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FINAL REPORT ON

ASSESSMENT OF THE SOCIO-ECONOMIC IMPACT OF HIV AND AIDS ON KEY SECTORS IN KENYA

DECEMBER, 2006

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FOREWORD

HIV and AIDS has become one of the most serious challenges facing human development and achievement of National and Millennium Development Goals in Kenya. To respond effectively to the challenge of HIV and AIDS, the Kenya National HIV and AIDS Strategic Plan (KNASP) for 2005/06 to 2009/10 emphasizes the need for evidence based interventions. As has been reported in many other countries, the actual socio-economic impacts brought about by HIV and AIDS both at national, sectoral and decentralized levels have not been well documented in the past. This hindered the design and implementation of appropriate interventions.

Mitigation of socio-economic impacts of HIV and AIDS is one of the priority areas of the KNASP. The quantification of socio-economic impacts of HIV and AIDS in the key sectors of our economy is therefore key in championing planning and budgeting for HIV and AIDS interventions at all levels. In line with this, the National AIDS Control Council (NACC) with financial support from both the Government of Kenya and UNDP commissioned this study in order to document the actual socio-economic impacts of HIV and AIDS in key sectors including health, agriculture, transport, education and the governance, justice, law and order sectors.

This report sets a new milestone in the fight against HIV and AIDS in Kenya by providing for the first time a relatively comprehensive information package on socio-economic impact of HIV and AIDS across the key sectors and the economy as a whole. It is hoped that the research findings in this study would go a long way in informing policy strategies, especially with regard to mitigation of socio-economic impacts of HIV and AIDS. To facilitate this, the information is organized by sector for ease of reference by policy and decision makers.

The report shows that HIV and AIDS has varied and far reaching socio-economic impacts to the persons infected and affected and to the economy in general. These effects cannot be ignored in any of the sectors and the economy as a whole, if national and millennium development goals are to be achieved. HIV and AIDS has the greatest effect on people in their prime years of economic productivity, and is uniquely devastating as it increases poverty and reverses human development achievements. Labour productivity is thereby severely affected, leading to lower earnings and further leading to lowering of savings. In addition, health care costs for the infected and affected households increase overwhelmingly. This leads to more impoverishment of the households as assets are liquidated to facilitate access to care and support.

As we endeavour to mainstream HIV and AIDS interventions in all sectors, each sector should therefore respond by addressing the effects of HIV and AIDS that affect its performance in accordance with its comparative advantage. This will ensure that all aspects of the epidemic are handled in a systematic, effective and efficient way. For the sectors covered, this report has documented the socio-economic impacts of HIV and AIDS, a critical review of the coping

strategies adopted, challenges faced and policy recommendations. This study is generic and sectors are highly encouraged to commission their own sector specific studies on socio-economic impact of HIV and AIDS, in order to respond more effectively to the epidemic.

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Finally, our sincere thanks go to Deloitte Consulting Limited and its team of researchers, led by Dr. Jane Mariara, who ably undertook this landmark study.

LIST OF ACRONYMS AND ABBREVIATIONS

ACUs	AIDS Control Units
AIDS	Acquired Immune Deficiency Syndrome
ANC	Ante Natal Care
AR	Auto Regression
ART	Anti Retroviral Therapy
ARV	Anti-Retrovirals
BSS	Behaviour Surveillance Survey
CBO	Community Based Organisation
CBS	Central Bureau of Statistics
DHS	Demographic Health Survey
EAs	Enumeration Areas
EPSEM	Equal Probability Selection Method
ERS	Economic Recovery Strategy
FAWE	Forum for African Women Educationists
FGD	Focus Group Discussion
FKE	Federation of Kenya Employers
GDP	Gross Domestic Product
GJLOS	Governance, Justice, Law and Order Sector
HAART	Highly Active Anti-Retroviral Therapy
HBC	Home-Based Care
HIS	Health Information System
HIV	Human Immune Virus
HMIS	Health Management Information System
IEC	Information Education and Communication
IMCI	Integrated Management of Childhood Illnesses
KAM	Kenya Association of Manufacturers
KDHS	Kenya Demographic Health Survey
KIPPRA	Kenya Institute for Public Policy Research Analysis
KNASP	Kenya National HIV/AIDS Strategic Plan
MDGs	Millennium Development Goals
MOH	Ministry of Health
MOLFD	Ministry of Livestock and Fisheries Development
MOTC	Ministry of Transport and Communications
MOTW	Ministry of Tourism and Wildlife
MTCT	Mother to Child Transmission
NACC	National AIDS Control Council
NASCOP	National AIDS and STI Control Progamme
NGO	Non-Governmental Organisations
NHSSP	National Health Sector Strategic Plan
OVC	Orphans and Vulnerable Children
PEPFAR	Presidential Emergency Plan for AIDS Relief
PLWHAs	People Living with HIV/AIDS

PPS	Probability Proportional Size
PRSP	Poverty Reduction Strategy Paper
RPED	Regional Program on Enterprise Development
SPSS	Statistical Package for Social Sciences
STIs	Sexually Transmitted Infections
TFP	Total Factor Productivity
UNICEF	United Nations Children's Fund
UNIFEM	United Nations Development Fund for Women
VCT	Voluntary Counselling and Testing

EXECUTIVE SUMMARY

INTRODUCTION

The Government recognizes that HIV/AIDS epidemic poses a severe threat to the Kenyan economy, with major social and economic impact on individuals, households, communities and society as a whole. Among other things, it has negative implications for the productive capacity of individuals and households as well as accumulation and transfer of human capital between generations. Given the considerable impact of the epidemic, the Government of Kenya declared HIV/AIDS a national disaster in 1999.

The Kenya National HIV/AIDS Strategic Plan (KNASP) 2005-2010 identifies the socio-economic impact of HIV/AIDS as the key priority area of intervention. Under this priority area, emphasis is placed on the need to focus interventions on the most vulnerable populations. Five sectors including health, agriculture, transport, education and the governance, justice, law and order sector (GJLOS) have been prioritized for strategically and effectively expanding the national response due to their specific mandate and/or vulnerability of the populations they serve as well as current epidemic trends.

Consequently, Deloitte consulting limited was contracted to assess the socio-economic impact of HIV/AIDS on economic development, labour force, women and children (see appendix for terms of reference). These findings would provide the necessary information for the development of appropriate strategies to mitigate the disease burden.

OBJECTIVES OF THE STUDY

The overall objective of the study was to undertake a comprehensive analysis of the socio-economic impact of HIV/AIDS epidemic on key sectors namely: Agriculture, Health, Industry/Commerce, Education, Transport and Communication and GJLOS. These sectors are believed to be strategic and effective in expanding the national response due to their specific mandate and/or vulnerability of the populations they serve. In addition, current epidemic trends indicate that HIV/AIDS epidemic is particularly rife in these sectors. The socio-economic analysis focused on three clusters namely: households, gender and children, labour productivity and economic growth. The impact of the epidemic on the priority sectors is analyzed in the context of sector specific Economic Recovery Strategy (ERS) targets and the consequent link with the KNASP strategic vision of mitigating the socio-economic impact of the epidemic and the Millennium Development Goals (MDGs). The specific objectives were:

- An assessment of the type and quality of information available on the socio-economic impact of HIV/AIDS.
- Collection of qualitative and quantitative data on the socio-economic impact of HIV/AIDS on households and gender.
- To obtain quantitative and qualitative data indicating the impact of HIV/AIDS on economic growth in Kenya with focus on the priority sectors.
- Determination of the effect of HIV/AIDS on labour productivity, with specific focus on the priority sectors.

METHODOLOGY

The study was designed to gather information/data at three main levels of observation: the individual/household level, the institutional (private and public) level and the national level. Both quantitative and qualitative data were collected through personal interviews with various key informants (Managers of business enterprises, school heads, and district medical officers of health, health facility managers and household heads) in fourteen purposively sampled districts. In terms of coverage, a national household survey covering all the provinces and a broad array of key sectors in the economy was conducted. The field work activities involved a household census to collect information on basic demographic, health, socio-economic activities and coping mechanisms. At the firm and institutional levels, the information sought included, firm and worker characteristics, performance, labour and training features. Additional data from previous surveys on the manufacturing sector was used to complement and validate our findings. Secondary data was also used to complement the survey data from firms and sectors. While quantitative data was used for statistical analysis, every attempt was made to gather and incorporate qualitative data to complement the analysis of the socio-economic impact of the HIV/AIDS epidemic.

Informed consent was obtained from all households before being interviewed. Comparisons were drawn between affected and non affected households. In order to examine the socio-economic impact on households affected by HIV/AIDS related morbidity and mortality, a distinction was made between affected households in general and affected households that had suffered HIV/AIDS deaths in the past 12 months. Non affected households represent households that had not experienced HIV/AIDS related morbidity and/or mortality in the last 12 months. The classification was employed for purposes of analysis although it rebuts the fact that HIV/AIDS affect entire communities and affects various households directly or indirectly at different stages of the epidemic, rather than affect only selected groups of households that directly experience morbidity and mortality.

KEY FINDINGS AND RECOMMENDATIONS

Households, Gender and Children

The third strategic objective of the KNASP is to adapt existing programmes as well as to develop innovative response to reduce the impact of the epidemic on communities, social services and economic productivity. This objective aims at contributing towards the achievement of ERS target of revitalizing productive sectors (agriculture, tourism, trade and industry) and the MDG target of improving household welfare through fighting hunger, creating jobs and increased incomes. However, a quick glance at the findings shows that this goal may not be realized unless the economic burden imposed by the epidemic on households is halted. Coping mechanisms adopted by the households are likely to jeopardize the household's asset base, thus making it more difficult for them to cope with the impact of the epidemic in the long run and therefore undermining the achievement of the KNASP, ERS and MDG targets.

Socio-economic Impact

- The results show that persons working in lower occupational categories were more likely to be affected than those in more prestigious occupations. For instance, individuals from households headed by self-employed persons were more likely to be affected than those from all other occupational categories. More specifically, 74% of household heads engaged in informal sector activities, 16% were from affected households. Consequently, the impact of HIV/AIDS was more severe among low income groups. For instance, 79% of all affected households reported an annual income of less than Kshs.15, 000, compared to 69% of household reporting mortality.
- Male headed households, with less education seemed to be much more vulnerable. The extent of educational attainment varied from no formal education to primary education. A majority of 68% of affected households belonged to this category, compared to 55% of unaffected households that reported morbidity.
- Less educated people were likely to lose more days of work due to hospitalization than the more educated. This was because there was higher morbidity among the less educated than their more educated counterparts. The incidence of morbidity was higher in female headed households than male headed households, while in households reporting morbidity and mortality, most of the affected female household heads were widowed.
- Women of all ages were more likely to be affected by HIV/AIDS than their male counterparts, implying feminization of the epidemic. However, our findings confirm prior findings that, for both sexes, the hardest hit age bracket was 25 to 49 years.
- Children from affected households were more likely to drop out of school (36%) due to education related costs than children from un-affected households (25%). Younger children were however more likely to drop out of school due to HIV/AIDS related morbidity and mortality than older children.
- A very common coping strategy, necessitated by reduced family incomes was withdrawal of children from school for child labour either in their households or to work for their better economically endowed relatives.
- The findings revealed a growing supply of labour from orphans, widows and other vulnerable individuals for agricultural production. 32% of households depended on group labour especially during the peak farming seasons.
- Unaffected households sheltered more orphans than the affected, but the main care givers for orphans were women irrespective of the HIV/AIDS status of the household.
- For the households with people living with AIDS (PLWHAs), 73% of caregivers were women. Mothers, children and grandmothers accounted for the majority of the caregivers. There was substantial decline in productivity of affected members and care givers as shown by differences in number of days lost to illness and care-giving. The care givers spent approximately 8 hours per day taking care of the sick relatives. About 6% of the care givers reported having completely abandoned their normal duties in order to take care of the sick family members. Results also showed that on average, care givers spent 32 days per sickness episode taking care of the sick family member while those taking care of relatives ill from other conditions spent 21 days.
- On average, affected households (both morbidity and mortality) spent more on medical care than unaffected households. The affected households also spend more on funeral expenses than unaffected households. In addition, affected households spent more on monitoring tests which accounted for 32% of the total treatment cost while the transport

costs accounted for 25% of the total costs of seeking treatment. The higher cost of monitoring was due to the longer duration of illness and also due to clustering of the opportunistic infections in affected households.

- HIV/AIDS affected households resorted to borrowing, utilization of past savings, sale of assets to cater for hospitalization and other HIV/AIDS related medical costs.
- Social capital was a vital support system for a significant proportion of households with a member living with HIV/AIDS, who could not afford health services on their own. Social networks enabled affected households to cope with the effects of the disease by providing social support and assisting households to start income generating activities.
- Evidence suggested that household members with sick individuals spent less time on agricultural activities than the non affected members. This led to the neglect of farm areas and consequently a decrease in overall planted area. The analysis also showed that depending on the timing and duration of illness, there were cases of land left fallow, changing crop mix and dependence on labour sharing and consequently a reduction in agricultural production. The study also uncovered significant differences in acreage under maize and consumption between affected and non affected households. This finding suggested that declining health of other household members, among affected households may have been due to lack of adequate food and/or low nutrition foods compared to non-affected ones.
- Loss of labour due to illness and care of the sick family members resulted in delays in agricultural production, land being left fallow, changing crop mix and dependence of labour sharing and consequently a reduction in agricultural production. Illness therefore, compromised labour productivity mainly because sick individuals were unable to work. Even in situations where they could still work, the performance was lowered by physical, physiological and psychological factors. Affected individuals were found to have lost the highest number of days compared to the non-affected individuals. The evidence also suggested that household members with sick individuals spent less time on agricultural activities than the non-affected members. A plausible explanation was that there was a diversion of productive labour to care giving, a feature explored elsewhere in the study.

Households' Coping Strategies

- Majority of the affected households used a variety of strategies to pay for health care expenses and cope with the impact/costs of illness in order to avert negative effects for household production and assets. The amount from household savings, borrowing or sale of assets, however, was generally insufficient.
- The most common strategies used by affected households to cope with the disease included sale of assets, intra-household labour substitution, borrowing money from friends/relatives, withdrawing children from school, taking children to live with relatives and use of past savings.
- Only 12% of the affected households were able to meet the cost of health care services from their salaries while about 58% indicated that they financed health care services from own savings.
- One lesson from the current study is that there are households at risk of being pushed into poverty as a result of HIV/AIDS. The most vulnerable and least able to cope are asset deprived households.

Recommendations

Short Term Recommendations

- The evidence pointed to the fact that funds earmarked for mitigation of socio-economic impact were not reaching the target population. There are three related recommendations based on this finding: First, the National AIDS Control Council Government should review the current mechanism of transferring funds from NACC, Ministry of Home Affairs and Office of the Vice President and donors to intermediaries for onward transfer to target groups. One way of doing this is to channel the funds directly to affected or infected groups. Second, NACC should devise a mechanism of ensuring that publicly funded programmes as well as donor funding target the most severe areas such as home support for the basic needs of the households coping with AIDS, food programmes for children and support for educational expenses.
- The NACC should develop a core set of standardized indicators for mitigation of socio-economic impact at the individual and household levels to collect baseline data, monitor, and evaluate mitigation responses. These indicators should be developed to collect information on the number of affected households, individuals and children as well as mitigation activities being supported.
- To address shortage of food and declining nutritional intake, the government through agricultural extension programmes could organize field sessions in which experienced farmers are recruited to help teach women about husbandry and marketing techniques for particular crops.
- Initiate programmes to overcome gender barriers and nurture women farmers' participation in extension programs, cooperatives, and other fora for learning about and participation in cash crops, in order to mitigate shocks to agricultural income faced by affected households.
- Youth programmes should use an integrated strategy to HIV/AIDS and target primarily out-of-school rural youths, with an emphasis on young women. Occasions and sites where out-of-school rural youths can be mobilized should be identified. Out-of-school youths can be mobilized more effectively when labour demand is at its lowest, i.e. during the off peak season. School premises could be used for out-of-school activities during weekends and holidays.
- Major shifts in attitudes and policies are required if effective policies for prevention are to be implemented. This means grappling with sensitive issues of sexuality and gender relationships, where major and fundamental changes are required. Implementation of activities that focus on behavioural change and based on a realistic understanding of the changes required to reduce the spread of infection, will generate enormous benefits in terms of the avoidance of future costs. Non-governmental and community based organizations should play a critical role in such an intervention.
- Prevention programs should aim at attitude and behaviour change and should include: information and awareness-raising campaigns; educational programs; gender-specific programs; linkage to health promotion programs; community outreach programs; and other practical measures to support behaviour change.
- Though voluntary counselling and testing (VCT) for HIV/AIDS is increasingly being adopted as an important prevention and control strategy, access to VCT services remains limited for most vulnerable groups. Increasing access to vulnerable groups would be an important milestone in the fight against the epidemic.

- Mobilizing support for people with AIDS or people who are vulnerable to HIV/AIDS would also help fight the spread of the epidemic. For instance, young widows/widowers whose families have been affected by AIDS could be involved in HIV/AIDS education and related activities and possibly given some incentives. This has been seen to work in other countries and although it was also being practiced in some sectors (e.g. the GJLOS), the government needs to make it a policy to increase effectiveness.
- Given the threat to household food security posed by HIV/AIDS, there is an urgent need for renewed emphasis on household food and nutrition security so as to ensure that the needs of the most vulnerable people are addressed. A strong household food and nutrition security focus could serve as an HIV prevention, care and mitigation strategy alike. Since more women than men become infected with HIV at an increasingly younger age, governments and donors alike need to focus their efforts on ensuring that HIV-positive women have access to adequate food and clean water so that they can live long enough to take care of their children. This is likely to have a powerful effect on addressing the problem of orphans, enhancing household food and nutrition security and preventing the social breakdown that often accompanies the epidemic.
- Supporting the sustainability of rural agricultural livelihoods must become a priority of the governments and development partners. Ways of maintaining or increasing productivity levels with less labour and/or fewer inputs are needed to counteract the loss of able workers and lost income and savings of affected rural individuals or households. The government and donors should consider allocating more funds to improve agricultural productivity and a conducive environment for off farm income activities in the affected areas. In particular, agricultural education, for women in the rural areas, needs to be developed in order to pass on the knowledge that is being lost due to high mortality. Fundamentally, any intervention must support the viability of the rural household and provide mechanisms to allow the household to escape from the vicious cycle of poverty.
- The need of Home-Based Care (HBC) for HIV/AIDS patients is acutely felt and needs to be implemented on a larger scale with more participation of health care professionals. Based on the study findings, we recommend that as the support for home-based care programmes continues to gain support, the government and development partners need to gather additional information on the cost element in order to inform and scale-up HBC. In addition, the implementation of the programme should ensure that women are not exposed to further burdens of caring for the sick household members at the expense of other critical roles they play.
- The government also needs to clearly identify key components of an effective home-based care programme. The community-based care, should for example be provided by trained community volunteers attached to a non-medical, nongovernmental organization (NGO) and should provide a more “holistic approach” that includes an emphasis on a continuum of psycho-social assistance to both PLWHAs and households with PLWHAs. For an effective home-based care, the government and development partners should support provision of other services including food assistance, psychosocial support, human rights interventions, and health care. Because facility-based and community-based programs both rely on volunteer assistance, staff attrition should be taken into account in the implementation of the programme. The study findings imply the following recommendations: a) Continue the policy dialogue and stakeholder engagement to include HBC programs in the delivery of HIV/AIDS

care and treatment, including ARVs; b) Improve data and institutionalizing processes to gather information on HBC services and impact; and c) Improve data on HBC by costing programs.

- The government and its development partners need to devise effective mitigation interventions so as reduce the devastating impact of the disease and poverty among the affected and infected households. Prevention and care are among the key priority interventions of the response to HIV/AIDS but, as this study has shown, HIV/AIDS not only impacts on individuals who are HIV-positive but also affects their households. There is evidence of inequity in HIV/AIDS resource allocation between rural and urban areas and in national AIDS programs due to urban accessibility and the overall marginalization of rural areas. As a result, interventions need to be directed towards rural households. HIV/AIDS-impact mitigation as part of a comprehensive poverty-reduction strategy is necessary, as addressing poverty goes a long way towards preventing the spread of HIV.

Medium and Long Term Recommendations

- Savings schemes: The government and donors can help households that have transitory income patterns and are thus unsuited to credit schemes. Helping such households build savings allows for reduction of economic risks and for coping in times of crisis. The government and development partners can help in establishing grassroots social security systems which include social support groups such as social welfare societies and savings societies which involve rotating savings and credit scheme.
- Diversification of Household Livelihood: Diversification of livelihood has been identified as a key strategy for coping with the economic burden inflicted by HIV/AIDS. Households need more options for obtaining resources and the ability to move rapidly between different livelihood strategies (both on and off-farm activities) at times of crisis, in order to minimize their vulnerability. Exploitation of the resources and opportunities that are available to facilitate livelihood diversification and the costs and benefits involved may provide important information to guide the planning of interventions, which may contribute to poverty alleviation.
- In order to effectively address the economic impact of the epidemic on households, there is need to strengthen inter-sectoral collaboration in the prevention and mitigation of the impact of HIV/AIDS. As shown in the study findings, HIV/AIDS appears to exacerbate short-term survival strategies with households often disposing off their few assets as well as engaging in high-risk behaviour in order to meet immediate needs. Hence alternatives will need to be developed urgently to prevent individuals and households resorting to measures which put them at greater risk of financial and food insecurity. Interventions that lead to livelihood diversification and the economic empowerment of certain target groups may be instrumental in minimizing the impact of HIV/AIDS. By developing practical programmes that link socio-economic change, livelihood strategies and HIV/AIDS prevention, HIV/AIDS will become increasingly understood as a systemic issue, not purely related to health, and the burden of responsibility for addressing the epidemic which is carried by the health sector will be reduced.

