brief paper prepared by TACAIDS/DPG Working Group on MKUKUTA II.
(c) Prevention Measures

Preventing the further spread of HIV among the population remains the number one priority of the NMSF 2008-2012. It is only when this priority is effectively addressed will an end to the AIDS epidemic be realised. Failed prevention efforts are not only going to see an increased number of new infections, but also of an increased burden of those who will need care and treatment which will have serious human and financial implications. HIV prevention efforts are likely to be most successful among the youth especially those in the 10 – 24 years old bracket. Promoting healthy and protected sex among young people and wide spread availability of condoms will ensure that individuals and their life-partners can enjoy their sexual life without the risk and dangers of sexually transmitted infections including HIV.

(f) Data needs for future estimations

- Given that HIV & AIDS has its impact through various different channels, including investment, labour availability and productivity, and public spending, the sectoral impacts may well vary. Such a disaggregated approach can be modeled using a Computable General Equilibrium (CGE) model which introduces dynamism in the estimations. CGE models have a number of features that make them suitable for examining cross-cutting issues such as the impact of HIV & AIDS.\(^{52}\) They simulate the functioning of a market economy, including markets for labour, capital, and commodities, and can provide a useful perspective on how changes in economic conditions will likely be mediated through prices and markets. However, they are based on a consistent and balanced Social Accounting Matrix (SAM). Thus, in order for these models to be applicable to Tanzanian context, an updated SAM is needed. The latest SAM used in Tanzania is the 2001 one which was jointly put together by the NBS with help from IFPRI and it needs to be updated.

- The work by Haazen (2010) is still work in progress and the model could go beyond a simple, single production function by introducing elements that divide the economy into non-agricultural and agricultural sectors and modeled separately and labour is divided into skilled and unskilled categories.\(^{53}\)

- Programmes to build the analytical capacity of local researchers in conducting the HIV & AIDS impact studies are crucial. This entails the capacity to conduct robust research bearing in mind the methodological challenges raised by Beegle and De Weerdt (2008) and determining the requisite variables for inclusion in national surveys such as Household Budget and Panel Surveys.

Overall, this study stresses the need for access to condoms (as a major preventive measure) and ART, stronger incorporation of programming and resourcing for HIV&AIDS within

---

\(^{52}\) See Jefferis and Matovu (2008) for a full elaboration of CGE model to examine the impact of HIV & AIDS on the economy.

\(^{53}\) See Jefferis and Matovu (2008) for the full requirements of the model.
national systems, and implementation of programs that will increase agricultural productivity for vulnerable populations.
Annex 1: Summary of the Studies on the Macroeconomic Impact of HIV & AIDS in Africa