- The study findings have shown that burden (in terms of cost of seeking medical attention, coping strategies adopted and care giving) falls heavily on affected households compared to non-affected households. Given that HIV/AIDS is taking a significant proportion of household income, it is imperative that the government explores permanent solutions to the problem of medical care for affected households. The recent initiative by the government through the National Hospital Insurance Fund (NHIF) to cover ARVs is a welcome move. This needs to be extended to all affected households with a focus to rural areas where almost 60% of the population live below the poverty line.
- Income-generating activities need to be developed based on micro-credit, micro enterprises, and rural employment creation and poverty alleviation programmes, particularly to meet the needs of the vulnerable rural groups. Micro credit can be linked to savings and group-based lending schemes. Experience with micro credit has shown that the poor can be disciplined borrowers and savers, able to repay loans on time and to save. If poor families are able to pull themselves out of poverty, they need access to the loans that micro credit programmes provide. The government, donors and financial institutions should play a critical role in setting up micro credit programmes. These can be managed by non-governmental organisations and socially inclined financial institutions.

Impact on Key Sectors

The KNASP strategic target of mitigating the impact of HIV/AIDS seems to directly target households but not priority sectors. However, reducing the impact on economic productivity requires that sector specific interventions are also put in place. One of the key pillars of the ERS is the revitalization of productive sectors, but the MDGs do not seems to directly target all priority sectors. However, the MDGs recognize that given their role in employment and poverty reduction, the productive sectors are major contributors to the achievement of the MDG targets on hunger, employment and income generation. By reducing labour productivity and requiring that increased resources be devoted to health expenditures in all productive sectors, HIV/AIDS becomes an impediment to the achievement of the KNASP, ERS and MGD targets. It is therefore very important that all sectors mainstream the fight against the epidemic and also adopt appropriate responses to mitigate the impact.

Commerce and industry

Socio-economic Impact

- Most firms visited reported that the main impact of HIV/AIDS illness was low output and productivity due to absenteeism. Loss of staff members was reported to have led to under-staffing of facilities and slowed down provision of services. This reduction of manpower, had led to the need to hire more employees or for current employees to work overtime or in shifts.
- About 16% of the top management male employees were positive compared to about 6% of the top female managers.
- The lower cadres of employees in all the sectors and firms were the most affected. For instance, in the GJLOs and health sectors, it was mostly corporals and nurses respectively that were reported to be more likely to be infected compared to other cadres.
- The average length of illness for the sick employees ranged from 82 days among the top level managers to approximately 87 days among the lower level workers.

- Firms reported that due to interruption of work caused by illness, spoilage of perishable stock rapidly set in, their financial reserves were quickly depleted, forfeiture of stalls and collapsed business.
- HIV/AIDS is eroding firms' capacity not only through losses in human resources but also through the loss of vital technical, administrative and managerial skills. Increased and prolonged morbidity of key staff officers renders the implementation of certain key activities impossible**.**
- An average of 25 percent of the informal sector firms reported that illness, hospitalization and taking care of the sick led to loss of business and depletion of financial resources, while for some this led to eventual closure of business.
- National data projections revealed that activities such as wholesale, retail, restaurant and hotels accounted for 60% of the lost man days in the commerce and industry sector.
- The study revealed that firms spent on average Kshs. 166,000 per year per person on terminal benefits and on average lost Kshs. 2,160,000 per year due to loss of top management cadres. The total loss to the firms due to HIV/AIDS related illness and mortality was Kshs. 26.575 million.
- On average companies spent between Kshs 15,000 and Kshs, 4,050,000 per year on medical care due to HIV/AIDS related illnesses. The findings also indicated that wholesale, retail and manufacturing sectors incurred huge losses in man hours due to HIV/AIDS related sickness.
- 20% of interviewed formal sector firms reported that they provided ARVs to employees. Other firms reported increased costs due to subsidized medication for HIV/AIDS affected workers.
- About 16% of the top management male employees were positive compared to about 6% of the top female managers.
- The average length of illness for the sick employees ranged from 82 days among the top level managers to approximately 87 days among the lower level workers.

Coping mechanisms in commerce and industry

- More than two thirds of the interviewed firms were distributing condoms to employees.
- Majority (70%) of the firms surveyed were found to have implemented a peer education programme for the employees where prevention measures would be encouraged.
- More than a third of the firms had implemented a programme for controlling sexually-transmitted diseases among its employees.
- About 20% of the firms were providing ARVs to the infected employees whilst 11% were providing VCT services in the workplace.
- Cost reduction measures: retirement on medical grounds for employees who were chronically ill or had been sick for a long time; short-term contracts to replace sick employees so as to cushion against loss of production
- Most coping measures adopted by firms are consistent with the KNASP priority interventions for an enhanced national response.

Recommendations

Short Term Recommendations

From the study findings the following recommendations can be made:

- Development of comprehensive workplace programmes: The study findings showed that only a few business firms had a workplace policy on HIV/AIDS based on the KNASP 2005-2010 guidelines. In order for the companies to reduce the effect of the epidemic on production there is a need to formulate and implement develop comprehensive workplace policy on HIV in line with the Kenyan National HIV/AIDS Strategic Plan. The workplace programmes should take into account the concerns of employees and employers and should be tailored to the needs of the firm as well as the employees. The formulation of the policies should be done in consultation with the management, employees and the NACC. There are two key issues that need to be considered in the programmes:

    - HIV prevention programmes: For the firms that have already established work place programmes, there is need to extend the services to all employees. Those firms that do not have such programmes should work closely with the NACC to establish the programmes.
    - Improvement of the socio-economic environment. As revealed in the study, poverty is one of the main causes of HIV transmission. The study has also revealed that the few firms which have work place programmes have concentrated on Information Education and Communication (IEC) and behavioural change for HIV prevention, yet behavioural change is only one aspect of the problem and IEC is one element in the set of solutions. Therefore, we recommend the commerce and industrial sectors in collaboration with employee welfare organizations, the NACC, the government and NGOs, address the social and economic environment within which behaviour is formed and perpetuated. This includes the improvement of and broader access to social facilities by employees, the improvement of sanitation and general hygiene in workers' housing estates and administration.

- Reduction of both Direct and Indirect Costs of HIV/AIDS Related Illness: In order to reduce the burden of taking care of the sick employees, the firms should consider establishing a home-care-based care programme for employees living with AIDS. Various studies have shown that home based care programmes are cost-effective in terms of costs and quality of care. Rather than establishing their own home based care programme, firms could provide support to their employees through the existing home care programmes.
- There is need to implement an aggressive HIV prevention campaign to protect employees and their partners. Since working in the formal and informal enterprises appears to increase HIV risk, albeit indirectly, it would be reasonable for the enterprises to meet part of the costs of such a program.
- An active workplace HIV prevention campaign is needed, with funding from the government and donors. Based on the study findings, most of the staff had not tested for HIV hence did not know their status or have access to prevention-related services such as education and STD treatment. HIV testing is particularly important, both to support prevention efforts and as a prerequisite for care and treatment. Given the existing high degree of stigma that still prevails

within the workplace, neither prevention nor treatment is likely to succeed if workers fear being identified as HIV-positive. A concerted effort to reduce stigma will thus also be needed.

- It is in the sector's immediate financial interest for HIV-positive employees to receive effective care and treatment, including antiretroviral therapy as and when it becomes medically necessary. In some of the businesses, a small number of employees are already being treated, but it is not clear whether this proportion represents all employees who need treatment. Given that the number of employees in need of treatment will rise steadily in coming years it is in the enterprise's and government interest, to collaborate with the National AIDS Control Council to explore the possibility of making medical scheme coverage mandatory, either through the existing medical scheme, which many employees have already joined, or through another in-house or third-party scheme. This would offer several potential advantages to the business and its employees:

    - The firms would have access to accurate information about the uptake and outcomes of HIV/AIDS care and treatment.
    - Membership in a private medical scheme would improve healthcare generally and promote the goal of a healthy and thus productive workforce.
    - Delivery of HIV/AIDS services on or near the firm's premises would save workers' time spent seeking treatment outside their workplace.
    - Finally, the welfare of non-permanent staff should be given more attention. Most firms rely heavily on casual and contract workers for many of its core functions. While it may not be feasible to offer them all the benefits available to permanent staff, the possibility of including HIV/AIDS prevention and treatment programs should be explored.

Medium Term Recommendations

- For the firms to be able to estimate the loss in productivity and output, they should use existing tools such as the "HIV/AIDS Toolkits" and the "Human Resource Development Assessment Tool". The tools will enable the firms to assess:

    - The effects of the epidemic on labour absenteeism caused directly by higher staff morbidity.
    - Exceptional mortality amongst different cadres of workers to identify probable losses of skilled, professional, and other employees by age, sex, and geographical area.
    - The direct costs to the firm due to absenteeism, labour turnover, and replacement (including recruitment, training, health and medical costs, and support for dependents).
    - The indirect effects due to human resource losses, including qualitative evaluation of the effects of morbidity and mortality on morale, attitudes.
    - The implications of scaling up programs, by comparing the costs and benefits within and between programs.

- Opportunities for partnerships between private firms and NGOs and the government agencies for mobilisation of resources and delivery of HIV/AIDS services appear to abound. Although HIV prevention is primarily a public sector and household responsibility, formal sector

employers offer one important advantage: a concentrated population made up target groups, which are typically difficult to reach with health education and interventions. Some firms have health-related infrastructure (clinics) that could be utilized by a larger population than solely their own workforces, if there were reason to do so. The public sector and NGOs, for their part, often have access to lower prices for drugs, other medical supplies, expertise, and laboratory testing. There is need therefore to strengthen existing prevention and mitigation initiatives by private firms as well as support new partnerships.

- The firms should explore ways of working together with the insurance industry to work out policies and benefit packages that optimally serve the interests of all stakeholders, especially HIV/AIDS patients, in order to improve access to services. This could be extended to the public sector.
- It is imperative that the government, private firms both in the formal and informal sectors ensure greater involvement of people living with AIDS in major decisions related to HIV/AIDS treatment and prevention. The needs of these people need to be integrated into work place programmes.
- With the evidence of human resource impacts supported by data, business managers, researchers, and policymakers can more accurately understand the relative impact of AIDS on different production units. Data can be used to improve both company and government strategic planning capabilities.

Education

One of the key pillars of the ERS is investment on human capital of the poor. The equivalent MDG target is to ensure that, by 2015, children everywhere have access to universal primary education. These two targets would be expected to support the KNASP strategic objective of mitigating the impact of the epidemic on the education sector. However, holding the demand constant, the supply of education is seriously affected by the AIDS epidemic, compromising the returns to increased investment in the education sector and the potential gains of universal primary education.

Socio-economic Impact

- The largest number of positive and sick teachers was found in the cadres of P1 and approved teachers, for both male and female categories. Among these, the total estimated number of primary school teachers was approximately 10,000 compared to about 3,000 of all secondary school teachers.
- The proportion of both the positive and sick teachers was higher for male than for females across all cadres, mainly due to the relatively smaller proportion of female teachers in each cadre. Women teachers also lost more days of work to HIV/AIDS than their male counterparts in all cadres.
- Infected teachers were more likely, than the uninfected to be absent from class due to the progressive nature of the disease. The survey also revealed that non-infected teachers were likely to lose time in providing care to the sickly family members.
- A teacher on average lost a third of his/her teaching time due to sickness. This cumulated to a total of about 178,000 days per year for all primary school male teachers compared to about 199,000 days for female primary school teachers.
- P1 teachers in primary schools and graduate teachers in secondary schools were most affected by the epidemic. In the primary education sector, though P1 teachers lost the

most number of days, approved teachers cost the government more in monetary terms, due to higher salaries for this cadre. This cost was estimated at about Kshs 39 and 45 million for approved male and female teachers respectively and was followed by cost of P1 teachers estimated at Kshs 34 and 37 million for male and female teachers respectively.

- The findings indicate that the cost to the government from morbidity among female primary school teachers was estimated at approximately Kshs 96 million per year, compared to 84 million Kshs for male teachers.
- In the secondary education sector, the highest loss in salaries was from graduate teachers, estimated at Kshs 29 million for male teachers and Kshs 22 million for female teachers.
- Considering both primary and secondary education sectors, female teachers cost the government relatively more than male teachers.
- Information from the Teachers Service Commission and the Ministry of Education officials indicated that they were aware of the increasing cases of absenteeism both by sick teachers and by teachers with family members.
- The loss of experience embodied in teachers who are lost to the disease represents an aspect of human capital that will be impossible to replace in the short run.
- Perhaps even more critically, the loss of threatens access for students, especially in rural areas where it is difficult to find replacements. Attendance is affected both directly and indirectly as a result of AIDS-related morbidity and mortality.
- Increased teacher absenteeism and increased class size compromises the quality of education.
- These results suggest that though the the Millennium Development Goal on education and ERS goal is to ensure that, by 2015, children everywhere have access to universal primary education, quality of services delivered and learning are likely to be seriously compromised by the epidemic.

Coping Mechanisms in Education

- Incase of severe shortages of teachers due to HIV/AIDS illness, there was hiring of teachers through local arrangements by the district education board.
- In cases of HIV/AIDS morbidity, there was temporary sharing of duties by existing teachers. This sharing was however not sustainable because it is likely to affect the quality of service delivery due to lack of motivation.
- Some schools had adopted a system of multi-grade teaching where one teacher handled pupils at different levels concurrently.

Recommendations

Short Term Recommendations

- The government should lift the embargo on employment of teachers given that there are many trained teachers who are still unemployed. This would mitigate the negative impact of the epidemic on the quality of learning and also contribute to the achievement of the MDG and ERS objectives of achieving full universal primary education by 2015.
- There is need for increased support for orphaned and vulnerable children (OVC) who are likely to fall out of school due to the epidemic. Bursary funds should be used to target the OVC.

- There is need for the Ministry of Education in collaboration with the NACC and NGOs to initiate programmes for sensitising head teachers to collect information related to teacher absenteeism, reasons for being absent, morbidity and mortality among education staff due to HIV/AIDS related causes.

Gender mainstreaming in sectors

The third pillar of the ERS is investment in human capital. Though this and other pillars do not directly address gender equality, it is expected that the targeted investment on human capital would be gender sensitive. The equivalent MDG target however directly addressed the issues of gender equality and empowerment. The Millennium Declaration commits all UN member countries to promotion of gender equality and empowerment of women as effective ways to combat poverty, hunger and disease, and as necessary means to stimulate development that is truly sustainable. In addition, the country specific MDGs target to eliminate gender inequality in primary and secondary education by 2015. The outcome of gender equity and empowerment would be expected to play a key role in the fight against HIV/AIDS and also mitigation of the impact of the epidemic at household level as in the KNASP strategic objective three. With respect to addressing gender equity and empowerment in key sectors, the study found that:

- Most sectors and Ministries had a gender mainstreaming policy.
- Measures and policies instituted to fight the epidemic were reported to be bearing fruits in most sectors through behaviour change and willingness to openly declare serostatus.
- A positive impact of the HIV/AIDS scourge, in both men and women, was that there were corresponding changes in behaviour whereby people were today more cautious in choosing their sexual partners. However, in some cases, it was reported that HIV/AIDS related widowhood may lead to negative behaviour changes, especially resulting from feeling of loneliness and fear of being stigmatised by the community.
- Most sectors had also instituted measures, policies and interventions to deal with HIV/AIDS epidemic in their organizations. For instance, in the GJLOs sector, the survey noted that today women with families were in some areas exempted from night duties, and that they were lately being considered for office work as opposed to active field work. In the same sector, infected officers who openly declared their serostatus were promoted and given the responsibility to lead campaigns that educated colleagues on dangers of the epidemic. Such officers would also be posted to stations where they could easily access medical attention and in other instances, they were posted to their home areas so as to be close to their families.

Recommendations

Short Term Recommendations

- A pro-active gender policy review to address imbalances, particularly with regard care giving, access to productive resources and services. For example, policies concerning home based care should be implemented while ensuring that women are not overburdened.
- Proactive gender policies that support land rights for women and children can make a significant contribution to ensuring the survival of households directly affected by the HIV epidemic and help prevent household fragmentation and dissolution.

Macro Economy

The Kenya government has been pursuing human development objectives since independence, with a focus on the elimination of poverty, disease and ignorance. Various development and sectoral plans, strategy papers and other policy documents have been geared toward achieving broad-based sustainable improvement in the welfare of all Kenyans. The most recent initiatives are the ERS and MGD targets. Achievements of these targets are however seriously compromised by the HIV/AIDS epidemic among other bottlenecks. This highlights the importance of the mitigating the impact of the epidemic at the national/macro level and is reason why the KNASP identified the socio-economic impact of HIV/AIDS as a key priority area of intervention.

Socio-economic Impact

- Estimation results indicated that productivity and labour supply declined as a result of prolonged illness (morbidity and mortality) leading to a fall in the per capita output from Kshs 1437 to Kshs 1393 (agriculture), Kshs 3140 to 3092 (Commerce and industry) and Kshs 1,042 to 982. In absolute terms this represented a decline of per capita output of Kshs 44, 48 and 42 in the agricultural sector, commerce and industry and the overall economy respectively.
- With high mortality and morbidity of the most productive labour force, empirical results projected that HIV/AIDS would lower GDP by 14.5%. Similarly per capita income was predicted to decline by 10%.
- Simulation results showed that per capita output had declined by 1.5% in the agricultural sector, commerce and industry and the overall GDP for the period 1984-2001.

Recommendations

Short Term Recommendations

Based on the study findings, interventions that target to reduce the impact at the household and sectoral levels will essentially reduce the impact at the macro level. However, comprehensive multi-dimensional interventions can only be planned for and implemented from the top rather than from the bottom.

- Addressing the epidemic at the household and sectoral levels would solve the problem at the macro economic level as well, because the macro impact essentially depends on the individual micro impacts on labour supply, incomes, expenditures and savings at the household and firm level. By stimulating and supporting a broad multisectoral approach that includes all segments of society, governments can create the conditions in which prevention, care, and mitigation programs can succeed and protect the country's future development prospects.
- An effective national response should include information, education, and communication; voluntary counselling and testing; condom promotion and availability; expanded and improved services to prevent and treat sexually transmitted infections; and efforts to protect human rights and reduce stigma and discrimination.
- At the national level, a strong political commitment to the fight against AIDS is crucial. This support is critical for several reasons. First, it sets the stage for an open approach to AIDS that helps to reduce the stigma and discrimination that often hampers prevention efforts. Second, it facilitates a multi-sectoral approach by making it clear that the fight against AIDS is a national priority. Third, political support signals to individuals and community organizations involved in the AIDS programs that their efforts are appreciated and valued. Finally, it

ensures that the program will receive an appropriate share of national and international donor resources to fund important programs.

- The extant literature indicated that some health personnel working in a variety of health service capacities had less than optimal knowledge and skills for managing HIV/AIDS cases, fearful attitudes, and unsatisfactory practices which compromise quality of care and their own safety. For this reason, it is important for the government to invest more in training medical personnel on ways of handling HIV/AIDS patients.
- There is also need for NGOs to collaborate with the health sector, equip its staff with skills of working with the affected families, and adopt a holistic community development approach. It is also important for the government to invest more in training medical personnel on ways of handling HIV/AIDS patients.
- Confidence building in medical personnel is also important given that there is a risk of infection from patients.
- A comprehensive analysis of the impact of the epidemic on health workforce in terms of absenteeism and productivity is essential for forecasting future health system costs and performance.
- There is also an urgent need to get reliable data based on clinical tests to validate and confirm the reliability of high AIDS-death projections in all sectors. It is therefore important to develop a core set of standardized human resource indicators for all sectors to collect baseline data, monitor, and evaluate mitigation responses. The indicators should be developed to collect information on human resource capacity at the district and national levels and be standardized for aggregation at the regional level. The data collected should then be pooled together in a data bank that could be updated regularly to facilitate monitoring and assessment of the impact of the epidemic. This is especially crucial for complex sectors such as the GJLOS and the transport sectors.

Medium and Tong Term Recommendations

- Government ministries: In order to effectively mainstream the national response to government ministries, the AIDS Control Units (ACUs) should ensure that funds allocated to the ministry for prevention and mitigation purposes are utilized effectively. To ensure accountability, it is imperative that HIV/AIDS programmes implemented by the ministry ACUs are consistent and in line with the KNASP priority areas.
- Given that the impact of HIV/AIDS is a developmental issue, the Ministry of Planning and National Development should include HIV/AIDS and poverty relief aspects in all levels of project cycles/design. It is imperative that the Ministry undertakes a review of the existing development policies and programmes with the view of internalising responses to the HIV epidemic. In designing national development programmes and allocation of resources, the Ministry should play a critical role in co-ordinating the efforts of all key government ministries to mitigate and prevent the epidemic.
- Government of Kenya: In the medium- and long-term perspectives, the Government of Kenya through key ministries and departments should address the socio-economic factors that render the Kenyan society, including employees in the manufacturing and informal sectors vulnerable to HIV infection. Through the various development policies and programmes, the government needs to focus on policies that would address issues of unemployment, food insecurity and poverty. This could be done through: a) increased support to income-generating micro-enterprise programmes, especially those focusing on youth and women; and b) support

for micro-credit programmes to assist those willing to start income-generating, self-employed projects that do not qualify for formal sector financial loans.

- Finally, an argument can be made for the government to target AIDS treatment resources to skilled workers throughout the economy. The contribution of skilled workers—whether teachers, firm managers, or accountants—to national economic growth, and the scarcity of such workers suggest that giving such individuals priority in allocating treatment resources would be a responsible policy decision. The results suggest that employer investments in HIV/AIDS prevention and treatment for employees will have positive returns for all employees in an organization.

Deliberate social policy decisions must be made if the ultimate allocation of the burden is to be socially desirable. These decisions should reflect the country's solution to the optimization HIV/AIDS problem, that of balancing economic growth and employment with business investment in the fight against AIDS. Second, planners and policy makers should develop a set of strategies and tools that will help the country achieve the balance it desires. Finally, a systematic data collection and ongoing monitoring of benefits levels, employment practices, and employment structures are needed to understand the nature and magnitude of the problem, determine where and for what types of industries or employers it is most important, and evaluate the impacts of policy changes. Drawing from experiences in this study and the information generated thereof, it is recommended that both governments and businesses recognize and bear their fair share of the burden and increase support to affected households.

- There is need for government ministries/departments and business, to generate sectorally specific and differentiated responses to the impact of HIV/AIDS which should follow the priority areas of the KNASP. To date, the projections of the impact of HIV/AIDS by sector are based largely on assumptions, as there are no sufficient data for analysis and projections. In view of this, the ministries/departments need to commence compiling sector-specific data, and sectorally specific monitoring of trends, to be facilitated by the ACUs in each ministry and the NACC.
- In line with the National Monitoring and Evaluation Framework, there is need to ensure or establish an ongoing monitoring and evaluation of HIV/AIDS impacts on the key sectors and specifically on the impact of the epidemic at the household level, sectoral level and the national response.
- As government scales up AIDS programs and undertakes assessments across sectors to meet the challenges ahead, human resource policy and management must be considered a priority investment. National indicators for monitoring the performance of HIV/AIDS control programs should include human resource indicators. Results of the monitoring and those from HIV/AIDS impact assessments should form the basis to design sector specific interventions and actions.

Suggestions for Further Research

Given the data limitations that this study faced, it is recommended that sector specific studies on the social economic impact of HIV/AIDS on the Transport and Communication, Health and GJLOS sectors are necessary to inform policy towards improving the contribution of these sectors to economic growth.

1 INTRODUCTION

It is widely acknowledged that the health status of a nation's population is a fundamental indicator of the level of development of the country. The importance accorded to health is evident in the UN Millennium Declaration signed by 189 countries in 2000. The Declaration includes several health related Millennium Development Goals (MDGs) such as stopping the spread of Human Immunodeficiency Virus/ Acquired Immune Deficiency Syndrome or HIV/AIDS, malaria and other diseases. The prevalence of diseases such as HIV/AIDS poses a significant challenge to development in low income countries. The impact of HIV/AIDS has been particularly devastating in sub-Saharan Africa where some countries are now witnessing declines in life expectancy in the magnitude of 20 years as a result of the disease. Globally, HIV/AIDS is now the leading cause of adult mortality (WHO 2004). In 2004 alone an estimated 4.9 million people succumbed to HIV/AIDS alone (UNAIDS and WHO 2004). The impact of HIV/AIDS has been felt not only in terms of increased mortality and morbidity but also in the socio economic sphere since the disease disproportionately strikes young adults and those in productive age groups. There is anecdotal empirical evidence that suggests that the disease has had an adverse impact on households and firms as well the macro economy of affected countries. Nevertheless, the knowledge base regarding the implications of HIV/AIDS is surprisingly thin not only for Kenya but for other neighbouring countries too.

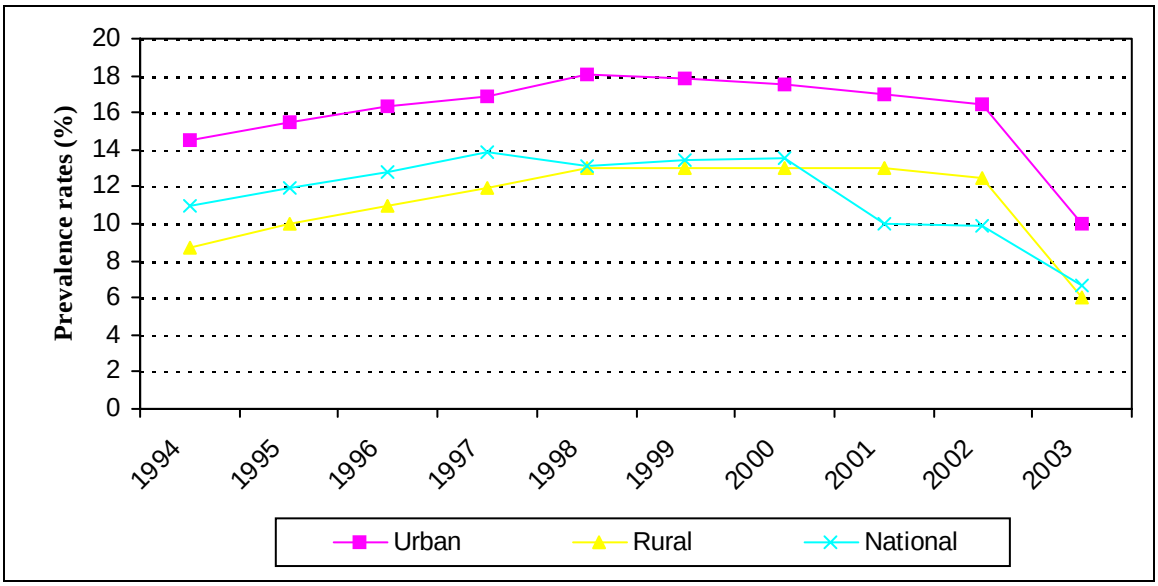
1.1 Background on HIV/AIDS Situation in Kenya

Current estimates suggest that there are over 1.2 million people infected with HIV/AIDS in Kenya, and more than 1.5 million have so far died of the disease, leaving behind over 1 million orphans. In addition, a large number of children are living with parents who are ill; hence the children become the primary care givers for their parents, young siblings and other dependants. Over 60% of those infected live in the rural areas where the socio-economic conditions are worsening due to poverty and unemployment. This has strained the already inadequate and ill-equipped health facilities, with over 50% of public hospital beds being occupied by patients with HIV/AIDS related infections. It is estimated that many more persons living with HIV/AIDS stay at home, are unable to access health care and are overstretching the households' ability to cope.

Since 1984, when the first case of HIV/AIDS was diagnosed in Kenya, the disease spread rapidly, reaching an estimated national prevalence rate of 13.4% in 2000 (NASCOP, 2001). In 2003, the adult (15 – 49 years) prevalence rate was 6.7% (KDHS, 2003). Urban areas are more devastated by HIV/AIDS than rural areas. However, prevalence rates in rural areas are rising more rapidly than in urban areas. According to KDHS 2003, prevalence rates were 10.0 percent in urban areas, and 5.6 percent in rural areas. In addition, prevalence rates show marked variations across sub-groups of the population. Younger women are particularly more vulnerable than men. For instance, among 20-24 year olds, about 9 percent and 2.4 percent of women and men, respectively, were infected. There are also marked differences in HIV prevalence rates by province with Nyanza Province exhibiting the highest rate. However, following a comprehensive multi-sectoral national strategy in the fight against HIV/AIDS, the HIV prevalence rate among those aged 15-49 years has declined from 13.4% in 2000 to 5.9% in 2005

(NACC, 2006). The declining prevalence rates following the intervention are illustrated in figure 1.1.

Figure 1.1: Percent HIV prevalence among rural and urban adults in Kenya



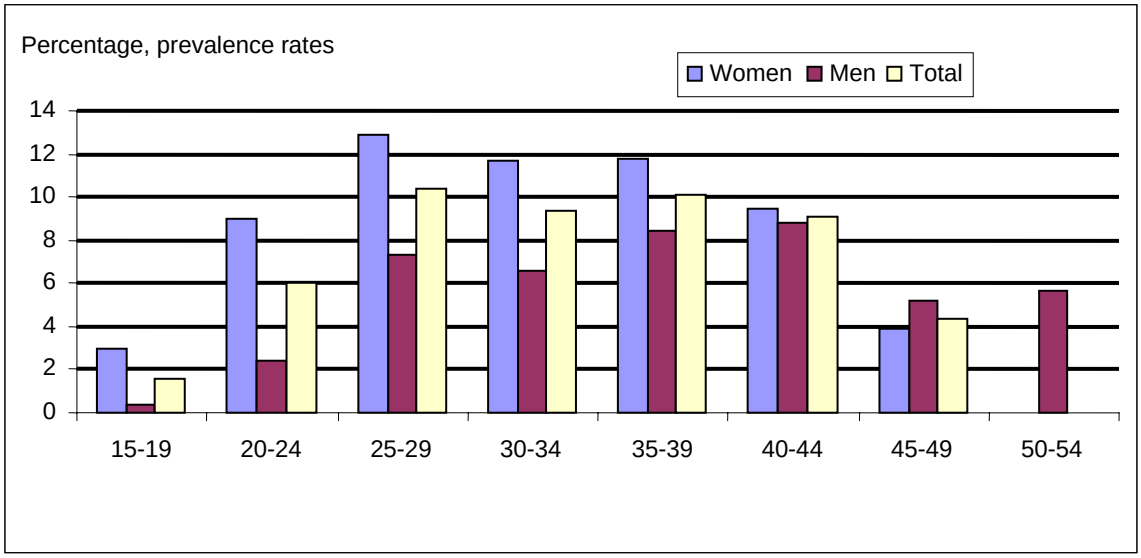
Source: Sentinel Surveillance, Kenya 1990-2002, NACC (2004)

1.2 Gender and Geographic Breakdown

In Kenya, like most African countries, the majority of non-paediatric infections occur among youth, especially young women aged 15-24 years and young men under 30. This proposition is supported by the Kenya Demographic Health Survey (KDHS, 2003) report, which indicates that the prevalence among women aged 15-49 was nearly 9%, while for men 15-54, the prevalence was under 5%. This female-to-male ratio of 1.9 to 1 was higher than that found in most population-based studies in Africa. It implies that young women are particularly vulnerable to HIV infection, as compared to the young men.

Figure 1.2 shows that 3% of women aged 15-19 were HIV infected, compared with 0.4% of men aged 15-19, while HIV prevalence among women aged 20-24 was over three times that of men in the same age group (9 percent and 2.4 percent, respectively). As is the case in many countries, the prevalence among women peaks at age 25-29 (12.9 percent), while among men the prevalence rises gradually with age, to peak at age 40-44 (8.8 percent). It is only at the age group 45-49 that the HIV prevalence among men (5.2 percent) gets to be higher than that for women (4 percent). The observed trend between men and women suggests a feminisation of the epidemic. HIV is increasingly affecting women, and the main cause of infection is sexual contact, apparently via their partners. In terms of age, HIV infection is concentrated in the age group between 20 to 44 years.

Figure 1.2: HIV adult prevalence by age and gender, 2003



Source: GoK (2003), Kenya Demographic and Health Survey

In 2003, there were variations in the distribution of HIV infection between Kenyan provinces. Nyanza and Nairobi provinces with a prevalence of 15% and 10% respectively, had the highest prevalence rates while Eastern province (4%) and North Eastern (less than 1%) had the lowest prevalence rates. Table 1.1 shows the distribution of HIV adult infection in the country in 2005, analysed by gender. The 7th Edition of AIDS in Kenya indicates that the highest prevalence rate is among the wealthiest quintile of the population accounting for 10% of the HIV infection, while prevalence among the poorest segment of the population is less than 4% (NACC, 2005).

Table 1.1: HIV adult (15 – 49 years) Prevalence by Province and gender, 2005

Province	Male	Female	Total
Nairobi	7.9	12.0	10
Central	2.1	7.9	5
Coast	5.1	7.0	6.1
Eastern	1.3	5.4	3.4
North Eastern	1.4	2.6	2
Nyanza	8.4	13.2	10.8
Rift Valley	2.8	5.4	4.1
Western	3.7	5.6	4.7
Total	4.0	7.7	5.9

Source: National AIDS Control Council, (2006), Kenya HIV/AIDS Draft Data Booklet.

Table 1.2, shows the change in HIV prevalence by province between 2004 and 2005. The provincial prevalence has declined significantly from the peak rates experienced in the 1990s (Republic of Kenya, 2000). The highest decline in prevalence rates between 2004 and 2005 was

reported in North Eastern province (33%), followed by Rift valley (18%) and Nyanza (17.6%). Western, Coast and Nairobi provinces experienced a rise in prevalence, reporting a marginal increase of 4.4%, 7% and 11.1% respectively. The data further suggests that Nyanza province continues to experience the highest HIV prevalence (10.8%), while the lowest prevalence rate is found in North Eastern (2%). Currently, the national average stands at 5.9% (NACC, 2006).

The three predominant modes of HIV transmission in Kenya are heterosexual contact (98% of infections), mother-to-child transmission during pregnancy, birth or through breastfeeding (1.8%), and transfusion with infected blood (0.2%).

Table 1.2: HIV Adult Prevalence Trends by Province for Selected Years (%).

Province	2004*	2005**	% Change
Nairobi	9	10	11.1
Central	5.6	5	-10.7
Coast	5.7	6.1	7.0
Eastern	3.7	3.4	-8.1
North Eastern	3	2	-33.3
Nyanza	13.1	10.8	-17.6
Rift Valley	5	4.1	-18.0
Western	4.5	4.7	4.4
Total	6.4	5.9	-7.8

Source: *National AIDS Control Council, (2005). Kenya HIV/AIDS Data Booklet.
**National AIDS Control Council, (2006). Kenya HIV/AIDS Draft Data Booklet.

1.3 HIV Awareness and Experience with the Epidemic

According to the KDHS, (2003), majority of the people in the country have a high knowledge about HIV/AIDS and are aware of the prevention measures of abstinence, faithfulness and use of Condoms (ABC). The recorded knowledge and awareness about HIV/AIDS is at 98% among women and 99% among men. However, the same cannot be said for men and women aged 15-19 years whose knowledge of prevention is likely to be lower. This could be attributed to lack of information, education and communication (IEC) materials especially on sexual and reproductive health information necessary to enable them to avoid infection. The KDHS (2003) survey also found awareness to be lower among non-educated women (93%) and among adults in Northern Eastern province (86% of men and 94% of women) with very small variations between the various age groups. The evidence from KDHS data clearly showed that, the more educated the respondents were (both men and women) the more likely they were to have knowledge about some ways of limiting the risk of infection. It is of great concern that knowledge about HIV/AIDS is limited among the age group 15-19 years, especially among those with limited or no education and among youth from poor backgrounds.

In contrast with the KDHS results, the knowledge and behaviour indicators by Behaviour Surveillance Survey (BSS) showed that 98 per cent of women and 42 per cent of men (aged 15-

24 years) could identify at least two prevention methods and rejected the misconceptions about HIV/AIDS. The large deviation between these two sources of data was probably related to the many misconceptions that exist among the youth with regard to HIV/AIDS and condoms (e.g., Njeru et al., 2005). As noted previously, awareness of AIDS in the country is over 98%, albeit slight variations among women with no education. The challenge for the government and other stakeholders is therefore to translate the awareness into behaviour change so as sustain the declining prevalence rate. There is therefore need for more awareness creation especially among the youth and the most vulnerable groups on prevention, care and support of the infected and affected, importance of voluntary counselling and testing, as well as support and care of the orphans.

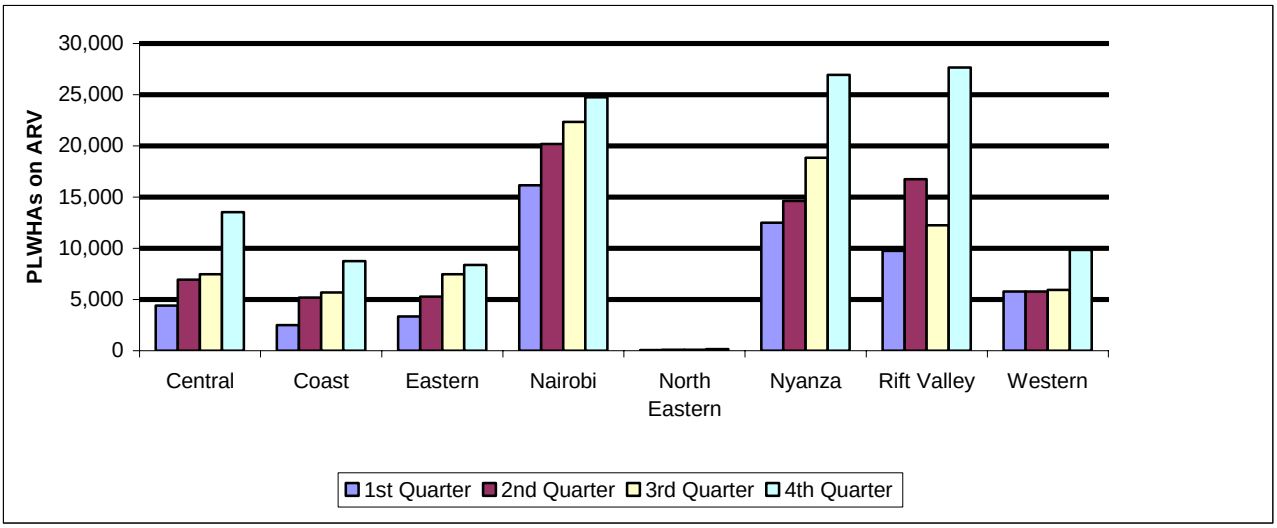
1.4 Anti-Retroviral Therapy

Worldwide, there is no vaccine and no cure for HIV infection or AIDS. There are, however, drugs available to fight and prevent opportunistic infections for many years. Over the past 15 years, researchers have developed antiretroviral (ARV) drugs to fight the virus. The ARV drug gradually reduces the viral load and improves the CD4-lymphocyte count, helping the immune system to recover and preventing the development of opportunistic infections. For ARV to be effective it must be taken for life and patient adherence to the therapy is critical. If these requirements are fulfilled ARV can greatly improve both length and quality of life, but the average duration of that extension remains uncertain. As with any drugs there may be problems with intolerance, side effects, resistance and toxicity.

The major breakthrough in treatment came in 1995 when the triple combination of ARV (i.e. three drugs taken together at the same time) called highly active antiretroviral therapy (HAART) was introduced. Because HIV can become resistant, a combination treatment such as HAART is necessary to suppress the virus. HAART has greatly improved the health of those on this treatment.

In Kenya there has been significant progress in the scaling-up of treatment with ARVs and currently there are several health facilities both private and public which provide the drugs. The drugs in the public health facilities and in designated sites are provided free of charge by the Ministry of Health and at the mission facilities. This has been made possible by funding from the Presidential Emergency Plan for AIDS Relief (PEPFAR) and Clinton Foundation, as well as importation of generic drugs by the government with support from the Global Fund for HIV/AIDS, Malaria, and Tuberculosis. Private health care providers also provide ARV drugs, but at a cost. As of December, 2006, there were approximately 120,000 HIV-positive persons in Kenya on ARV. This is far below the population of 263,000 people who need to be put on ARV treatment. In the ideal situation, all those requiring treatment should be provided with ARV. Figure 1.3 shows the estimated number of patients on ARVs.

Figure 1.3: Estimated number of PLWHAs on ARV in 2006 by Province



Source: Ministry of Health, NASCOP, 2006

The scaling-up on the provision of ARVs in Kenya has been rather slow due to financial limitations and problems linked to procurement of the drugs. In terms of geographical equity, there were substantially more people in Nairobi and Nyanza who were accessing ARVs in contrast to the North Eastern, Eastern and Coast provinces. These regional differences can partly be explained by a longer history of ARV provision, a higher prevalence rate and a larger population in these provinces. It is however imperative to note that even if progress is made enhancing equity in access to the drugs, there are indications of constraints to access in rural and urban slum areas and among children. Indeed, information on number of children who have access to the drugs is not readily available.

1.5 Problem Statement

The first case of AIDS in Kenya was diagnosed in 1984. Since then HIV/AIDS spread rapidly in Kenya during the 1990's, reaching an estimated national prevalence rate of 15% (NASCOP, 2001). The HIV/AIDS prevalence among adults aged 15 to 49 years in 2005 was about 5.9%. Furthermore, there are currently about 1.2 million people infected with HIV. Nearly two-thirds of those infected are women. The HIV/AIDS epidemic has become a serious global health and development problem. HIV/AIDS is a devastating disease for many reasons: It affects primarily the economically active population, those aged 15-49; once it has established a foothold in the population, it spreads very quickly; it is fatal and there is still no cure.

In Kenya, if the spread of the disease is not halted, the socio-economic impacts will be severe. The disease threatens national and personal welfare by negatively affecting health, life expectancy, and productive capacity of individuals. It also affects intellectual development through the impact on school attendance and impacts on long term learning capacity and accumulation of human capital.

Previous studies along this line of reasoning argue that prolonged absenteeism from school not only reduces future earnings of an individual, but also future variations in productivity and the scope of specialisation. The debilitating effects of HIV/AIDS on the labour force have serious consequences on their productivity. In addition, it causes considerable loss on household production and gross domestic product and is responsible for loss of economic output, increased health care expenditures, and increasing vulnerability of certain populations such as the elderly and children.

In 2005 the National AIDS Control Council developed and launched the Kenya National AIDS Strategic Plan (KNASP) to guide the council, development partners and other stakeholders in implementing HIV/AIDS interventions. The KNASP proposes to address the HIV/AIDS problem through three key priority areas, including (a) prevention of new infections, (b) improving the quality of life, and (c) mitigating the socio-economic impact of the epidemic. The need for effective response to the epidemic has made it necessary for the National AIDS Control Council to undertake a comprehensive socio-economic impact assessment of HIV/AIDS on the key sectors of the economy.

1.6 Purpose of the study

In light of the foregoing, the NACC contracted Deloitte Consulting Limited to undertake a comprehensive study on the socio-economic impact of the HIV/AIDS epidemic on key sectors (Agriculture, Health, Industry/Commercial, Education, Transport and Communication, GJLOS) and household with a view to informing decision making for the NACC and her stakeholders. The socio-economic analysis focuses on three clusters, namely: gender and households; economic growth, and labour productivity. The specific objectives of the study were:

- To assess the type and quality of information available on the socio-economic impact of HIV/AIDS.
- To obtain qualitative and quantitative data on socio-economic impact of HIV/AIDS on gender and households.
- To obtain quantitative and qualitative data indicating the impact of HIV/AIDS on economic growth with a focus on priority sectors
- To determine the effect of HIV/AIDS on labour productivity with specific focus on priority sectors.