<table>
<thead>
<tr>
<th>Authors</th>
<th>Country</th>
<th>Method</th>
<th>Period coverage</th>
<th>Impact on Growth Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>GDP</td>
</tr>
<tr>
<td>Jefferis, Kinghorn, Siphambe and Thurlow/Econsult (2007)</td>
<td>Botswana</td>
<td>Aggregate growth model, CGE, Household simulation model</td>
<td>2001-2021</td>
<td>-1.2% to 2.0%</td>
</tr>
<tr>
<td>BER (2006)</td>
<td>South Africa</td>
<td>Macro-econometric model</td>
<td>2000-2020</td>
<td>-0.4% to 0.6%</td>
</tr>
<tr>
<td>Masha (2004)</td>
<td>Botswana</td>
<td>Aggregate growth model</td>
<td>1991-2016</td>
<td>-0.8% to 2%</td>
</tr>
<tr>
<td>Lofigren, Thurlow &amp; Robinson (2004)</td>
<td>Zambia</td>
<td>CGE</td>
<td>2001-2015</td>
<td>-0.4% to 0.9%</td>
</tr>
<tr>
<td>Bell, Devarajan &amp; Gersbach (2004)</td>
<td>South Africa</td>
<td>Overlapping-generations model</td>
<td>1990-2080</td>
<td>n/a</td>
</tr>
<tr>
<td>BER (2006)</td>
<td>South Africa</td>
<td>Macro-econometric model</td>
<td>2000-2020</td>
<td>-8.3%</td>
</tr>
<tr>
<td>Haacker (2002)</td>
<td>9 South African countries</td>
<td>Aggregate growth model</td>
<td>10-15 years</td>
<td>n/a</td>
</tr>
<tr>
<td>Laubscher et al/BER (2001)</td>
<td>South Africa</td>
<td>Macro-econometric model</td>
<td>2001-2015</td>
<td>-0.33% to 0.63</td>
</tr>
<tr>
<td>MacFarian and Sgherri</td>
<td>Botswana</td>
<td>Aggregate growth model</td>
<td>1999-2010</td>
<td>-3.5% to 4.5%</td>
</tr>
<tr>
<td>Dixon et al (2001)</td>
<td>41 countries</td>
<td></td>
<td>1960-1998</td>
<td>-2% to -4%</td>
</tr>
<tr>
<td>World Bank (2001a)</td>
<td>Swaziland</td>
<td></td>
<td>1991-2015</td>
<td>-1.5%</td>
</tr>
<tr>
<td>World Bank (2001b)</td>
<td>Namibia</td>
<td></td>
<td>1991-2015</td>
<td>1.1%</td>
</tr>
<tr>
<td>World Bank (2000a)</td>
<td>Lesotho</td>
<td></td>
<td>1986-2015</td>
<td>-0.8%</td>
</tr>
<tr>
<td>Arndt &amp; Lewis (2000)</td>
<td>South Africa</td>
<td>CGE</td>
<td>2001-2010</td>
<td>-1.6%</td>
</tr>
<tr>
<td>Bonnel (2000)</td>
<td>70 developing countries</td>
<td>Econometric estimation</td>
<td>1990-1997</td>
<td>Up to -2.8%</td>
</tr>
<tr>
<td>BIDPA (Jefferies, Greener &amp; Siphambe) (2000)</td>
<td>Botswana</td>
<td>Aggregate growth model</td>
<td>1996-2021</td>
<td>0.8% to 1.9%</td>
</tr>
<tr>
<td>Cuddington &amp; Hancock (1994a,b)</td>
<td>Malawi</td>
<td>Aggregate growth model</td>
<td>1985-2010</td>
<td>-0.1% to 1.5%</td>
</tr>
<tr>
<td>Cuddington, (1993a,b)</td>
<td>Tanzania</td>
<td>Aggregate growth model</td>
<td>1985-2010</td>
<td>-0.6% to 1.1%</td>
</tr>
<tr>
<td>Kambou, Devarajan &amp; Over (1992)</td>
<td>Cameroun</td>
<td>CGE</td>
<td>1987-91</td>
<td>-1.9%</td>
</tr>
<tr>
<td>Over (1992)</td>
<td>30 Sub-Saharan countries</td>
<td>Econometric estimation and simulation</td>
<td>1990-2025</td>
<td>-0.56% to 1.08%</td>
</tr>
<tr>
<td>Over (1992)</td>
<td>10 most advanced epidemics</td>
<td>Econometric estimation and simulation</td>
<td>1990-2025</td>
<td>-0.73 to 1.47%</td>
</tr>
</tbody>
</table>

Source: ESRF (2003); Jefferis and Matovu (2008)
Annex 2: Terms of Reference

A: BACKGROUND AND JUSTIFICATION

The Government of the United Republic of Tanzania, through the Ministry of Finance and Economic Affairs, has set aside funds for the operations of the Ministry of Finance and Economic Affairs during financial Year 2009/2010. It is intended that part of these funds will be applied to cover eligible payments for the provision of consultant services for the ASSESSMENT OF THE IMPACT OF THE HIV & AIDS EPIDEMIC ON GROWTH AND IMPLEMENTATION EFFECTIVENESS IN TANZANIA. This analysis is part of the review process of MKUKUTA implementation for the period 2005/06 to 2008/09.

HIV and AIDS is the most serious social & economic problem in Tanzania today and the leading cause of death for adults: the first three cases of AIDS were reported in 1983 in Kagera region. Since then, HIV infection has spread to all regions and districts of the country. About 2 million people are estimated to be infected with the HIV virus. These adverse effects undermine progress towards the attainment of targets of the National Strategy for Growth and Reduction of Poverty (NSGRP) MKUKUTA. Poverty, which is major concern in both MKUKUTA and MDGs combined with the adverse effect of HIV & AIDS, has had a devastating impact on the live of many families and communities and is a key factor influencing poverty.