1.7 Study Limitations

The study had several limitations. First, several companies declined to take part in the interview, citing lack of manager's time available for interview. Such companies may have been less concerned about HIV/AIDS than those that did take part, creating a possibility for selection bias in the sample. Most key informants (from key sectors) who accepted to be interviewed declined to give information on HIV/AIDS. This made it impossible for the current study to analyze the socio-economic impact of the epidemic on the Transport and Communication, Health and GJLOS Sectors.

Second, many questions in the survey relied on recall and subjective perceptions of the respondents, rather than records. However, such subjectivity does not invalidate the value of the findings.

Third, due to non-response, the sample size for the firms was small and the number of firms in some sectors was not sufficient to establish statistically significant differences for some outcomes**.**

Fourth, the HIV status of each household member was not known with certainty, because no clinical tests were carried out. The comparisons between 'affected' and unaffected households therefore probably underestimate the true differences attributable to HIV/AIDS.

The rest of the report is organised as follows: Section two outlines the research methodology. Section three presents the literature review. Sections four to six presents the results while section seven draws conclusions and policy recommendations.

2. RESEARCH METHODOLOGY

2.1 Research Methodology

In order to obtain the information required to assess the socio-economic impact of HIV/AIDS on the key sectors of the economy, it was necessary to obtain data from different sources, including review of previous studies, administration of household interviews, private and public interviews, and interviews with key informants and observation. The rest of this section details the approaches used to obtain the required information.

2.2 Research Design

The research follows a multipurpose design. The main thrust of the design is a combination of an evaluative comparative approach, using cross-sectional data at different levels of observation and of both qualitative and quantitative.

2.3 The Evaluative Comparative Approach

The study followed an evaluative comparative and analytical approach for each of the sectors and the districts included in the sample. For the assessment of the socio-economic impact of HIV/AIDS, the household was the primary sampling unit. The instruments and the corresponding variables or indicators used to guide the assessment of socio-economic impacts of the disease were clearly defined, operationalized and measured in the same way in each sector or district with a view to making inter-district and inter-sector comparisons.

2.4 Levels of Observation

As indicated above, the study used multiple levels of observation ranging from individual, household to sector level variables. Each level corresponds to the nature of the data available for each of the indicators.

2.5 Sources of Secondary Data/Information

Relevant review of literature was done to determine both the comprehensiveness of the available data and development of the hypotheses that formed the background for the field study. Some of the documents were sourced from:

- Gender and households: Ministry of Gender, Sports, Culture and Social Services, Forum for African Women Educationist (FAWE), United Nations Development Fund for Women (UNIFEM), National Aids Control Council (NACC), NASCOP, among other gender stakeholder institutions
- Economic growth: Government ministries e.g. Ministry of Planning and National Development , Ministry of Education, Science and Technology, among others
- Labour productivity: Households, Ministry of labour and human resource development, Federation for Kenya Employees (FKE), Central Bureau of Statistics reports, Census reports

Other documents reviewed included the Kenya National HIV/AIDS Strategic Plan (KNASP) 2005-2010; the current Poverty Reduction Strategy Paper (PRSP) and the KDHS.

2.6 The Study Population and Sampling

2.6.1 The Study Population

The study considers multiple levels of observation, corresponding to three units of analysis as indicated earlier. At the firm level, the study population included all firms and enterprises in Kenya including the informal sector. At the household level, the study population included all households both affected and not affected by the epidemic. At the individual level, the study population was all people living with HIV/AIDS and the general population (not infected).

2.6.2 The Sampling Strategy

The sampling strategy was a three stage process. The first stage involved selection of provinces for study. As recommended by the client, all 8 provinces were included to ensure a fully representative sample. The second stage involved the selection of districts from each province based on HIV/AIDS prevalence and taking into account the socio-ecological diversity of the districts. The third stage involved selection of units of study within the selected districts. These units were mainly PLWHAs, or related population, private firms or business enterprises and public institutions.

A multi-stage sampling technique was applied to select the final sample. Following the guidelines provided by the client and guidelines contained in the TOR, 13 districts were sampled from the eight provinces. Two provinces (Nairobi and Coast) were given special consideration because of their uniqueness in terms of presence and diversity of firms and other socio-economic considerations. Other considerations included the cultural diversity, the scale of production (small holder versus commercial farms) and the agricultural potential. For vast provinces such as the Rift Valley, Eastern and North Eastern, districts were selected to cover both farming and pastoral households. Having selected the district, the targeted study population included: 1) People living with HIV/AIDS; 2) People not affected by HIV/AIDS; 3) Private firms/enterprises; 4) Public sector firms and 5) Jua Kali sector firms. Nairobi province has good representation of all the priority sectors studied. In addition, most of the private firms/enterprises have headquarters in Nairobi. Coast province is a nexus of tourism, transport and communication sectors (air, sea, road and rail).

2.6.3 Sampling and sample size

Firms (Formal and Informal)

To make our results comparable and representative, we used the CBS taxonomy to divide firms (enterprises) and their individual plants (establishments) into categories that reflected similarities for the products, activities or the manufacturing technologies they employ. The taxonomy yielded the following broad categories:

- Agriculture, Forestry, Mining and Quarrying
- Wholesale and Retail Trade
- Transport and Communication
- Distributors and Allied Trade
- Finance, Business and Insurance
- Informal sector firms

Firms classified within the same category are believed to have fairly homogenous products or activities. It is essential that firms be divided into homogenous economic activities if comparisons between and within sectors are to be valid. More importantly, the classifications reflect the labour market in the country covering informal and formal segments of the economy. Cross section studies relating variables such as change in sales, profits, wages, worker productivity and so forth, contribute to the comparisons sought in this study.

With respect to private firms, the sample size varied from one district to another, depending on the local situation and the number in a given district. Where the number of private firms in a selected district is small, effort was made to include all of them (subject to them being accessible). A register of firms from the Kenyan Association of Manufacturers (KAM) and the Kenya Business Directory was used to ensure appropriate representation of all firms. From the register of 525 firms (commerce and industry, including transport and communication) and allowing a margin of error of 5%, 96 firms were selected using systematic random sampling methods. In addition, 22 commercial agriculture firms were sampled. The selection of firms took into account differences in firm size, cost structures and capacity utilization. For the selected firms, human resource managers and other key informants were contacted for interviews and also to facilitate identification of other key respondents within their firms. The study also interviewed at least 5 GJLOs firms in each district i.e., the Army, Police, Judiciary, Prisons and Provincial Administration. 4 schools (2 private and 2 public; primary and secondary for each case) and 3 health facilities (provincial, district and private/mission hospitals) per district were also visited, while key informant interviews were conducted in key ministries in each district.

For firms within the informal sector, a random selection of 96 establishments found within sampled districts were targeted, assuming a finite population and a margin of error of 5%. The distribution of firms by location took into account the number of firms and contribution to employment. Efforts were made to include all categories of informal sector firms depending on the local situation. The distribution of sampled firms is presented in the Table 2.1. The last row of the table indicates the response rates by category of firms. However, we are quick to note that even firms with very high response rates (such as informal sector firms) were either unwilling to give information related to HIV/AIDS at the workplace or reported that they had never had HIV/AIDS cases.

Table 2.1: Distribution of Sample of Firms by District

District	Commerce & Industry*	Agriculture	GJLOs	Education	Health		Informal
				Schools	Facility	Informant	
Nairobi	56		5	4	4	3	23
Mombasa	24		5	4	4	3	17
Thika	4		5	4	4	3	11
Bungoma		1	5	4	4	3	5
Kisumu	5		5	4	4	3	10
Nakuru	7	10	5	4	4	3	10
Kericho		10					
Mumias		1					
Embu			5	4	4	3	5
Kitui			5	4	4	3	5
Wajir			5	4	4	3	5
Garissa			5	4	4	3	5
Samburu			5	4	4	3	-
Total	96	22	55	44	44	33	96
Response rate	34%	14%	44%	86%	50%	39%	76%

*Includes wholesale and retail trade, transport and communication, distributors and allied trade, finance, business and insurance, hotels and restaurants.

Sample of Households

As noted earlier, the aim of the survey was to generate data, which would address various socio-economic issues related to the impact of HIV/AIDS. These included morbidity, mortality and orphan hood with respect to gender and households. In particular, the survey collected data from both households and individuals affected and not affected by HIV/AIDS.

To obtain representative and unbiased estimates of the population parameters a probability sample was required. This was generated based on a sampling frame provided by the Central Bureau of Statistics. Currently the Central Bureau of Statistics is operating the NASSEP IV sampling frame which is updated and provides estimates at the district level. The NASSEP IV sampling frame has been adequately documented to facilitate identification of selected clusters and households on the ground. Each cluster has a map and a listing of the households within it. The maps indicate the location of the structures and the households. This enables the interviewers reach the selected households. Using the NASSEP frame, the survey was designed to yield representative estimates at the district level in order to provide reliable estimates for the clusters as per the client's guidelines.

The clusters in the NASSEP IV sampling frame were initially selected from the Enumeration Areas created for the census of 1999 using the Probability Proportional to Size (PPS) method. In this sample, the selection has been done using the Equal Probability Selection method (EPSEM). The resulting sample retains its properties of PPS.

The sample design is a two stage sample with the first stage the primary sampling units (PSUs) which are the Enumeration Areas (EAS) developed during the census. The second stage of the selection involved the selection of households to be selected within the clusters. In the study, the interviews were held with the household heads/spouse or responsible persons with the requisite information about the household.

It is important that all the relevant stratifications of the population are performed to ensure that the sample provides estimates that are precise enough with smaller standard errors. The frame (NASSEP IV) has the district as a stratum and further, the urban and rural areas provide the next level of stratification. It was further observed that six major urban areas, viz. Nairobi, Mombasa, Nakuru, Eldoret, Kisumu and Thika had a lot of variation across their populations. As a consequence, further sub stratification was done to control for the apparent variation. This was done to provide five categories of the (1) Upper (2) Second upper (3) Middle (4) Lower middle (5) Lower socio-economic categories. The survey utilized these stratification design features.

Selection of the Sample

Households

From each cluster, ten households were selected using the systematic sampling method. This method is suitable as it enables the distribution of the sample across the cluster evenly and yields good estimates for the population parameters. Each cluster has a listing with details of the household particulars.

Identification of the Sample

The NASSEP IV sampling frame has been adequately documented to facilitate identification of selected clusters and households on the ground. Each cluster has a map and a listing of the households within it. The maps indicate the location of the structures and the households. This enables the interviewers reach the selected households.

Estimation of Population Parameters

The sample was selected using a stratified two-stage cluster design consisting of 130 clusters, 63 in the urban and 67 in the rural areas. Once the number of households was allocated to each district by urban and rural areas, the numbers of clusters was calculated based on an average sample take of 10 completed interviews in the rural and urban areas. In each urban or rural area in a given district, clusters were selected with equal probability. The selection was done using the following formula:

$$P_{1i} = (a / b) \times (b\, m_i / \Sigma\, m_i)$$

where

a is the number of enumeration areas in the sample in the given combination of residence area and district,

b is the number of enumeration areas in the master sample in the given combination of residence area and district,

m_i is the measure of size of i^{th} enumeration area and

Σm_i is the measure of size for the corresponding combination of residence area and province

The sample is unbalanced among areas of residence and districts and requires a final weighing adjustment procedure to provide estimates at every other domain of study. In a given district, if c is the fixed number of households selected out of the total households (L_i) - in the frame listing process- for the i^{th} cluster, then the household probability in the selected i^{th} cluster can be expressed as

$$P_{2i} = (c / L_i)$$

The final households overall probability in the i^{th} cluster was calculated as

$$f_i = P_{1i} * P_{2i}$$

and the sampling design weight for the i^{th} cluster is given as

$$1/ f_i = 1 / (P1i * P_{2i})$$

The actual household sample

Following the above approach, a sample size of 1300 households was determined to provide reliable estimates for the chosen districts and provinces. This was allocated to the districts proportionately to the population. In addition, the sample was allocated to the urban and rural areas proportionately to their population sizes resulting in 640 and 660 households for the rural and urban areas respectively as shown in Table 2.2. From each cluster, ten households were selected using the systematic sampling method resulting in 130 clusters (64 rural and 66 urban) as shown in Table 2.2. This method is suitable as it enables the distribution of the sample across the cluster evenly and yields good estimates for the population parameters. Each cluster has a listing with details of the household particulars. The actual number of households surveyed was however 1100 (see column 5, Table 2.2) indicating a response rate of about 85%.

Table 2.2: Distribution of the Household Sample by District

District	Households				Clusters		
	Rural	Urban	Total	Interviewed	Rural	Urban	Total
Nairobi	0	200	200	174	0	20	20
Thika	80	50	130	97	8	5	13
Mombasa	0	100	100	72	0	10	10
Embu	60	20	80	91	6	2	8
Kitui	70	20	90	88	7	2	9
Wajir	40	30	70	51	4	3	7
Garissa	40	30	70	72	4	3	7
Kisumu	70	50	120	106	7	5	12
Samburu	70	40	110	87	7	4	11
Nakuru	110	80	190	142	11	8	19
Bungoma	100	40	140	120	10	4	14
Total	640	660	1300	1100	64	66	130

2.6.4 Data Collection

During the field work, each of the core team members excluding the lead consultant were in-charge of a sector/district. The lead consultant's role was to oversee the work in all the provinces/districts. 40 research assistants (with training in social sciences and pertinent experience in the study area) were recruited and trained to undertake the data collection exercise in the selected districts and sectors. The assistants were supervised by four field supervisors and the research team.

Stakeholders in each of the sampled areas were informed of the aims and objectives, and written consent was obtained from infected individuals/their families to interview the households to which they belong.

The gathering of data for each sector involved the use of a variety of methods. The main methods included the following:

(i) Review of reports
(ii) Personal interviews/ Semi-structured interviews.
(iii) Key informant discussions
(iv) Physical observation/checks

Review of reports

This method was used to obtain some of the required baseline information with respect to a number of selected sector indicators (see section on literature review).

Personal interviews
This method was mainly used to obtain information that was at the household level. The interviewing was administered personally, i.e., face to face in a two way conversation initiated by an interviewer to elicit information from the respondents. Interviewers were trained to avoid biases due to ineffective communication.

In-depth Interviews
In-depth interviews are useful in obtaining information on the basis of personal interviews. In addition to interviewing people infected and affected by HIV/AIDS, key informants in the priority sectors were identified to gain an in-depth understanding of various issues on socio-economic impact of the disease. Key informants were drawn from each of the sectors to be included in the sample and at the household level.

Instruments/tool
The instruments that were used to collect information relating to the various indicators included:

(i) Questionnaires for personal interviews: For each sector, we designed instruments and interview guidelines for collecting appropriate information for that sector. In general, the instruments used for this purpose explored the economic impact of HIV/AIDS on, among other things, household income and expenditure patterns, the experience of households affected by HIV/AIDS with regard to their response to the disease, utilization of certain services, coping with the impact on their socio-economic circumstances, impact of the disease e.t.c. The design of the instruments took into consideration a review of past research in the relevant sectors and the available information.

(ii) There were 7 types of questionnaires: household, commerce and industry, GJLOS, Education, Agricultural, Health, Transport and Communication.

(iii) Finally, there was a checklist for FGDs, observations and data to be collected from households

2.7 Methods of Analysis

Data Analysis
In order to address the full terms of reference and thereby provide the necessary information for assessing the socio-economic impact of HIV/AIDS on priority sectors of the economy, there was need to analyze and reduce the masses of data generated by the field exercise to get meaningful parameters/statistics. This was accomplished through use of various statistical and econometric packages for handling both quantitative and qualitative analysis. The team analyzed and interpreted the socio-economic variables in HIV/AIDS households/sectors for both affected and the control group using the above mentioned statistical methods. The analysis also involved simulations and different scenarios of the socio-economic impact of the disease, with specific reference to the TOR. This yielded the indicators for policy inferences and conclusions.

The organization, display and analysis of data, was based on a combination of statistical software including STATA and SPSS. These packages have effective statistical analysis algorithms and can successfully be used to conduct simulations, projections and predictions of the future impact of the epidemic on various indicators. The packages have capacities to analyze qualitative as

well as quantitative data. To analyse the economic impact of the disease on labour productivity and on macroeconomics, multiple regression analysis was done to determine the independent influences of certain explanatory variables on selected outcomes related to morbidity, mortality and socio-economic impact of HIV/AIDS, adjusting for personal and household.

Analysis of Labour Productivity

This was based on a comparison of measurable dimensions of the above indicators for firms and the affected and non-affected households and individuals. Comparisons were made between affected and the non-affected. The differences in means of magnitudes for these indicators for those affected and non-affected creates a natural experiment on the basis of which to assess the impact of HIV/AIDS on labour productivity. Any systematic difference is thus attributed to the HIV/AIDS status, specifically, we seek to:

- Identify the effects of HIV/AIDS by taking advantage of the fact that we can design a cohort of those with and without HIV/AIDS. We used difference-in-differences between households and individuals in various output measures such as absenteeism, days of work; earnings etc and then compare these differences across individuals and firms with and without HIV/AIDS.
- Assess the impact of HIV/AIDS for each key sector on a couple of measures of productivity i.e. work output per day, number of paid days, amount earned, number of unpaid/paid days leave, number of days spent attending to HIV/AIDS related ailments.

One will also need to ensure that there are no other differences between either firms or individuals or even economic conditions for the affected and non-affected. We thus implement this difference-in-differences strategy directly and in a regression framework.

The regression framework allows us to control for observable differences in variables such as economic conditions, gender, region, income, proximity to health facilities etc. To the extent that we can control for other important determinants of the labour productivity outcomes, the regression framework reduces the bias in our estimates to the direct difference-in-difference procedure.

The regression model for example takes the following form:

$$Value\ added_i = \alpha + \beta_1 attrition_i + \beta_2 X_i + \varepsilon_i$$

where value added is defined as total value of output less value of intermediate inputs, attrition is an indicator variable for the rate of attrition due to HIV/AIDS, and X is a vector of control variables and includes sector and regional dummies. For simplicity, we use ordinary least squares for models whose outcome variables are continuous and appropriate models for dichotomous ones. Appropriate tests were performed to select variables to be used in the final.

Simulation of Different Policy Scenarios

The broader question of this assignment is to get a holistic view of the impact of HIV/AIDS on economic growth as opposed to the sectoral impacts. Recent studies examined the impact of HIV/AIDS in aggregate production, with a variety of results. But the relationship between HIV/AIDS and aggregate output depends on a complex set of factors, such as demanding data requirements which are absent from aggregate analysis.

For instance there is difficulty of estimating reliable models in a situation of cross sectional or short non stationary time series data. Under these circumstances it is generally difficult to uncover the socio-economic impact of HIV/AIDS. Attempts to do so may lead to misleading conclusions about such important issues as the effects of the epidemic on social welfare effects and economic growth.

Due to these considerations, we conducted simulations to demonstrate importance of some of the sectoral findings. The findings serve to underline the point that the relationship between HIV/AIDS and socio-economic impact is considerably more complex than social interpretation would suggest. The impact simulations we consider are based on model estimates and their interaction effects for each cluster. Our simulations assume that the considered changes in determinant variables do not affect the model parameters or other exogenous variables.

3 LITERATURE REVIEW

3.1 Introduction

This section presents a review of the available literature on the impact of HIV/AIDS on households, productive sectors and the macro economy. Due to paucity of studies on Kenya, we extend the analysis to literature from all over Africa. The paucity of sector specific and nation wide studies on the impact of the epidemic in Kenya calls for more focused and comprehensive studies if the fight against the epidemic is to be won. The literature is structured as follows: The next section reviews literature on households, gender and children, section 3.3 reviews literature on productive sectors of the economy, namely transport and communication, agriculture, commerce and industry, governance, justice, law and order (GJLOS), health and education sectors. Section 3.4 reviews literature on the macro economic impact of the epidemic, while section 3.5 presents a summary of the gaps, types and quality of information available on socio-economic impact of HIV/AIDS in Kenya.

3.2 Impact on Households, Gender and Children

Though there are no systematic studies on the impact of the epidemic on households in Kenya, general literature concur that households bear the full impact of HIV/AIDS morbidity and mortality. The literature shows that the costs borne by a household due to prolonged illness include additional expenditures particularly on health, lost income, re-allocation of work and domestic responsibilities and lost days of work to care giving. It is inevitably the case that some households will be more able to meet these costs than others. As one would expect, those with fewest assets are the most vulnerable (Cohen, 2001). Households may also face problems of maintaining food supplies, in both quantity and quality. In many cases there will be decline of family incomes because of higher adult morbidity and mortality, and additional expenditures on health. Costs incurred from lost output vastly exceed the direct costs of health care, and it is these indirect costs which are the main source of the economic losses that are imposed on households by the HIV epidemic. The reduction in the working population due to HIV/AIDS could worsen the dependency ratio as more children and elderly people will have to be supported by a smaller active labour force (Cohen, 2001). Futures (1999) also cite studies in Tanzania, Côte d'Ivoire, Uganda, and Ethiopia that document the tremendous burden of income loss, large health care expenditures, and consumption of savings to pay for funeral and mourning costs. Carr-Hill et al., (2002) document the impact of HIV/AIDS on the epidemic as disintegration of social life and culture, declining standards of living, psychic costs resulting from death of spouse or parents and stigma attached to the disease. Similar sentiments were expressed by Booysen et al., (2004).

Haddad and Gillespie, (2001) reviews the potential pathways through which HIV/AIDS affects assets and institutions generally and the specific impacts on agriculture, natural resource management, food security, and nutrition. They note that HIV/AIDS not only impacts on agriculture and resource management through labour and knowledge losses and institutional weakening but also significantly impacts individuals and households, through accelerating the vicious cycle of inadequate dietary intake and disease, and through diminishing the capacity to ensure the essential food, health, and care preconditions of good nutrition. The authors recommend that new interventions to address the impact of HIV/AIDS should only be developed

if existing interventions are not effective. For instance, as labour becomes depleted, new cultivation technologies and varieties need to be developed that do not rely so much on labour, yet allow crops to remain drought resistant and nutritious. As knowledge becomes depleted, innovations such as farmer field schools have to emerge to facilitate the transfer of community-specific and organization-specific knowledge within generations and across them. The authors also argue that nutritional support has the potential to significantly postpone HIV/AIDS-related illness and prolong life. Appropriate community-based interventions aimed at improving the food, health, or care preconditions of nutritional well-being need to be designed through a participatory process of assessment, analysis, and action.

Yamano and Jayne (2004) find that there are important gender differences in the incidence of adult death. For instance, about half of the deceased working-age men were in the highest per capita income in a 1997 survey. Their findings were consistent with findings from earlier studies showing a positive correlation between male HIV infection and socio-economic status, such as education and income. Deceased working-age women were however distributed more evenly through all income quartiles. The authors concluded that the effects of HIV/AIDS mortality are sensitive to the gender and family status (whether household head or not). Coping mechanisms adopted by households include selling particular types of assets, mainly small animals (Yamano and Jayne, 2004). This would result into a reduction in the value of farm equipment, which would appear to contribute to the estimated short-term decline in farm production and exacerbate the households' longer-term ability to restore former production levels. The authors however say that HIV/AIDS has a negative impact on the net value of crop production, assets, and off-farm income only in the case of male head-of household mortality among relatively poor households, but not among the relatively well off households.

Although analysis of the impact of HIV/AIDS morbidity and mortality carried out by Rugalema (1998), is quite limited, the author supports findings by Yamano and Jayne (2004), and points out that the epidemic affects household production and also the asset base as households dispose off assets to pay for medical and other HIV/AIDS related expenses. In addition, the epidemic has led to the dissolution of households upon the death of parents as children are taken over by foster parents. This finding is supported by Futures (1999).

Ainsworth and Filmer (2006) analyzed the relationship between AIDS, orphanhood, poverty, gender and inequalities in children's schooling in Africa, Latin America, the Caribbean, and Asia using DHS data. The author's note that in many countries, AIDS has substantially increased the orphan rate. For instance, before the epidemic, the share of children 0-14 who had lost their mothers or both parents was about 1.9% in Kenya. The rate was basically unchanged as of the 1993 DHS (1.8%) but had risen to 2.7% in the 1998 DHS and to 3.8% in the 2003 DHS; a total increase of over 110%. They however note that though HIV/AIDS has increased the orphan rate, there is still substantial number of children who are orphans because of other causes. The authors further say that though HIV/AIDS is expected to affect schooling, and that countries most affected by the epidemic have the lowest enrollment rates in the world, there is low correlation between adult HIV prevalence and enrollment across countries. In addition, the authors found that though sometimes orphans have lower school enrollment than non-orphans, in many

countries, the difference is often small and insignificant. Two-parent orphans were however found to have significantly lower enrollment in Kenya among other countries. Ainsworth and Filmer (2006) further argue that orphans are mostly taken care of by the surviving parent or a close relative, though there are still cases where they are taken over by foster homes. Specifically, the authors found that paternal orphans are likely to live with their mother, but maternal orphans are much less likely to live with their father. This finding differs with our finding that upon the death of the father, the family is likely to break up, but this is not the case upon the death of a mother. However, the study by Ainsworth and Filmer (2006) does not indicate where the child and mother live after death of the father and whether it is in the paternal home or not. They also found that close to half or more of two parent orphans in East African countries were grandchildren of the head of the household, while at least 10% of the two-parent orphans aged 7-14 lived in a household headed by a sibling. They do not uncover any significant difference in fostering of orphans by poor and non-poor households. Though the study uses DHS data for 102 countries, this study does not disentangle the socio-economic impact of HIV/AIDS and other factors on orphans in any of the countries, because of the difficulties of isolating orphans due to the epidemic and other causes because the DHS data does not indicate the reason for orphanhood. In our study, we disentangle orphans due to HIV/AIDS and other causes and this probably explains why some of our results differ from Ainsworth and Filmer (2006).

To cope with the epidemic, households fallback on a number of coping strategies. In reality, none of these mechanisms allows a household to adequately cope with the ravages of the HIV/AIDS epidemic. Most of the coping strategies are short-term responses to the need for funds, but these strategies may reduce the income or survival prospects in the longer run and thus exacerbate the cycle of poverty (Negin, 2005). The literature concurs that responses include: selling assets; utilizing savings; borrowing funds; reducing leisure time by working more in the fields; seeking labour sharing with other households; reducing the quantity of land worked or leaving some land fallow; dissolution of households by sending children to live with relatives or in foster homes; older daughters may be married off for bride dowries in times of financial stress such as after the death of the head-of-household" in order to accumulate needed assets; withdrawing children from school (Yamano and Jayne, 2004; Rugalema, 1998; Futures, 1999; Negin, 2005). These findings concur with results from our survey.

3.3 Impact on Sectors

Transport and Communications

There is paucity of information about the impact of HIV/AIDS on the transport and communication sector. Furthermore, heterogeneity and complexity of the sector makes it difficult to study the sector, calling for a comprehensive study design for the whole sector if one is to document the real impact of HIV/AIDS on the sector, including ground, air and water transport. Current studies are isolated and limited in scope and coverage (see MoTC, 2004). The Ministry of Transport and Communications (MoTC, 2004) conducted a study to analyse the response and activities of MoTC, NGOs and other public and private institutions actively involved in the transport sector to HIV/AIDS in Kenya. The study methodology included reviewing of documents from relevant organisations and also conducting informal interviews with stakeholders. The study targeted truck-drivers, railway workers, airline workers, road workers, and shipping service workers, who are bridges to the general population. This study

documents the number of institutions (including private, public and international NGOs and donors) that are directly involved in dealing with HIV/AIDS in the transport sector. The key finding of the study is that prevalence of HIV infection among employees in the transport sector is increasing, yet there is little health service coverage for the transport sector employees. The study also found that the most mobile employees and their sex workers lack social and legal protections and that sex workers are often harassed and abused by police.

The study found that for institutions linked to the transport sector which have participated in efforts to prevent or control HIV/AIDS, the response has ranged from awareness workshops to integrating HIV/AIDS as part of their employee programmes. In addition, NGOs and a large number of donors have developed programs for prevention and control in the transport sector. Most activities are concentrated along Mombasa-Busia highway and most interventions to deal with the epidemic in the sector are externally financed through international aid money. This increases the risks of donor dependence and inability to continue with the interventions in the absence of donor funding. The study does not directly address the impact of HIV/AIDS on the sector.

The Ministry of Transport, NACC and NASCOP undertook a study on the levels of transactional sex, HIV related prevention and treatment facilities/resources and programmatic responses targeting vulnerable groups on the Northern Corridor highway from Mombasa to Kampala (NACC, 2005). The study found 47 significant hot spots of transactional sex on the corridor, with about 3,066 trucks parked overnight and approximately 8,000 female sex workers plying their trade. About 60% of bars and lodgings on the Corridor distributed about 90,000 condoms per week. The study found that on the appearance of STI symptoms, 41%, 27% and 19% of the transport workers sought medical treatment at private facilities, government facilities and pharmacies respectively. The study also found that there were several programmes that had elements directly targeting truckers and sex workers at the specific hot spots on the highway. However, coverage was quite low for sex workers and few truck drivers were involved in HIV/AIDS prevention and care activities or had knowledge of them.

There were several key findings from this study. First, there were considerable numbers of vulnerable populations (truck and sex workers) on any given night at the 47 hotspots. Second, there were between 5 and 10,000 primary infections in a year on the corridor. Third, there 66% of the primary infections could be prevented with increasing overall condom use. Fourth, programs and sexual health services exist but are insufficient in terms of coverage and lack appropriate service delivery. Though the hot spot mapping study uses a rich data base and methodology to address the issue of HIV/AIDS transmission, prevention and treatment, it does not address the social economic impact of HIV/AIDS among truck and sex workers. There is therefore still a knowledge gap on how the epidemic has impacted on the sector and this needs to be investigated through further research.

Cohen (2001) concurs with the Hot Spot mapping report and MoTC, (2004) on findings and the general view that the transport sector seems to play an important role in the spread of HIV. He reviews various studies that have looked at the role of truck drivers, both in Africa and in Asia, in the spread of HIV. He concludes that that HIV seems to cluster in the main transport hubs of a country: major ports, communities that are important truck stops, and along main highways. This

view is supported by other studies in Africa. For instance, Futures (1999) says that building and maintaining a transportation infrastructure often involves sending teams of men away from their families for extended periods of time, increasing the likelihood of their having multiple sexual partners. The people who operate transport services (truck drivers, train crews, sailors) spend many days and nights away from their families and are all vulnerable.

Small holder Agriculture

The effects of HIV/AIDS on small holder agriculture can be transmitted through impact on household productive capacity such as labour quality and quantity, depletion of the asset base and loss of agricultural knowledge, practices and skills. There is however a dearth of empirical studies to document the extent and significance of this impact of HIV/AIDS on agriculture. However, the few available studies indicate that the epidemic has serious implications on food availability and access through changes in land use, crop yields, livestock production, cropping patterns and marketed produce, the degree of reliance on purchased inputs and changes in the degree of the market orientation of farm households. The studies argue that HIV/AIDS constitutes more than a threat to household food security and can create livelihood crises among rural households (Topouzis, 2000).

The Ministry of Livestock, Fisheries and Development (MoLFD, 2005), conducted a study on the impacts of HIV/AIDS on pastrolism in the three districts of Wajir, Marsabit and Kajiado in Kenya based on review of existing literature and primary data collected from households, opinion leaders and key informants at the community level. Also, a stakeholders' analysis and an organisational capacity assessment were carried out with a view to establishing the capacity of stakeholders and organisations to deal with HIV/AIDS. The study found out that pastoral communities were struggling with such unprecedented problems as child-headed households, declining livestock numbers and assets, labour migration, increasing destitution and higher disease incidence, all symptoms and probable causes of increased vulnerability to HIV/AIDS. While this study focused on social aspects, it fell short of adequately documenting the socio-economic impacts of HIV/AIDS on pastoral communities. In a related study MoLFD (2005b) points out that the impact of HIV/AIDS is being felt both directly and indirectly in many aspects of the farming systems with its impact being more directly evident where the epidemic is seen at an advanced stage of its development. In some instances it was found that there is a tangible though not necessarily quantifiable effect on farming systems. According to the report, the direct impact of the HIV/AIDS epidemic includes impacts on labour, crop production, livestock, agricultural extension services, loss of knowledge and skills and at personal level, the trauma associated with death in cases associated with HIV/AIDS. Further, the direct costs and impacts on smallholder agriculture have far reaching consequences, for both the household and community food security, nutritional and health status of smallholders. Other consequences include decline in educational status as children are forced to leave school and changes in the social system as households adapt to the impact of HIV/AIDS.

In another study the MoLFD (2004) analysed the impact of HIV/AIDS on the fishing sector. In addition, the study assessed how the government through the MoLFD and other stakeholders could respond to the epidemic. The study was carried out in 45 villages/beaches in Nyanza, Rift Valley and the Coast provinces. Consultations with and assessments of the MoLFD, its parastatals and private sector stakeholders were also undertaken. The results showed that the

impact of HIV/AIDS was felt across a large population especially in the western part of Kenya. In particular, individuals in the sample areas were reported to have more than 50% of their friends/relatives affected by HIV/AIDS. The immediate impact of HIV/AIDS was found to be loss of labour, orphanage of children, loss of income and social exclusion of the affected and infected. Among others, the study recommended mainstreaming of HIV/AIDS into the policy agenda of the fisheries sector, scaling up programmes for HIV/AIDS prevention and income generation activities and raising awareness amongst key stakeholders. The study makes an important contribution given the high levels of vulnerability of the sector to HIV/AIDS and paucity of impact assessment studies on the sector.

Yamano and Jayne (2003), estimate the impact of adult mortality between the ages of 15 and 59 on household composition, crop production, asset holdings, and non farm income using nationwide household survey data in rural Kenya using a two-year panel of 1,422 households in 22 districts surveyed in 1997 and 2000 to estimate ‘‘difference-in-differences’’ models of outcomes at the household level. They find important gender and status differences in how adult mortality affects households’ size and composition, crop cultivation patterns, agricultural output, and off-farm income. Specifically, they found that the effects of adult death on crop production are sensitive to the gender, position, and age categorization of deceased members. The gender of the deceased adult affects the type of crop suffering a shortfall, with grain crops being adversely affected in the case of adult female mortality and ‘‘cash crops’’ such as coffee, tea, and sugar being most adversely affected in the case of adult male mortality. The findings concur with earlier findings by Haddad and Gillespie, (2001). Yamano and Jayne (2003), however acknowledge that they only measure the short-run effects of HIV/AIDS adult mortality on selected aspects of rural household welfare but the full long-run effects of adult deaths on households remain unknown. The study does not address the impact of HIV/AIDS adult morbidity and both mortality and morbidity among children. Although our study captures the impact of both morbidity and mortality, we are also not able to analyze the long-run impacts of the disease because this would need panel data to track affected households over a long period of time.

Aliber et al., (2006) and Aliber and Walker (2006) examined the impact of HIV/AIDS on land tenure using case studies taken from rural Kenya. The studies found that HIV/AIDS can aggravate the vulnerability of widows and orphans to tenure loss, but that the link between HIV/AIDS and tenure insecurity is not as expected, probably due to existing statutory tenure systems. The study also found that threats to tenure security do not necessarily or even usually result in actual, sustained loss of land rights. The study found little or no evidence of distress sale of land as a direct consequence of HIV/AIDS. This finding differs with our own result that households result to sale of assets including land in order to cover costs of HIV/AIDS mortality and morbidity. The authors however caution that their findings do not diminish the severity of the socio and economic impact of HIV/AIDS, but caution should be against focusing only on HIV/AIDS as the only threat of tenure security. However, HIV/AIDS is found to adversely impact on social capital, i.e., the ability to marshal support from community members and leaders against a threat to one’s tenure.

Evidence from Tanzania, Ethiopia, Malawi and Zimbabwe also shows that AIDS will have adverse effects on agriculture, including loss of labour supply and remittance income. Loss of agricultural labour also causes farmers to switch to less labour-intensive crops and from export crops to food crops (Memfih 2005). These findings concur with Yamano and Jayne (2004) and Negin (2005) who report that the death of a male household head leads to a fall in value of the household's crop production and a drastic reduction in the production of cash crops. Consequently, the impact on income and health keeps households mired in a cycle of poverty and illness. Carr-Hill et al., (2002) also show that HIV/AIDS has affected the agricultural sector in Kenya. The authors report estimates which indicate that cumulative cases of AIDS in the agro-estates accounted for 30%, 12% and 3% in Nyanza, Rift valley and Eastern provinces of Kenya respectively, in terms of the work force. Similar impacts were felt among both small holder cane growers and in sugar estates.

Commercial Agriculture

Like the small holder agriculture, commercial agriculture may suffer through increased expenditures and decreased revenues resulting from: absenteeism, medical and funeral costs, recruitment costs, training costs and productivity loss after training. The degree to which the commercial agricultural sectors are being adversely affected by HIV/AIDS however depends on a wide range of factors, including the labour intensity, the level of skilled labour necessary for production and the level of benefits offered to employees (Topouzis, 2000). The author reports results of HIV/AIDS simulations which indicate that the agricultural sector in Kenya will suffer disproportionately, relative to the industry and service sectors, with the highest total production loss.

Fox et al. (2003) assessed the impact of HIV/AIDS on labour productivity based on data collected from tea estates in Kericho, Kenya. The study compared health workers to workers who left the company due to HIV by comparing retrospective measures of output for several years before the exit. The study population consisted of 271 tea pluckers, of whom 54 died of AIDS-related causes or were retired on medical grounds due to HIV/AIDS. To measure productivity loss, the authors compared amounts of tea plucked per day by cases to the daily amounts plucked by controls. They excluded observations for days on which a case was absent or was assigned to non-plucking tasks. They then computed weekly means for each plucker for the entire time period of observation. The impact of HIV/AIDS was assessed on four measures of productivity: work output (amount of tea leaf plucked) per day; number of days of paid and unpaid leave; number of days of "day labour" or light duty; and total earnings of the individual worker.

The study found that as many as three years before death, farm workers with HIV/AIDS were absent from the job more often, could not maintain their output when on the job, and were more often shifted to less strenuous (and less productive) duties. The study also found that relative to other tea pluckers, in his/her last 365 days on the job, a tea plucker who eventually died of an AIDS-related condition was absent from work more, spent more days on light duty and produced less than the other pluckers. The authors concluded that though the sick become much sicker over the course of their last year, the absolute magnitude of the loss of output and attendance was not larger than in earlier years. The workers however earned only 16-18% in the last 2 years before termination of the job, and also chose to do less demanding tasks.

The key issue with this kind of analysis is that one cannot compare retrospective data for which there are no relevant socio-economic factors as this would introduce bias on the estimated impact. Nevertheless, our study was not able to penetrate the tea estates because the managers refused to be interviewed and so we are not able to measure the impact of HIV/AIDS on tea pluckers.

Rugalema (1998), analyzed the impact of the relationship between excess morbidity and mortality due to HIV/AIDs and profitability of the commercial agricultural sector in Kenya, focusing on costs imposed on agro-estates by the epidemic. The study focused on agro-estates in Nyanza and Eastern provinces but also interviewed some smallholder producers in the same region. The study found that HIV/AIDS has a significant social and economic impact on agro-estates through increased medical and funeral expenses; increased employee turnover; absenteeism from work; financial and psychological effects of pro-longed illness and death on the workforce and the resulting impact on morale and productivity. Other impacts include loss of skills and experience, leading to falling standards and declining profits resulting from rising costs and declining labour productivity.

The study by Rugalema (1998) is quite dated, almost 10 years old and cannot be generalized for all agro-estates given the number and geographical concentration of the estates in the sample. In addition, the study does not seem to have carried out a comprehensive analysis of the impact on both the commercial and small holder agriculture. Though the reader gathers that the study used descriptive analysis, the report is silent on the methods of analysis employed to capture the impact of the epidemic.

Commerce and Industry

Literature on the impact of HIV/AIDS on firms in Kenya is also scanty. No comprehensive study has been conducted on specific firms but a few studies have cited case studies of the impact on commerce and industry. For instance, (Bollinger, 2002), notes that the impact of HIV/AIDS on trade and commerce sectors could be substantial, in turn affecting economic and social development. By increasing unit labour costs and decreasing investment flows, HIV/AIDS may affect a country's international competitiveness. Cohen, (2001), also notes that all industries will be affected by the HIV epidemic, directly through their labour supply, and indirectly through re-allocations of demand, as consumers allocate more of their income to health expenditures. These studies suggest that much of the labour affected by HIV/AIDS is skilled, and reflects a major investment on the part of the State and individuals. In the case of the business sector, there will be a rise in labour costs as productivity declines due to higher morbidity and increased absenteeism, and additional training costs will be incurred as labour turnover increases. The Brookings Institute (2001) argues that despite the dearth of data, there is some evidence that AIDS is already increasing the cost of doing business. It is, in effect, a payroll tax, as companies pay direct costs for treatment of sick employees and more expensive health and insurance benefits, as well as the indirect costs of lower productivity, absenteeism and increased recruitment and training costs for replacement staff.

Evidence from Botswana, Kenya, Zimbabwe, Zambia, South Africa and Uganda shows that AIDS can have a significant impact on some firms through increased expenditures for health care costs, burial fees, training and recruitment of replacement employees. Revenues may also decrease because of absenteeism due to illness or attendance at funerals and time spent on training. Labour turnover can lead to a less experienced labour force that is less productive (Memfih, 2005). Carr-Hill et al., (2002) also concur that the key impact of HIV/AIDs on firms is through the labour market where firms lose experienced labour force resulting to loss of productivity. There is also loss of human capital embodied in the workforce as trained, skilled and talented workers die at a prime age

There is paucity of information on the impact of HIV/AIDS on the tourism sector in Kenya and other African countries. We are only aware of one study carried out by the Ministry of Tourism and Wildlife (MOTW) focusing on key tourist destinations in the National parks and Coastal regions of Kenya. The study, (MOTW, 2004), interviewed 299 hotel workers and managers with consultations with the MoTW and its parastatal organisations and private associations. The study found that the main impact of HIV/AIDS on the industry is through absenteeism of workers, loss of labour, increased training costs and lower performance levels. Increased cost of health care was also mentioned as an adverse impact of HIV/AIDS on the tourism sector. To deal with the epidemic, the tourism industry has undertaken measures focusing on prevention (awareness) and care (clinical). The study also found that the communities in tourist destinations as well as the informal sector related to tourism (commercial sex workers, beach operators, curio sellers *etc*) are highly vulnerable to the impact of HIV/AIDS. This study captured the main areas of tourism in Kenya, but its focus on only hotels in National parks and the Coastal region, left out some important tourist destinations, such as Nairobi and other major towns where both local and international tourism is at play.

Another study that touches on the tourism sector in Africa is by Cohen (2001), who argues that countries dependent on tourism for employment and foreign exchange are extremely vulnerable from the erosion of their labour supplies; a re-ordering of domestic demand priorities as incomes are constrained by HIV and demand shifts as foreign tourists seek out what they consider to be less risky destinations. Cohen cites an example of Kenya and Thailand, where evidence suggests that delay in establishing policies for HIV prevention clearly owed much to concern that tourists might go elsewhere.