As a result of the socio-cultural, psychological, economic, moral, ethical and legal ramifications that are beyond containment by the health sector, the country responded by formulating and adopting a Multi-sectoral AIDS Control Approach. This was done through intensification of the fight against the HIV & AIDS epidemic, first by putting in place a body that provides strategic leadership for coordination and monitoring and evaluation of the multi – sectoral national response. This initiative has led to the recognition of the challenges of HIV & AIDS by the MKUKUTA and it has mainstreamed HIV & AIDS in its clusters.

Assessing socio-economic impact is an important mean of achieving a new understanding of the impact of the disease on the growth of the economy, as well as society and the delivery of social services besides the contribution of the socio economic component to the disease. These results can then be used to sensitize the general population, and serve to inform and mobilize policymakers and key stakeholders. Despite of the above fact that HIV & AIDS is being acknowledged as one of the most significant challenges facing Tanzania today and is a thematic area in MKUKUTA, information about the impact and how HIV & AIDS is affecting the economy is limited. Given the fact that MKUKUTA is being reviewed it is imperative for this study to be conducted so as to inform the Government and make interventions based on evidence on the ground for the coming MKUKUTA II.

It is envisaged that, the assessment will therefore involve an investigation and report on the way the epidemic is impacting the growth sectors of the Tanzanian economy. It will also investigate how the epidemic is influencing the capacity of systems and institutions as well as of individuals to deliver their mandate and services. In identifying the causes, and estimating the impact, national programme and policy makers will be in a better position to determine vulnerability and susceptibility of sectors and services not only at the individual, household and sector levels, but also at national level. Given the time for the review, the study cannot adequately cover all sectors. Thus, choice of the sectors and aspects of the services to be covered by the study should be based on, among other things, the envisaged growth focus of the nest strategy. All recommendations derived from the assessment, should produce practical policy formulation and advocacy for an overall increased implementation effectiveness and a more comprehensive and effective national response to the epidemic.

The assessment is therefore imperative and well overdue.

B: OBJECTIVES

To assess how the HIV & AIDS epidemic – as a development challenge – is impacting the productive sectors of the economy and identify its consequences at the individual, household and sectoral levels (selected services and sectors to be analyzed at each level, will be determined in relation to the focus of the next strategy). It will therefore serve to strengthen the national response to HIV & AIDS in the country and to raise awareness and understanding amongst key stakeholders and Policy makers.
Specifically, the study will:

- Identify the existing and likely impacts of HIV & AIDS on services delivery, systems and institutions and what are the implications for sustainable development;
- Assess/measure how the Gross Domestic Product (National level), the sector growth (%) and the labor productivity has been affected by the HIV & AIDS epidemic;
- Analyze how the HIV & AIDS epidemic is affecting the principal factors of Growth such as labor, access to land, access to Capital and technology for development for development and investment (public & private);
- Review the existing legal and regulatory environment (public, private and government) and the necessary efforts required to limit this impact of the epidemic;
- Identify the main areas for practical and feasible actions in the country, and formulate practical recommendations to counteract the impact of the epidemic in a timely and effective manner;

C: THE ASSIGNMENT: SCOPE OF WORK

The consultant will design the methodology of this assessment that will allow involvement of potential beneficiaries of the data and information. This is also required in order to reflect policy and programme priorities. Furthermore, this will ensure national ownership and to strengthen national research and other policy, programme and institutional capacity. Specifically, the proposed consultant and his/her team will seek to achieve the objectives of this assessment through the following:

1. Review of existing literature on HIV & AIDS in the Tanzania context and the East African region relating to the socio-economic impact of HIV/AIDS; this also includes reviewing the available epidemiologic reports and updates for the epidemic in Tanzania as well as program and policy response;
2. Development of a methodological approach in relation to the focus of the next strategy – growth and implementation effectiveness – and develop consensus on how the individual, household, sectoral, and national levels will be addressed in this assessment of the impact of HIV & AIDS;
3. Analyze, based on available information, the impact of HIV & AIDS on the productive sectors such as – but not limited to – agriculture, mining, manufacturing, construction and infrastructures; this should also where possible address the service sectors i.e. insurance, financial, trade, telecommunication etc..
4. Analyze how the HIV & AIDS epidemic has modified/impacted on skills & Knowledge of the manpower (Education), including its impact on human capital from various sectors such as health, education, tourism, agriculture, markets and trade.