Governance, Justice, Law and Order Sector (GJLOS)

GJLOS is perhaps one of the sectors that is understudied, yet it is estimated that some of the highest HIV prevalence rates are found in this sector. Members of the disciplined forces are often young, sexually active adults who live away from their families. HIV/AIDS deaths of the most experienced members of this group have the potential to disrupt the smooth functioning of all concerned units, threatening stability and security (Futures, 1999). Schneider and Moodie (2002) indicate that African armed forces have been found to have rates of HIV infection two to three times higher than those of the civilian population. They say that the disease is dissolving command structures, killing experienced officers and is being spread by warring armies, peacekeepers and demobilized soldiers. By killing large numbers of experienced workers and people in the prime of life, AIDS is decimating civil servants, police forces and national institutions and posing a fundamental threat to community and social cohesion. They cite

examples from South Africa where they say that one in seven civil servants were thought to be HIV positive in 1998, and Kenya where AIDS was estimated to account for 75% of police deaths in 1999-2000. The authors argue that this has a serious impact on the police and judiciary- and thus on law and order.

Health Sector

The limited literature that has addressed the impact of HIV/AIDS on health systems show that there is an increased demand for health services as a result of the epidemic. The epidemic is crowding out patients suffering from other conditions. Health service providers at public facilities are overburdened and require additional skills to deal with the changing disease burden. Simultaneously, the epidemic is decreasing the number and productivity of health service providers as they are lost to their own illness and death as well as factors such as stress and demands from family members who die from the disease (Tawfik and Kinoti, 2003). The authors also found that HIV/AIDS affects the performance of health systems by increasing demand for services in both quantity and complexity and by reducing the supply of services by its impact on the numbers and performance of the health workforce. These processes lead to increased costs to the health sector. Similar findings are suggested by the Centre for International Economics (2002). Futures (1999) notes that AIDS will affect the health sector for two reasons: it will increase the number of people seeking services, and health care for AIDS patients is more expensive than for most other conditions.

Education

Available literature suggests that HIV/AIDS directly affects the education sector in at least three ways: the supply of experienced teachers is reduced by HIV/AIDS-related illness and death, children are kept out of school if they are needed at home to care for sick family members or to work in the fields, and children drop out of school if their families cannot afford school fees due to reduced household income as a result of an HIV/AIDS death.

Carr-Hill et al., (2002) analyzed the impact of AIDS on the education sector with a focus on the demand for and supply of, and the management and quality of education. They argue that AIDS will impact on school enrolment because relatively fewer children are born and also due to inability to pay for children's education, while children orphaned by AIDS are falling behind in their primary education due to drop out and repetition. In addition, the number and availability of teachers is affected by the epidemic. The quality of learning outcomes and education is likely to be affected by increased cases of teacher absenteeism, and loss of teachers, education officers, inspectors, planning and management personnel. These findings support an earlier study by the Centre for International Economics (2002), which focused on the macro economic impact of the epidemic. The findings find support in Booysen et al, (2004) who analyzed the impact of socio-economic impact of HIV/AIDS on Households in South Africa.

3.4 Macroeconomic Impact of AIDS

The macroeconomic impact of AIDS is difficult to assess. Most studies have found that estimates of the macroeconomic impacts are sensitive to assumptions about how AIDS affects savings and investment rates and whether AIDS affects the best educated employees more than others. The magnitude of the impact also depends partly on the structure of the economy. There are several

mechanisms by which AIDS affects macroeconomic performance: AIDS deaths lead directly to a reduction in the number of workers available. A shortage of workers leads to higher wages, which leads to higher domestic production costs. Higher production costs lead to a loss of international competitiveness, which can cause foreign exchange shortages. Lower government revenues and reduced private savings (because of greater health care expenditures and a loss of worker income) can cause a significant drop in savings and capital accumulation. Reduced worker productivity and investment leads to fewer jobs in the formal sector (Bollinger, 2002).

The literature shows that all sectors of the economy will feel the impact of the epidemic and will inescapably have to incur additional costs: economic, social and psychological. For instance, the Government as an employer will be affected. Its current expenditures will in general be raised by HIV, especially on health, and it will also need to increase budget allocations to deal with increasing numbers of orphans and an intensification of poverty. It will also need to spend at a higher rate to replenish the losses of human resources caused by higher adult mortality. The economy will also be affected by HIV through the effect on the volume and uses of savings. For a developing country, the quantity of savings available, and how these are employed will determine the rate of growth of GNP (Cohen, 2001). Cohen however notes that the worst effects on the economy's performance come when HIV primarily affects the supply of skilled urban workers and that “the impact on the economy is devastating: the growth rates of saving and investment fall sharply, leading to a steep decline in GDP growth rates. The decline in real output growth is accompanied by a deterioration of the competitiveness of the economy in international markets, which is reflected in the falling growth rates of exports, and a movement towards current account problems".

Haacker, (2004) supports these arguments and says that the impact of HIV/AIDS can be divided into three broad categories: the demographic impact of the disease, impact on government finance and public services and macroeconomic impact. Through increased dependency ratio, rising health expenditures, lower income generating potential and savings among households, private firms and businesses, as well as lower productivity and increased costs due to HIV/AIDS related absenteeism, sickness, death and recruitment costs, the epidemic limits scope for expansion of domestic investment and foreign direct investment. The combined impact of the epidemic through the impact of households and all sectors translates into poor macro economic performance.

Negin (2005) also concur with these findings. He explored micro-level household analyses to determine a more accurate measure of the effect of the HIV/AIDS epidemic on the future of African growth. He found that the effects of HIV/AIDS on a population’s welfare include not only the effects on GDP per capita and household income but also that the epidemic is destroying the fabric of African society in the most affected countries as mortality rates, orphan numbers, dependency ratios, and other sources of social pressure rise to unprecedented levels.

A World Bank study (Oyer, 1992) examined the macroeconomic impact of AIDS in 30 sub-Saharan African countries. This study concluded that the net effect is likely to be a reduction of the annual growth rate of GDP by 0.8 to 1.4 percentage points per year and a 0.3 percentage point reduction in the annual growth rate of GDP per capita. Hancock et al. (1996) in a study of the impact of AIDS on the economy of Kenya projected that GDP would be 14 percent lower in

2005 than it would have been without AIDS, while GDP per capita would be 10 percent less in 2005. Other studies in Tanzania, Cameroon, Zambia, Swaziland, Kenya, and other sub-Saharan African countries are cited to have found that the rate of economic growth could be reduced by as much as 25 percent over a 20-year period.

Were and Nafula (2003) explore the channels through which HIV/AIDS affects economic growth in Kenya. The authors use the KIPPRA-Treasury macro model to simulate the impact of HIV/AIDS on the country's economic performance at the macro level. In exploring the mechanism by which HIV/AIDs affects growth, they focus on several channels namely: human and physical capital, investments and savings, social capital, gender, productivity, labour, manufacturing firms and agriculture. The key link between AIDS and economic growth in the short run is through productivity measures and how productivity impacts on economic growth. Based on the estimate of 1.2 million people in wage employment in the private sector in 2001, Were and Nafula predicted a 7.5% loss in productivity. In addition, the authors also predict a 7.5% reduction in value added per worker. The impact of a reduction in labour productivity by 8% was estimated to lead a decline in the growth in volume of investments, exports and consumption by -1.8%, -4.5% and -2.5% respectively, GDP growth rate by -2.6 percentage points. The authors however predicted that the real GDP per capita would decline by about 3% between 2001 and 2002 but assuming a population growth of 2.3%, fall by about 10% in 2006.

One major challenge of the paper by Were and Nafula (2004) is that it predicts a positive impact of HIV/AIDS on GDP resulting from increased health expenditures. However, this would be at the expense of household and firm incomes as these are the key financers of the health expenditure, yet the impact of firms and households is not analyzed. The economic impact of HIV/AIDS is also analyzed in terms of its effects on determinants of economic development. As the author's rightly acknowledge, one of the major challenges in this type of analysis is that the impact of HIV/AIDS is multifaceted, with effects both in the short run and long run. In addition, there seems to be a two-way causal relationship between HIV/AIDS and growth, resulting in a vicious development cycle, yet this link is not explored[1]. Use of the System of National Accounts (SNA) data in this case also suffers from the paucity of quantitative micro-level information on how HIV/AIDS morbidity and mortality affect household behavior and indicators of welfare such as farm production, income, and asset levels

3.5 Overview of Literature

This section presents a review of literature on the impact of HIV/AIDs on various sectors in the country. The review has focused on the studies on the socio-economic impact of HIV/AIDS in Kenya and other African countries, focusing on households, sectors and the macro economic studies. The literature generally indicates that the channels through which HIV/AIDS affects the economy are the same across many African countries but the impact may differ depending on the socio-economic characteristics of the country or studied population, the prevalence of HIV and also how affected countries have responded to the epidemic. The literature also highlights that the key impact of HIV/AIDS on the macro economy is through labour loss and declining productivity, both at the household and sectoral levels. Falling labour productivity increases

[1] Increased wealth due to growth may lead to increased HIV/AIDS cases, but the higher HIV/AIDS prevalence rates may then limits growth through loss of labour productivity, incomes and savings.

costs to both households and firms, leads to a loss of income and savings and therefore investments, all which impact negatively on economic growth. Some studies have also documented the coping mechanisms adopted by households and firms to cope with the epidemic as well as how governments have responded to the problem. The findings in the literature from all over Africa are supported by our own study findings and also from the few isolated studies from Kenya.

The review shows that though there have been a few studies documenting the impact of HIV/AIDS on various sectors in Kenya, most of these are isolated case studies and there is no comprehensive study integrating impacts of HIV/AIDS, labour market and gender concerns. In addition, these studies have not been channelled through the government, but are either by individual consultants, researchers and even institutions. Other studies have focused on other aspects of HIV/AIDS, such as drivers and transmission mechanisms (see for instance, Njeru et al., 2005). Other views are expressed in policy documents by different government ministries and institutions such as NACC. For any meaningful study to generate policy, the government needs a central pool of information and should therefore commission studies especially in complex sectors such as the GJLOS and the Transport and communication sector. For instance, the transport and communication sector is very huge and it is not possible to cover all sub-sectors unless a sector specific study is undertaken. This is the same case with the GJLO sector. We recommend that specific studies targeting these sectors be commissioned. In addition, there is need for a multi-sectoral approach to HIV/AIDS and reduced productivity involving all development sectors as well as more extensive, well-coordinated and standardized data collection. Literature suggests that there are long term impacts of the epidemic on the welfare of households and communities through loss of labour and earnings, declining productivity and food security as well as a high cost to society through orphanage of children, and other changes in the social system. The studies from Kenya also concur with studies in other African countries such as Uganda, Malawi, Botswana, Benin and South Africa (see for instance Negin, 2005; Kormawa, 2005, Carr-Hill et al., 2002 and Tawfix and Kinoti, 2003 among other studies).

In addition to the literature reviewed above, there are previous data bases that have HIV/AIDS related variables in Kenya, but these data are not comprehensive enough to analyse the socio-economic impact of HIV/AIDS. The data sets include the DHS (2003), data from sentinel surveillance, Lots Quality Assurance Sampling (LQAS) and Behavioural Surveillance Survey (BSS)[2]. Though the DHS survey is nationally representative, it is not suitable for analysing the socio-economic impact of HIV/AIDS because it did not collect data on incomes and expenditures. Instead the data contains a module on household assets such as ownership of bicycles, refrigerators, and radios e.t.c. Though economists widely use an index constructed from these assets as a measure of welfare, the index may not be a suitable measure when looking at the impact of HIV/AIDS because it is difficult to distinguish household that never had any assets and households that may have disposed off their assets due to the epidemic. Like the Hot spot mapping study, most of the other data bases are not nationally representative and were designed for monitoring HIV/AIDS infections and prevention programmes and are therefore also inadequate to assess the impact of HIV/AIDS.

[2] See NACC (2005) for an overview of these data sets.

4. SOCIO-ECONOMIC IMPACT ON HOUSEHOLDS, GENDER AND CHILDREN

4.1 Profile of Sampled Households

4.1.1 Household characteristics

Out of 1100 households that responded to the survey, 1017 responded to the question on whether or not the household had been affected by HIV/AIDS. This issue was addressed using a series of questions. First, the respondents were asked whether there was any member of their household who was too ill to work and on giving an affirmative answer, the nature of the illness. The responses were analyzed and tabulated by household characteristics including gender, marital status, religion, education, occupation and sector of employment and of the head. This section also tabulates household incomes by the HIV/AIDS status of the household.

Gender

Out of the 1017, only 201 households reported HIV/AIDS illness during the time of the survey. About 33% (340) of these households were female headed, compared to 67% (677) that were male headed. This implies that female headed households are more vulnerable to HIV/AIDS related morbidity and are also more likely to be taking care of HIV/AIDS infected persons than male headed households. 43 households reported a HIV/AIDS related death in the last 12 months, of which 53% were male-headed and the rest female headed (Table 4.1).

Table 4.1: Sex of household head by HIV/AIDS Status (%)

Sex	HIV/AIDS Status		
	Non-affected	Affected	Mortality (AIDS)
Male	72	47	53
Female	28	53	47
No. of households	773	201	43

Marital Status

Table 4.2 presents the marital status of the household head, cross tabulated by the HIV/AIDS status. The table shows that 69% of household heads from unaffected families were married, compared to 38% and 40% from households currently affected and households that reported a HIV/AIDS related death within the previous 12 months. A relatively higher percentage of widowed heads (47%) reported a HIV/AIDS related death within the last 12 months, compared to heads of unaffected households (13%). This probably implies that such heads may have lost a spouse to the scourge.

Table 4.2: Marital Status of Head by HIV Status (%)

Marital Status	HIV/AIDS Status		
	Non-affected	Affected	Mortality (AIDS)
Single	10	12	14
Married	69	38	40
Divorced	3	9	0
Separated	3	8	0
Widowed	13	30	47
Cohabiting	3	3	0
No. of households	787	202	43

Table 4.3: Marital Status of Head by HIV Status and sex of household head (%)

Marital status	Household HIV Status					
	Non-affected		Affected		Mortality (AIDS)	
	Male	Female	Male	Female	Male	Female
Single	6	21	0	16	11	30
Married	90	18	96	9	69	5
Divorced	0	10	0	16	0	0
Separated	1	9	0	9	0	0
Widowed	3	42	4	47	11	90
Cohabiting	0	0	0	2	0	0
No. of households	545	204	24	106	35	20

Gender desegregation of marital status shows that female household heads are more likely to be affected by HIV/AIDS than male headed households (Table 4.3). About 85% of all households living with an infected person are female headed while more male headed households reported a HIV/AIDS related death within the last 12 months. Majority of the affected female headed households were widowed (47% and 90% of households reporting morbidity and mortality respectively). Most of the affected male heads are married.

Religion

The study also sought to find out whether there is any relationship between the HIV/AIDS status and the religion of the household head (Table 4.4). The results suggest that of the households currently affected by the scourge, 57.1% were Protestants, while 56% of households reporting a HIV/AIDS related death were Protestants. Other religious groups reported lower percentages. However, we are quick to note that the data may not necessarily suggest that there is higher prevalence among a particular religious group. To make this conclusion, there is need to evaluate the relative sample differentials for different religious groups. For instance, considering

only Catholic based faiths, 22% of the households are currently affected compared to 20% and 11% of Protestants and Muslims respectively. Analysis by gender suggests that there are no clear gender differentials of the impacts of HIV/AIDS by religion (Table 4.5). However, most of the affected households are Protestants (57% for male heads and 47% for female heads). This is followed closely by Catholics (37% for male heads and 30% for female heads). A similar pattern is observed for households reporting morbidity.

Table 4.4: Religion of Household head by HIV/AIDS Status

Religion	Household HIV Status			Total
	Non-affected	Affected	Mortality (AIDS)	
Catholic	229	72	12	313
Protestant	404	117	24	545
Muslim	114	15	6	135
Other	9	0	1	10
No. of households	756	204	43	1003

Table 4.5: Religion by sex of household head and HIV/AIDS status (%)

Religion	Household HIV Status					
	Non-affected		Affected		Mortality (AIDS)	
	Male	Female	Male	Female	Male	Female
Catholic	30	31	37	30	39	22
Protestant	55	50	59	49	44	61
Muslim	14	19	3	10	11	17
Other	2	0	0	10	6	0
No. of households	530	205	86	115	23	18

Education

There is no clear pattern of the differences in HIV/AIDS status of the household head and the level of education. Table 4.6 shows that majority of households have an average of primary education (Std. 5-8) with 35%, 43% and 26% of heads from unaffected, currently affected and households reporting a HIV/AIDS related death, respectively. This is followed by secondary education (Form 1-4), with 27%, 26% and 28% for the three categories of status, respectively. The same is observed for the full sample with 36% and 27% of all household heads falling within the Std. 5-8 and Form 1-4 education levels respectively.

Table 4.6: Household Level of Education by HIV/AIDS Status

Level of education	Household HIV Status		
	Non-affected	Affected	Mortality (AIDS)
None	161	4	3
Pre-school	7	32	2
Std 1-4	66	3	9
Std 5-8	231	21	13
Form 1-4	209	77	13
Form 5-6	17	47	1
Diploma	47	2	3
University	23	8	3
Other	2	1	0
No. of households	763	195	47

Table 4.7: Household Level of Education by Gender (%)

Level of education	Household HIV Status					
	Non-affected		Affected		Mortality (AIDS)	
	Male	Female	Male	Male	Female	Male
None	16	35	14	19	9	5
Pre-school	1	1	0	2	9	5
Std 1-4	8	12	9	14	9	35
Std 5-8	30	27	45	38	26	25

The data suggest huge gender disparities in education attainment (Table 4.7). For instance, 28% of all female heads had no education compared to only 16% of male heads. In addition, only 26% of female heads had post primary education compared to 43% of male heads. Analysis of the level of education attainment by HIV/AIDS status does not portray any clear pattern of gender disparities by status. For instance, 75% female heads from unaffected households had up to standard 8 level of education compared to 73% and 70% in households reporting morbidity and mortality, respectively. For male headed households, heads with less education seem to be much more vulnerable, with 68% of affected households having none to primary education, compared to 55% of unaffected households and households reporting morbidity.

Occupation and sector of employment

The data suggests that individuals from households headed by self-employed persons are more likely to be affected (29%) than those from all other occupational categories (Table 4.8). This is followed by individuals from households headed by peasant farmers (18%) and retired workers (14%). Casual labourers are also vulnerable. A similar pattern is observed for households

reporting morbidity. The distribution of household heads across the various occupational categories may be attributed to differences in willingness to report presence of HIV/AIDS in a household.

Table 4.8: Occupation of household head by HIV/AIDS status

Type of occupation	HIV/AIDS Status*		
	Non-affected	Affected	Mortality (AIDS)
Peasant farmer	182 (18)	36 (15)	10 (10)
Large scale farmer	8 (1)	1 (0)	0 (0)
Fisherman	82 (8)	11 (5)	3 (3)
Self employed	182 (18)	69 (29)	11 (11)
Student	36 (4)	5 (2)	2 (2)
Professional in private sector	74 (7)	17 (7)	3 (3)
Professional in public sector	48 (5)	11 (5)	2 (2)
Other	23 (2)	8 (3)	5 (5)
Unemployed	39 (4)	11 (5)	3 (3)
Casual Labourer	52 (5)	25 (11)	3 (3)
Retired	234 (23)	32 (14)	9 (9)
Other	36 (4)	10 (4)	51 (50)
No. of households	996	236	102

*Percentages in parenthesis

Table 4.9: Sector of Employment of Household head by HIV/AIDS Status

Sector	HIV/AIDS Status*			Total
	Non-affected	Affected	Mortality (AIDS)	
Public	93 (13)	11 (6)	2 (5)	106
Formal private	106 (15)	18 (10)	6 (16)	130
Informal	494 (71)	145 (81)	29 (76)	668
Other		4 (2)	1 (3)	5
No. of households	693	178	38	909

*Percentages in parenthesis

Turning to sector of employment, the data support the analysis for distribution of HIV/AIDS related cases across different occupations. Table 4.9 shows that 74% of all household heads in the sample were engaged in informal sector activities, of whom 16% were from affected households. Of all affected households, 6% of the heads worked in the private sector compared to 81% who worked in the informal sector. Similarly, 76% of the heads from households that reported a death in the previous year worked in the informal sector.

Age Distribution

The age distribution of household heads by HIV/AIDS status is presented in Table 4.10. The tabulation suggests that HIV/AIDS prevalence was highest (35%) in households with heads aged 30-39 years. The same age category seems to be associated with the highest percentage (28%) of households reporting a HIV/AIDS related death. The pattern of this age category is closely followed by the 40-49 category with 29% and 16% of household heads reporting morbidity and mortality respectively falling in this age group. The data suggests that the age group 15-29 is less affected by the epidemic than the 30-39 age group.

Table 4.10: Age Distribution of Household Heads

Age (years)		HIV/AIDS Status			Total
		Non-affected	Affected	Mortality (AIDS)	
15-19	Frequency	4	0	1	5
	% within	0.5	0.0	2.3	0.5
20-24	Frequency	28	6	1	35
	% within	3.7	3.0	2.3	3.5
25-29	Frequency	90	11	8	109
	% within	11.7	5.4	18.6	10.8
30-39	Frequency	224	71	12	307
	% within	29.2	35.0	27.9	30.3
40-49	Frequency	186	59	7	252
	% within	24.3	29.1	16.3	24.9
50-64	Frequency	147	39	6	192
	% within	19.2	19.2	14.0	19.0
65+	Frequency	87	17	8	112
	% within	11.4	8.4	18.6	11.1
	No. of households	766	203	43	1012

Women of all ages are more likely to be affected by HIV/AIDS than their male counterparts. The incidence of HIV/AIDS among women has risen at an alarming rate. In 1997, for example, 41 per cent of HIV infected adults were women. By the year 2001, the figure had risen to 49.8 percent. An estimated 15 million women carried the virus, compared to 10.9 million men, in sub Saharan Africa at the end of 2001. It was estimated that in 2002, 1.4 million women in the age

bracket 15-49 years were affected in Kenya, compared to 0.9 million men in the same category (UNAIDS, 2002). It is also estimated that globally, women account for half of the 40 million people living with HIV/AIDS. In sub Saharan Africa, 58% of those living with HIV were women as of end of 2003.

Furthermore, more females are infected at younger ages than males. Available evidence shows that young women in the age group 15-24 are more than twice as likely to contract HIV as males in the same age group. The peak ages for AIDS cases are 25-29 years for females and 30-34 years for males. Most AIDS deaths occur between the ages 20-30 years for women and 25-35 years for men (Njeru et al., 2004).

Breaking down the age distribution by sex of the households shows similar patterns as for the overall sample, 56% of all male heads from affected households are aged between 30 to 49 years, compared to 64% of female heads. The differential is lower for households reporting mortality with 31% and 36% of male and female heads respectively reporting morbidity. The data suggests that there are no distinct patterns of the impact of HIV/AIDS across gender for the youth, but that more youth headed households reported morbidity than those that reported mortality (Table 4.11). Combining households reporting mortality and morbidity, more than half of the youth headed households were affected by the epidemic.

Table 4.11: Age distribution of household heads by sex and HIV/AIDS status (%)

Age-group	HIV/AIDS Status					
	Non-affected		Affected		Mortality (AIDS)	
	Male	Female	Male	Female	Male	Female
15-19	0	1	2	0	3	0
20-24	3	5	3	5	10	0
25-29	13	10	5	8	10	20
30-39	30	29	33	32	21	24
40-49	25	23	23	32	10	12
50-69	19	19	22	16	7	16
65+	9	12	13	6	38	16
No. of households	544	206	125	108	29	25

Household Welfare

To compute the average annual incomes of households in our sample, data was collected on all major sources of income, including both wage and self employment. The earnings from various categories were then summed up to obtain annual household income. The data shows that affected households have lower levels of income than unaffected households (Table 4.12). This is also the case for households that reported mortality within the last 12 months. In particular,

79% of all affected households reported an annual income of less than 15000, compared to 69% of household reporting mortality. Tests for equality of means indicate that the differences in incomes for affected (morbidity) and unaffected households are statistically significant at all conventional levels of testing. However, Levene's test for equality of variances suggests that the variances for annual incomes from different sources for the affected and unaffected households are statistically different. Tests for equality of mean incomes for households reporting mortality and unaffected households suggest that there are no differences in the mean incomes of the two groups. This result is also supported by tests for equality of variances of the distribution of the incomes, as well as non-parametric tests.

Table 4.12: Distribution of annual income by HIV/AIDS Status

Income levels	Household HIV status*			Total
	Non-affected	Affected	Mortality (AIDS)	
0 – 5000	365 (43.2)	106 (50.5)	24 (52.2)	495 (45.0)
5001 – 10000	194 (23.0)	60 (28.6)	6 (13.0)	260 (23.6)
10001 – 15000	100 (11.8)	20 (9.5)	3 (6.5)	123 (11.2)
15001 – 20000	67 (7.9)	10 (4.8)	1 (2.2)	78 (7.1)
20001 – 25000	23 (2.7)	6 (2.9)	4 (8.7)	33 (3.0)
over 25000	95 (11.3)	8 (3.8)	8 (17.4)	111 (10.1)
Total	844 (100)	210 (100)	46 (100)	1100 (100)

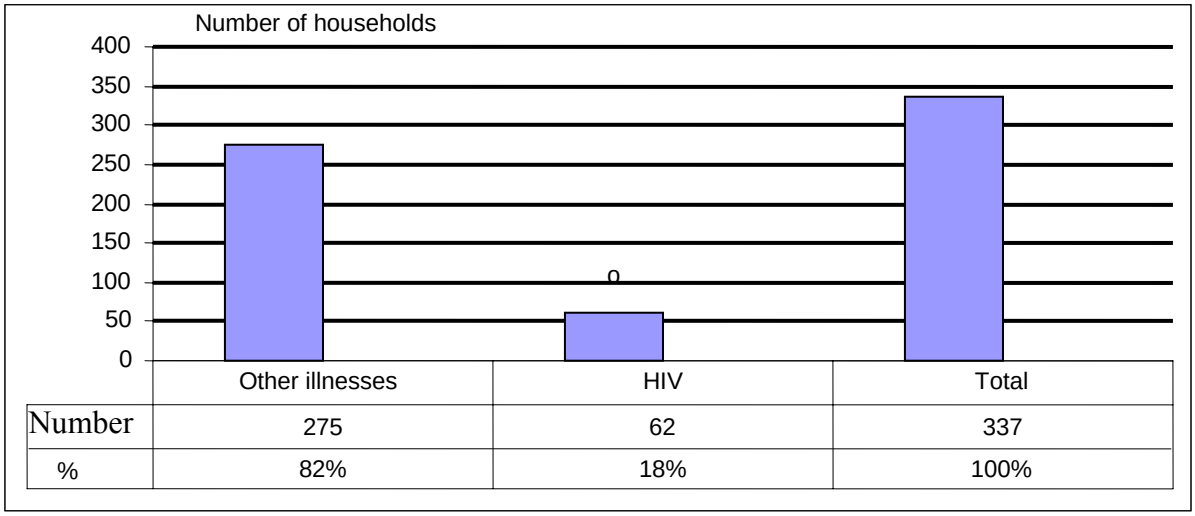
*Percentages in parenthesis

4.1.2 Household Health Seeking Behaviour

Morbidity

The survey sought to establish the extent of the disease burden among households included in the sample. To solicit this information, questions were asked about household members who had been too ill to perform their normal duties during the last 12 months. A total of 337 households reported having a household member been too ill to perform his/her duties in the past 12 months. About 48% of household members experienced morbidity episodes during the last twelve months. Illnesses that caused greatest concern were malaria, pneumonia, HIV/AIDS and fevers. The distribution of the nature of illness is shown in figure 4.1. The pattern of the morbidity reflected from the findings is similar to the national one, where malaria and respiratory diseases account for 50% of all reported diagnosis in government health facilities.

Figure 4.1: Households with a sick member too ill to work



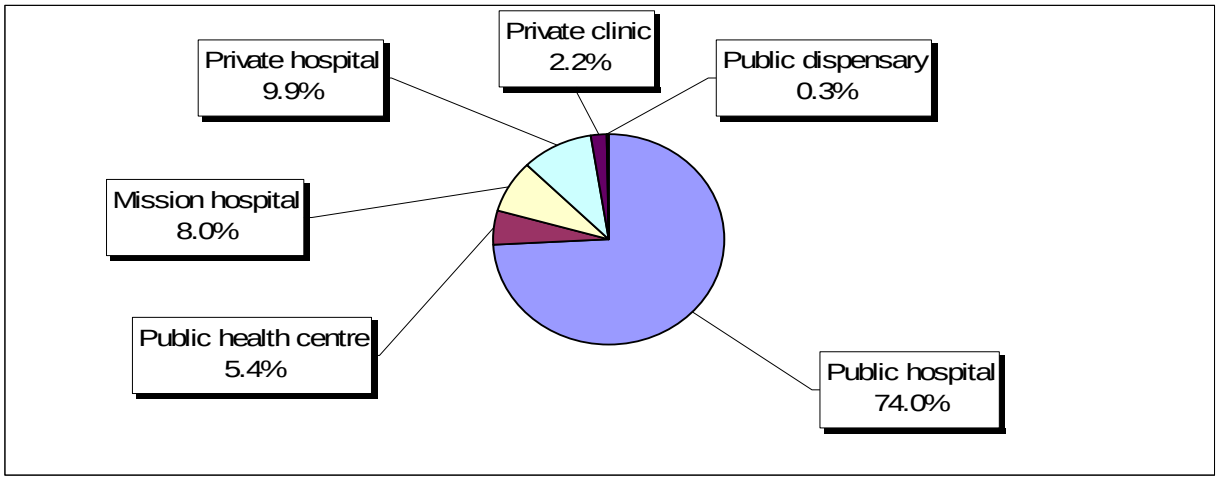
	Other illnesses	HIV	Total
Number	275	62	337
%	82%	18%	100%

With regard to the household members who sought medical care, the survey results demonstrate relatively high rates of health care utilization in general and for HIV/AIDS specific, with over 81% of individuals having made health-related visits to health facilities during the previous month. As a follow up to the above question, respondents were asked why the sick household member did not seek medical care. Those who did not seek medical care cited lack of funds to pay for medical care (41%) while another 41% felt that it was not necessary. Another 9% of the households cited distance to the nearest health facility as the main reason to seek medical care. It is imperative to note that the non-affected households visited health care facilities more frequently than the affected families probably reflecting the lack of both geographical and financial accessibility.

Hospitalization and Choice of Health Provider for Inpatients

The results revealed that majority (74%) of the households were admitted in a public hospitals, 5.4% in public health centres, 0.3% in health centres, 8.0% in mission hospitals while about 10% and 2.2% were hospitalized in private hospitals and private clinics, respectively (figure 4.2). In absolute numbers a total of 95 households reported that the cause of hospitalization was due to HIV/AIDS related illness.

Figure 4.2: Hospitalization by type of facility



Reasons for Choosing Health Provider

For the household members who usually sought treatment from public health facilities (hospitals, health centres and dispensaries), the main reasons cited included affordable fees for services (31%), shorter distance to the facility (19%) and reliable supply of drugs (17%). For the household members that used mission facilities the main reason cited included lower fees (2%) and reliable supply of drugs (2%). Similar pattern was reported by those seeking medical care from the private providers with 8% citing lower fees for services, reliable supply of drugs (7%) and proximity to the health facility (6%). In absolute terms the households that visited traditional healers/herbalists were relatively very few. Those using traditional healers cited similar reasons for choice of provider. Only 1.3% of the household reported having visited traditional healers and herbalists with 2.8% resulting to self medication. The reasons for choosing a particular health care provider are given in Table 4.13.

Table 4.13: Reasons for Choosing Health Provider

	Public facilities		Mission facilities		Private facilities		Traditional		Personal medication	
Reasons	No	%	No.	%	No.	%	No	%	No.	%
Relatively lower fees for services	501	31	40	2	44	3	8	0.5	10	0.6
Short distance	313	19	16	1	99	6	4	0.2	15	0.9
Reliable supply of drugs	284	17	28	2	106	7	7	0.4	15	0.9
No long queues	27	2	13	1	56	3	1	0.1	3	0.2
Availability of credit	9	1	4	0.2	19	1	1	0.1	4	0.2
N	1134	70%	101	6.2%	324	20%	21	1.3%	47	2.8%

Choice of Health Provider (Outpatient)

Turning to the results of the survey with respect to outpatient consultations, the findings show that majority of the households (41.6%) sought medical care (outpatient services) from public hospitals while 12.8%, 10.5% and 11% of the households indicated that they sought medical care for HIV/AIDS related illness from health centres, dispensaries and private hospitals, respectively (Table 4.14). Approximately 8.1% of the households said that they usually sought treatment from mission hospital. The proportion of those sought medical care from the private health clinics are higher than those who sought medical care from the private hospitals or mission facilities. Only a few of the households with an infected household member sought treatment from traditional healers or herbalists. 6.2% indicated that they usually sought medical care from chemists while only 0.5% said that they received treatment from traditional healers/herbalists.

Table 4.14: Facility visited during last illness

Type of provider	Frequency	Percent
Public hospital	250	41.6
Public health centre	77	12.8
Public dispensary	63	10.5
Mission hospital	46	7.7
Private hospital	50	8.3
Private clinic	66	11.0
Traditional medicine	3	0.5
Chemist	37	6.2
Herbal clinic	1	0.2
Other	7	1.2
Do not know	1	0.2
Total	601	100

With respect to the choice of health care provider among households with an HIV positive member and those without, the findings revealed that the majority (67.1%) of households with an infected member sought treatments from public health facilities compared to 37% of households who did not have an infected member (Table 4.15).

Table 4.15: Choice of health care provider for outpatient services

Type of health care provider	Household HIV/AIDS Status*			
	Non-affected	Affected	Mortality (AIDS)	Total
Public hospital	153 (37)	79 (48.2)	18 (75)	250 (42)
Public health centre	54 (13.1)	21 (12.8)	18 (75)	77 (12.8)
Public dispensary	52 (12.6)	10 (6.1)	2 (8.3)	63 (10.5)
Mission hospital	21 (5.1)	24 (14.6)	1 (4.2)	46 (7.7)
Private hospital	33 (8)	16 (9.8)	1 (4.2)	50 (8.3)
Private clinic	61 (14.8)	5 (3)	-	66 (11)
Traditional medicine	2 (0.5)	1 (0.6)	-	3 (0.5)
Chemist	33 (8)	3 (1.8)	1 (14.2)	37 (6.2)
Herbal clinic	1 (0.2)	-	-	1 (0.2)
Other	2 (0.5)	5 (3)	-	1 (0.2)
Did not respond	1 (0.1)	-	-	7 (1.2)
Total	413	164	24	601

* Percentages in parenthesis

4.2 Socio-Economic Impact of HIV/AIDS on Households

Introduction

The third strategic objective of the KNASP is to adapt existing programmes as well as develop innovative response to reduce the impact of the epidemic on communities, social services and economic productivity. This objective aims at contributing towards the achievement of ERS target of revitalizing productive sectors (agriculture, tourism trade and industry) and the MDG target of improving household welfare through fighting hunger, creating jobs and increased incomes. In this context, this chapter analyses the socio-economic impact of the HIV/AIDS epidemic on households, the coping mechanisms adopted by affected households and a critical evaluation of these responses in the light of achievement of the ERS, MDGs and the KNASP objectives.

This section presents the findings drawn from the data collected from households, making comparisons where possible between affected and non-affected households. The quantitative and qualitative results focus on: the impact of the epidemic on orphans, direct, indirect and total costs of morbidity and mortality to households; financial responses to changes in income and expenditure, including borrowing, the utilization of savings and sale of assets; loss of income by the affected households and caregivers; impact on consumption expenditure; coping strategies; and finally, labour supply, taking into account differences in household size and composition, stigma and discrimination.

In Kenya, HIV/AIDS-affected households are affected by illness, funerals, loss of physical assets, and unemployment. For these reasons, the analysis presented in this report places strong emphasis on the household-level microeconomic impact of HIV/AIDS. The microeconomic impact of HIV/AIDS is therefore important for several reasons. First, households are the first line of defence as the burden of HIV/AIDS is first felt by the affected households. Second, assessments of the macroeconomic impact of HIV/AIDS are widespread and make assumptions about the microeconomic building blocks that underpin the macro effects. There is less empirical evidence at the microeconomic level and specifically, the magnitude and mechanisms of household level effects.

4.2.1 HIV/AIDS and Children

Orphans and Vulnerable Children

Though HIV/AIDS affects all children economically, socially and psychologically, it has more adverse impacts on orphaned children than the other children. In this study, we investigate the impact of HIV/AIDS morbidity and mortality on orphaned children.

Table 4.16: Number of orphans by Household HIV Status

Category	Household HIV Status*			Total
	Non-affected	Affected	Mortality (AIDS)	
Maternal orphan	125 (41)	77 (45)	43 (57)	245
Paternal orphan	177 (59)	93 (55)	32 (43)	302
All orphans	302	170	75	547

* Percentages in parenthesis

The data shows that there were 547 orphaned children in the sample, 302 (55%) living within unaffected households, and 170 (31%) living in currently affected households and the rest 75 (14%) living in households that reported a HIV/AIDS related death within the previous 12 months (Table 4.16). Unaffected households therefore sheltered more orphans than affected households. Households reporting morbidity shelter more children who lost a father (55%) compared to children who lost a mother (45%). The reverse is observed for households reporting morbidity, which sheltered 57% and 43% of orphans who lost the father and mother respectively.

The cause of death of a mother is tabulated in Table 4.17 below. The table suggests that most mothers from all the three categories of households died of HIV/AIDS related illness. In particular, 44% of all mothers of orphans living within unaffected households died of HIV/AIDS, compared to 56% for orphans living within currently affected households and 23% living within households that reported a HIV/AIDS related death. Other major causes of death within affected households included malaria and other undisclosed illnesses.

Table 4.17: Causes of death of Mother (%)

Cause	Household HIV Status		
	Non-affected	Affected	Mortality (AIDS)
Accident	6	5	0
Pneumonia	1	5	3
Typhoid	4	3	0
Malaria	13	15	17
HIV/AIDS	44	56	89
TB	9	0	9
Witchcraft	3	0	0
Do not know	20	13	0
Total number of orphans	125	77	43

Like for mothers, the data suggests that most fathers died of HIV/AIDS and other undisclosed illness (see Table 4.18). Unlike the case of mothers, few fathers died of other opportunistic diseases (pneumonia, malaria and tuberculosis).

Table 4.18: Cause of Father's Death (%)

Cause of death	Household HIV Status		
	Non-affected	Affected	Mortality (AIDS)
Accident	14	1	0
Pneumonia	1	7	20
Typhoid	3	2	3
Malaria	13	16	17
HIV/AIDS	34	43	50
TB	5	7	7
Others	21	9	0
Do not know	17	15	3
No response	5	4	0
Total number of orphans	177	93	31

Care Givers

As expected, women are the main care givers for orphans (Table 4.19) irrespective of the HIV/AIDS status of the household. The highest proportion of women caregivers are however in unaffected household (98%) and households reporting morbidity (97%).

Table 4.19: Sex of person caring for orphans by HIV status of households

Care giver	Household HIV Status*		
	Non-affected	Affected	Mortality (AIDS)
Male	1 (2)	1 (3)	13 (52)
Female	42 (98)	28 (97)	12 (48)
Total	43	29	25

*Percentages in parenthesis

Other Impacts

HIV/AIDS sickness and death can have indirect impacts on children through withdrawal from school. Orphaned children are more adversely affected than children whose parent's are alive. Previous studies have established that orphans taken in by relatives are treated like second-class members of the family, discriminated against in everything from schooling to food, sometimes abused and often forced to work (Crawley, 2001).

In the household sample, 104 children were reported to be out of school due to HIV/AIDS sickness in the household, while 20 were reported to be out of school due to HIV/AIDS related death within the previous 12 months (Table 4.20). Young children (primary school age) are more likely to fall out of school than older children. In particular, 75% of all children dropping out of school due to morbidity within the household were in primary school. All children dropping out of school due to morbidity were at primary school.

Table 4.20: Number of children dropping out of School due to sickness

Level of education	Sickness				Mortality		
	Household HIV status				Household HIV status		
	Non-affected	Affected	Mortality (AIDS)	Total	Non-affected	Affected	Mortality (AIDS)
Primary	34	25	19	78	14	10	5
Secondary	12	8	6	26	-	-	-
Total	46	33	25	104	14	10	5

The reported reasons why children drop out of school are tabulated in Table 4.21. The Table shows that HIV/AIDS morbidity makes children from affected households more likely to fall out of school (36%) due to lack of fees than children from un-affected households (25%). Comparing the two groups, a lower percentage is however likely to fall out of school due to mortality in affected households. Other reasons why children fall out of school include lack of food, responsibility of looking after younger siblings, child labour and family members being unwilling to be supportive.

Table 4.21: Reasons for dropping out of school

Reasons	Sickness			Mortality		
	Household HIV status			Household HIV status		
	Non-affected	Affected	Mortality	Non-affected	Affected	Mortality
Lack of fees and other costs of education	14	20	3	12	8	4
Care for the sick	1	3	1	-	-	-
Sickness	6	1	2	-	-	-
Other reasons	0	3	1	1	2	1
Total	21	27	7	13	10	5

4.2.2 Impact of HIV/AIDS on Women

The survey revealed that about 87% of the households with PLWHAs required the assistance of a caregiver with only 13% of them indicating that they did not require the assistance of a care giver. On average one caregiver per PLWHA was required, with the caregiver spending 8 hours a day caring for the PLWHA. The survey findings further revealed that majority of the care givers had to abandon their normal daily responsibilities in order to spend time with the infected person. On the other hand, 6.4% of the care givers reported having to completely leave other normal duties in order to take care of the sick family member whilst 62.8% said they had to take time off from work to care for the sick relative. On average care givers spent 32 days taking care of the sick family member while those taking care of relatives ill from other conditions spent on 21 days on average (Table 4.22).