D: MANAGEMENT AND ADMINISTRATIVE ARRANGEMENTS

The overall responsibility for managing the assessment will be with the MOFEA affairs in collaboration with the TACAIDS. A focal person from TACAIDS will join the team and will work with the consultant. The consultant is expected to prepare and forward a list of specific requested materials and a proposed Work plan / Timetable of activities at least five (5) days in advance of the commencement of this assignment.

The consultant will report to the MKUKUTA Secretariat of MoFEA.

E: DELIVERABLES

The consultant is expected to complete the assignment within thirty (30) working days. The consultant shall submit the following:

1. A prepared work-plan and methodology upon signature of the contract;
2. A draft report and review on the findings within three weeks of the initiation of the assignment for review and comment by the MKUKUTA REVIEW secretariat comprising of, but not limited to, the following components;
   a) A summary of the epidemiology of HIV & AIDS epidemic in Tanzania based on the available literature;
b) Presentation and analysis of data and HIV & AIDS related factors influencing the productive sectors and services at various levels, to guide policy and programme response

c) Comprehensive recommendations on strategies for limiting the current and potential impact of HIV & AIDS epidemic on these sectors and services and the way forward.

3. Presentation of findings and the draft assessment report at a national consultation upon review of the report; and

4. A final report which is comprehensive, reflecting both quantitative and qualitative aspects and includes a list of priority actions reflecting the comments. The consultant should submit five (5) copies of the final report and one electronic copy.

**F: DURATION**

The total duration of the assignment will be over a period of thirty (30) working days commencing in October 2009 after signing the contract.

**F: MINIMUM QUALIFICATIONS OF THE CONSULTANCY TEAM**

The consulting firm should have a team with the following skills:

- Economics, Sociology, political science, background at Master level
- Process management with a focus on results
- Team management
- Strategic thinking
- HIV / AIDS expertise – public health expertise
- Ability to listen
- Communication / facilitation
- Experience in strategic planning in HIV & AIDS and other sectors
- Ability to work with multiple interest groups
- Ability to synthesize, to write clearly and analytically
Annex 3: Variables for Measuring Economic Impacts

<table>
<thead>
<tr>
<th>Level</th>
<th>Definition</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macroeconomic</td>
<td>National or provincial economy as defined by gross domestic or gross geographic production</td>
<td>A decline in GDP and/or Per capita GDP, and increase in Gini-coefficient or levels of poverty that can be attributed to reduced production due to HIV &amp; AIDS</td>
</tr>
<tr>
<td>Sectors</td>
<td>Productive economic divisions (e.g., agriculture or banking; usually defined in national accounts)</td>
<td>A change in output from the sector, attributable to HIV &amp; AIDS, changes in demand attributable to HIV &amp; AIDS, changes in operation attributable to HIV &amp; AIDS</td>
</tr>
<tr>
<td>Health sector</td>
<td>Provision of curative and preventive care, making populations live longer and healthier</td>
<td>Increased mortality-Disability Adjusted Life Years (DALYS), Increased morbidity-Quality Adjusted Life Years (QALYS)</td>
</tr>
<tr>
<td>Firms, enterprises and NGOs</td>
<td>A private or publicly owned unit producing goods or services for sale in a market or for distribution through the administrative organs of the state or through mechanisms of a non-governmental organization, that is, the “Third Sector”</td>
<td>Increased staff absenteeism, Changes in productivity, Deaths in service, increased early retirement, increased staff turn-over, changes in demand for output or services (decrease or increase) attributable to HIV &amp; AIDS</td>
</tr>
<tr>
<td>Households</td>
<td>A unit of habitual residence where some consumption and/or production may be undertaken in common</td>
<td>Changes in wealth (usually poverty) measured by reserves including money savings, land, animals; decreased levels of intake of food/or expenditures on other forms of consumption, decreased uptake of services that require cash or time (e.g., schooling or health care)</td>
</tr>
<tr>
<td>Individual</td>
<td>A single person</td>
<td>Lower productivity, or no productivity</td>
</tr>
</tbody>
</table>