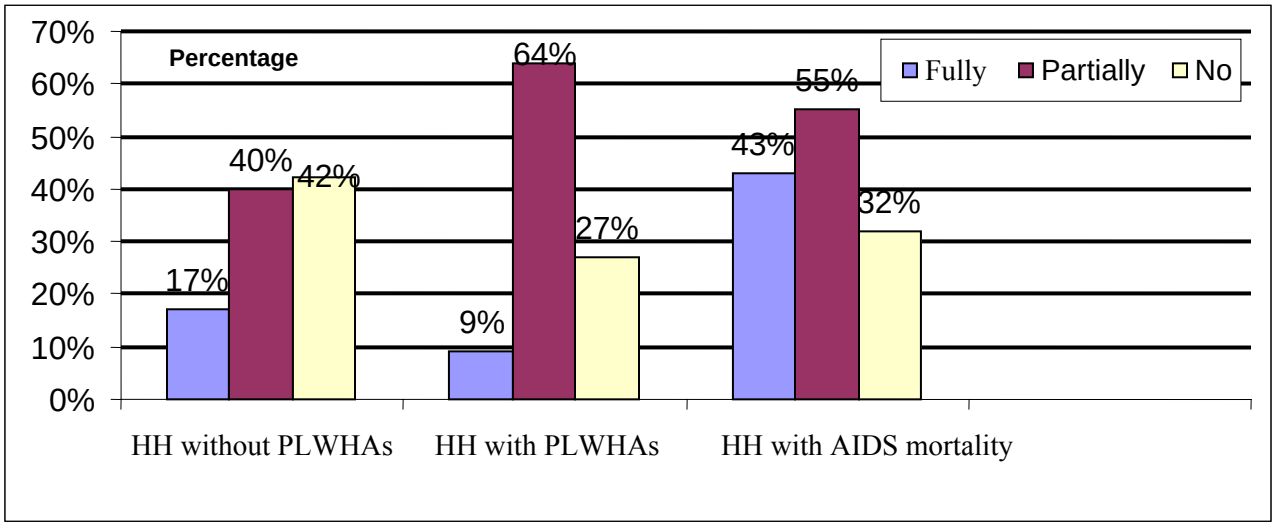
Table 4.22: Average number of hours and days spent by care givers taking care of PLWHAs

Care Time	Household HIV status	N	Mean	Std. Deviation	Std. Error Mean
Number of hours per day spent on care for sick	Non-affected	182	10.64	7.860	.583
	Affected	95	8.83	7.528	.772
Total number of days of care	Non-affected	182	21.11	29.313	2.173
	Affected	94	32.03	55.270	5.701

As a follow up to the above question, the survey sought to determine whether the caregivers were able to perform their normal duties. The results reveals that for the affected households, only 9% of the caregivers were able to perform their duties full compared to 17% of the non-affected households and 43% of the households which reported having lost a member of the family due to AIDS. The results further reveal that a significant number (64%) of caregivers

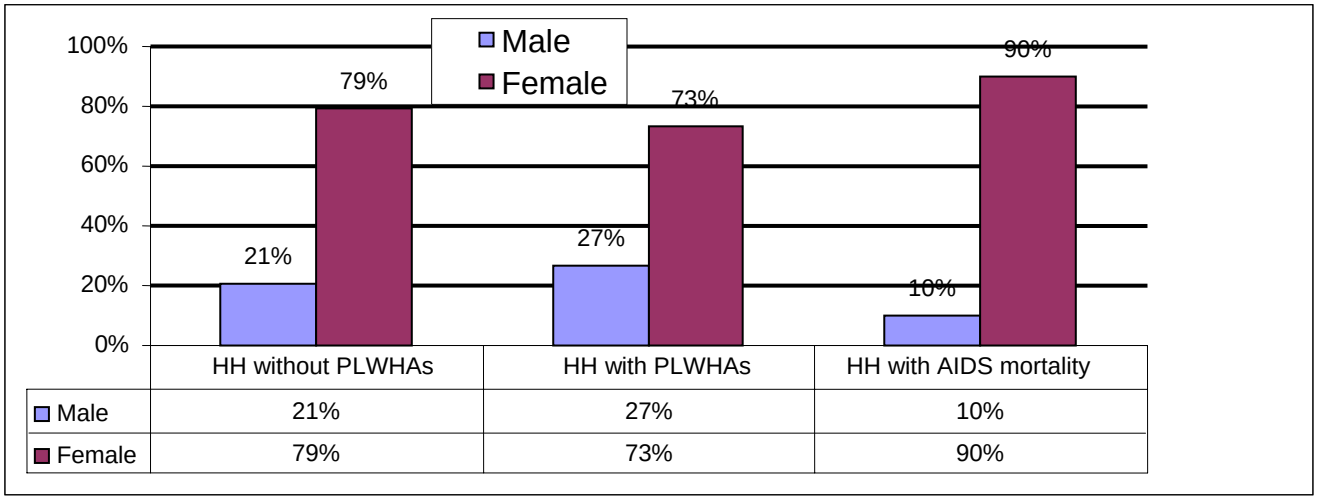
were able to perform their duties partially compared to 40% and 32% of the non-affected households and households that had experienced the death of a family member, respectively. This finding clearly reveals the extent of the burden imposed by HIV/AIDS on caregivers. Based on the findings, it is likely that in addition to taking care of the sick family member, the caregivers have to also take care of the welfare of the other family members.

Figure 4.3: Ability of the care giver to perform normal duties



The results further reveals that for the households with PLWHAs, 73% of caregivers were women, with mothers, children and grandmothers accounting the majority of the caregivers. The responsibility for caregiving therefore falls primarily on a woman in the family – mothers, wives and sisters. Very few households with PLWHAs hired a caregiver to take care of the sick family member. Therefore, caring for infected children and husbands, and the psychological damage arising from infection by a loved one add enormous burdens to the women's traditional tasks of rearing children, producing food, and earning other incomes for living. They would have to carry these burdens regardless of their own situation and despite their own extensive needs for access to new therapies, information, and support for dealing with discrimination and prejudice. Furthermore, the qualitative research reported that women do not have the option to reject a child who is HIV positive, as has been reported by some fathers of PLWHAs. However, the burden on fathers should not be minimized; a father may suffer in silence, with stigma preventing him from sharing his pain with others. In addition, the fact that very few households were able to hire somebody to take care of the sick family member clearly indicates the extent of the financial strain imposed by the disease given that majority of the families with a PLWHAs face the constraint of income loss due to missed days at work.

Figure 4.4: Gender of care givers of PLWHAs



Finally, it is worth noting that there is a significance difference between the caregivers of the affected and non-affected household members in terms of number of days the care giver is unable to work. The mean days a caregiver was unable to work before hospitalization was 38 days, 34 days during hospitalization and 39 days after hospitalization. The mean days for households without a person living with AIDS but other disease conditions ranged between 19 to 25 days (Table 4.23). To determine whether there is a significant difference in the days unable to work between those affected and unaffected we conducted an independent sample test. The test results show that there is a significant difference in the number of days unable to work between the two samples. However, the results do not reject the assumption of equal variances for days unable to work during hospitalization between the two samples. Thus, despite the difference in the number of days one is hospitalized, the effect of illness on ones productivity remains the same. Similar results are observed in the days the sick person is unable to work (regardless of the nature of illness) between the two samples. This further implies that even after one is discharged productivity remains low.

Table 4.23: Ability to work by PLWHAs

	Household HIV status	Sample size	Mean	Std. Deviation	Std. Error Mean
Days unable to work before hospitalization	Non-affected	196	19.63	69.936	4.995
	Affected	100	38.08	60.072	6.007
Days unable to work during hospitalization	Non-affected	203	22.70	64.378	4.518
	Affected	99	34.74	65.041	6.537
Days unable to work after hospitalization	Non-affected	193	25.85	51.277	3.691
	Affected	94	39.20	66.979	6.908

Table 4.24: Test for independent samples (t-test for Equality of Means)

Days	Levene's Test for Equality of Variances	F-test	Significance	t-test
Days unable to work before hospitalization	Equal variances assumed	4.941	.027	-2.249
	Equal variances not assumed			-2.362
Days unable to work during hospitalization	Equal variances assumed	2.327	.128	-1.520
	Equal variances not assumed			-1.515
Days unable to work after hospitalization	Equal variances assumed	6.112	.014	-1.866
	Equal variances not assumed			-1.705

As noted above, caregivers of affected households' lose several days of work during the period of the sickness, and the individual may stop work completely or may work partially due to the debility associated with the disease on temporary basis. This affects household production adversely. In addition, the survey revealed that a household member will have to cut down his/her own duty to cater for the sick or perform the duties of the sick person. These indirect costs mainly represent loss of potential productivity. This is the opportunity cost of both market and non-market (unpaid domestic) productive time lost to the household.

4.2.3 Direct Costs of HIV/AIDS to Households

In order to determine the economic impact of illness and death on households, it is necessary to consider both the direct and indirect costs of morbidity and mortality. Direct costs include the cost of medical treatment and transport expenses required to reach health care facilities so as to receive treatment. In the case of deaths, funeral costs represent another direct cost. In the case of illness, indirect costs include the loss of income to the ill person and to those persons caring for the sick. To determine the loss of income due to HIV/AIDS, respondents were asked how much money the person lost by not being able to work in the previous 12 months. In terms of caring, respondents were asked to indicate the number of working days the person caring for the ill has lost in the thirty days before the interview in terms of caring for the ill and in terms of accompanying the ill person to a health care facility. The loss in income was estimated based on the number of days of work lost by those caring for the ill, employing the specific household's average monthly employment earnings divided by thirty as a proxy of the daily loss of income.

With respect to mortality, indirect costs refer to the income loss to the persons caring for the deceased individual in the month prior to their death, as well as the income loss to the household resulting from the death of the specific person. The income loss to the person caring for the ill was estimated in the same manner as for morbidity (see above). The loss in income to the household resulting from the death was directly estimated by asking respondents to indicate whether the deceased was employed before their death and how much income the deceased received prior to their death.

Impact of HIV/AIDS on Household Health Expenditure

The study collected data on all household expenses, focusing on six broad categories, namely education, food, medical care, fuel/power, clothing/footwear, rent, funeral expenses and a category for all other expenditures. The data suggests that on average, affected households (both with morbidity and mortality) spent more on medical care than unaffected households. The mean annual expenditure on medical care for households reporting HIV/AIDS related sickness was estimated at Kshs. 12,742, compared to Kshs. 17,186.12 for households reporting HIV/AIDS related mortality and Kshs. 7,285.06 for unaffected households. The affected households also spent more on funeral expenses than unaffected households. All other expenditures were higher for unaffected than for affected households (Table 4.25). High standard deviations in expenditures however imply a lot of variability in expenditures across the two categories of households. Furthermore, tests for equality of means suggest that the differences in medical care and funeral expenses between affected and unaffected households is statistically significant. These results are also supported by tests for significance using non-parametric tests. Levene's test for equality of variances is rejected except for education, food and fuel/power. The test for equality of means also show that expenditures on food, education and fuel/power do not differ significantly between affected and unaffected households. Comparing unaffected households with households reporting a HIV/AIDS related death within the last 12 months suggest a similar pattern. Specifically, the mean expenditures on medical care and funeral expenses for households reporting a death are significantly different from related expenditures for unaffected households. The results are supported by non-parametric tests for significance. Levene's test for equality of variances also rejects equality of variances for expenditures on medical care and funeral expenses only.

Comparing households reporting morbidity with those reporting mortality suggests that except for education, medical care and fuel/power, the latter are better off financially. For these two groups, tests for equality of variances are rejected except for medical care and for funeral expenses, suggesting that variances for all other expenditures are equal. Tests for equality of means however suggest that only expenditures on funeral expenses are statistically different.

Table 4.25: Annual Cost of Health Care (Kshs) for affected and non-affected households

Expenditure items	Household HIV/AIDS Status		
	Non-affected	Affected	Mortality (AIDS)
Education	22457.36	21492.54	17668.18
Food	42808.07	39685.35	43445.98
Medical care	7285.06	12742.21	17185.12
Fuel/power	9907.38	10811.10	8051.98
Clothing/footwear	7035.81	5194.59	5975.00
Rent	20856.82	13620.67	20147.83
Funeral expenses	5058.89	8465.32	24862.50
Other	10922.50	4089.09	6000.00

Expenditure on Hospitalization

In order to determine the extent of the economic burden imposed by the epidemic on the affected households, we solicited information on the cost of hospitalization, transport, drugs and consultation fees for affected and unaffected households as well as households which had lost a family member to AIDS. It is imperative to note that information on medical expenditure in HIV/AIDS affected households is vital in identifying appropriate interventions for mitigating the disease burden. The household survey revealed that affected households spent on average Kshs. 13,041 on hospitalization per person per year (equivalent to $178.6 per case on the average). The non-affected households spent Kshs. 14,958 on hospitalization (Table 4.26). A large proportion of all medical expenditure was on drugs, hospitalization and consultation fees.

Given that the average length of stay for those hospitalized is 71 days, then the cost of hospitalization including costs of monitoring tests would be substantially higher for HIV/AIDS-affected households primarily due to the longer duration of illness associated with HIV/AIDS and also due to the fact that many opportunistic infections tends to cluster in affected households. The total cost of hospitalization thus, amounts to Kshs. 19,969.

Table 4.26: Cost of Hospitalization

Cost	Household HIV Status	Number	Mean
Average length of stay	Non-affected	191	31.59
	Affected household	83	70.82
Cost of hospitalization	Non-affected household	182	14,958.50
	Affected household	83	13,041.61
Transport	Non-affected household	180	1,296.00
	Affected household	78	968.27
Total hospitalization cost (Kshs)	Non-affected household	191	16,254.5
	Affected household	78	14,010.0

Although ARV drugs are free for those seeking treatment from public health facilities, the survey findings reveals that some households spent more than Kshs. 8000 on ARVs (Table 4.27). It is clear that the cost of drugs formed a significant proportion of the total treatment cost. Although no analysis was done on the cost per type of facility, we may conclude that those paying for ARVs are perhaps the ones who usually use private health facilities. In the public health facilities, households spent Kshs. 178 per month on monitoring tests on average. Transportation cost to the facility averaged Kshs 138, which represented 2% of the total treatment cost. The survey results further show that affected households spent an additional Kshs 241 on other ART related costs per month on average. For those seeking medical care from health care providers, the total cost amounts to Kshs 8,557 per month on average. The cost on monitoring tests accounts for 2% of the total cost of accessing ARVs.

Taking into account that the cost of ARVs is free in government health facilities, the total direct cost for an affected household amounts to Kshs. 557 per month on average. The cost on monitoring tests represents 32% of the total treatment cost (assuming that ARVs are free) while the cost of ART related costs represented 43% of the total treatment cost. Costs of transportation to the facility in a round trip represent 25% of the total costs of seeking treatment. Cost of registration and consultation were relatively low in all the provinces except in western province where the costs were relatively higher. There was no evidence that households incurred other costs in the process of seeking further treatment after the first one.

Table 4.27: Average Cost of Accessing ARVs by Affected Households (Kshs)

Cost item	Combined sample	Percentage (%)
Monitoring tests	178.6	2
Cost of hospitalization	8000	93
Transportation cost	138.7	2
Other costs	241.1	3
Total cost (Kshs)	8558.4	100
Total cost (US$)	117	100

4.2.4 Indirect Cost of HIV/AIDS

We estimated the indirect cost by quantifying in monetary terms, the opportunity cost of the time that was spent by households in seeking treatment. In addition, during the days of hospitalization and the period of convalescence, any productive time that was lost by the PLWHAs and, their caregiver were valued. The local average agricultural daily labour wage obtained through the household survey in each district was used for the time valuation. The average daily agricultural wage, popularly known as 'by-day' computed for each district was Kshs 80 for males and Kshs.60 for females. Since a farm labourer is typically hired to work for 8 hours a day on average under local arrangements, the average hourly wage is computed as: Kshs 10 for males and Kshs 7.5 for females. The opportunity cost of the productive time lost is obtained by multiplying the gender specific wage rates by the total number of productive days and hours lost due to the illness.

A total of 112 sick days were reported by households with PLWHAs with an average of 37 days sick days per PLWHAs. Households not affected by HIV/AIDS but were admitted for other conditions reported 68 days with an average of 22.7 of the total sick days. To ascertain the productive days lost due to HIV/AIDS, respondents were asked to indicate whether the household member living with AIDS was able to perform his/her normal activities during the sick days. As noted above, the majority of the household members hospitalized due to AIDS related illnesses were unable to perform their normal economic activities due to the illness.

Based on the above analysis it is evident that morbidity and mortality represent a considerable economic burden to affected households. The most frequent response was borrowing, followed by the utilization of savings, and the sale of assets. Affected households and in particular

affected households that have experienced illness or death more frequently were more likely to have borrowed money in two or more periods. A relatively larger percentage of affected households utilized savings or sold assets compared to non-affected households, particularly households that have experienced a greater burden of the epidemic.

4.2.5 Impact of HIV/AIDS on Agriculture

Labour supply

This section analyses the impact of HIV/AIDS on the current household labour supply. In assessing the effect of HIV/AIDS on labour, the most direct measure would be lost time due to sickness. Additional effects would result from lower worker productivity as sick workers may be less productive. The worker productivity effect on its own is however difficult to isolate and measure. Sickness should make individuals less productive, thus impacting on earnings and labour supply. Our HIV/AIDS prevalence describes the current stocks of HIV infections and AIDS sick persons, potentially indicating the impact on household labour supply. HIV/AIDS impacts on the size of labour supply through increased morbidity and mortality. These are self reported functional activity limitations following a series of questions to respondents. We asked respondents whether they had illness in the past 12 months. This was followed up if answered affirmatively by an inquiry of the nature of illness and for how many days the individual was unable to carry out their usual activities because of this illness. The duration of illness in the past 12 months is assumed to contain more information about the health status than mere occurrence of illness. Table 4.28 compares the days lost for the various categories.

Table 4.28: Days lost due to illness

Days lost	Non Affected households	Affected	Affected (Mortality)	Total
1-30	**200**	**56**	**13**	**269**
	74*	21	5	100
	20**	12	14	17
31-60	**143**	**75**	**25**	**243**
	58	31	10	100
	14	17	28	16
61-90	**208**	**70**	**24**	**302**
	69	23	8	100
	21	15	27	20
91-120	**156**	**101**	**2**	**259**
	60	39	0.8	100
	16	22	2	17
121+	**292**	**151**	**25**	**468**
	62	32	5	100
	29	33	28	30
Total	**999**	**453**	**89**	**1541**
	65	29	6	100
	100	100	100	100

* Row percentage, ** column percentage

Interestingly, for each category of days lost, the highest number of days lost is among the non affected individuals. It is also interesting to note that the high number of individuals lost days due to illnesses such as malaria, typhoid and pneumonia in this order. In general the number of individuals affected increases with more days lost while the pattern for non affected individuals is not clear. On average 74% of non affected individuals lose up to 30 days compared to 21% of individuals affected by HIV/AIDS illness. For those that had recently been affected 5% lose up to 30 days. Our results seem to suggest that affected individuals may have a larger labour supply than non affected individuals. The implication is that more effort may be needed to contain these other illnesses which seem to increase morbidity. Among the affected individuals the heaviest lost days occurred in the over 90 days category. Even more individuals were reported in the same category for the non affected households.

In agricultural production, labour productivity is the single most important determinant of output. Illness compromises labour productivity because a sick individual is unable to work. Even in situations where he can still work his performance is lowered by physical, physiological and psychological factors.

Table 4.29: Days Lost and Educational Attainment

Days lost	Primary	Secondary	Tertiary	Total
1-30	**159**	**54**	**10**	**223**
	71*	24	5	100
	21**	25	33	23
31-60	**142**	**48**	**9**	**199**
	71	24	10	100
	19	22	30	20
61-90	**104**	**43**	**3**	**150**
	69	23	8	100
	14	20	0.1	15
91-120	**194**	**49**	**5**	248
	60	39	0.02	100
	27	22	17	25
121+	**137**	**24**	**3**	**164**
	62	32	5	100
	19	11	0.1	17
Total	**736**	**218**	**30**	**984**
	74	22	3	100
	100	100	100	100

* Row percentage, ** column percentage

Table 4.29 reports the relationship between days lost due to illness and educational attainment. A human resource base that is highly skilled, well educated, healthy and innovative is one of society's most prized assets. The human resource development process must by necessity meet changing demands in terms of size and quality of human resource supply. However, the human

capacity in the country may be constrained by the HIV/AIDS epidemic and its potential effect on morbidity and mortality.

We assume that educational attainment is a proxy for skills and assess the effect of illness across various education categories. Days lost due to hospitalization were compared with educational achievement to understand the impact on human capital. A majority (74%) of individuals with primary school education reported to have lost days of work due to hospitalization compared to 22% of secondary graduates and 3% of tertiary graduates. The implication is that individuals with tertiary training seem to lose fewer days due to morbidity. The evidence suggests that with an increase in education level there is a decline in the number of days lost. One would have expected higher morbidity among the educated, but this expectation is not supported by these data. Thus, the limited evidence we present here does not support the popular view that AIDS may be more heavily impacting more educated segments of the work force. Most people with higher education tend to be in formal employment with social support and health care for illness unlike those in self employment and hence with incentive to stay away from work. A little caution though is required because these results may suggest that one should not be worried because those with tertiary education appear unaffected. However, the poorly educated and so called unskilled possess skills which have been acquired over the years through on the job experience. All they lack are formally recognized qualifications. The cumulative losses of such labour skills may further exacerbate the skills deficit as the overall size and quality of the skill pool declines. An adverse effect of all these is on size and the skill base of the labour supply.

Table 4.30: Household Labour Supply (Days worked)

Days worked	Affected*			Non Affected		
	Male	Female	Total	Male	Female	Total
1-30	44 (19.21)	36 (14.52)	80 (16.77)	96 (18.5)	106 (19.9)	202 (19.2)
31-60	24 (10.48)	33 (13.31)	57 (11.95)	117 (22.54)	120 (22.6)	237 (22.6)
61-90	27 (11.79)	38 (15.32)	65 (13.63)	84 (16.18)	98 (18.46)	182 (17.33)
91-120	73 (31.88)	86 (34.68)	159 (33.33)	88 (16.96)	70 (13.2)	158 (15)
121+	61 (26.64)	55 (22.18)	116 (24.32)	134 (25.8)	137 (25.82)	271 (25.8)
Total	229 (100)	248 (100)	477 (100)	519 (100)	513 (100)	1050 (100)
	Chi2 (5)=4.71			Chi2(5)=3.55		

* Percentages in parenthesis

The illness of productive members of the household, particularly women may have several implications. Table 4.30 compares the days worked between the different sexes for affected and non affected household members. There is no clear pattern of days worked between males and females among affected households. However, there is a clearer picture when compared to the non affected household members. Overall non affected household members spent more time attending to their activities. The evidence suggests that household members with sick individuals spent less time on agricultural activities than the non affected members. This leads to neglect of fields and decrease in planted area. A plausible explanation is that there is a diversion of

productive labour to care giving, a feature explored elsewhere in this study. This finding is confirmed when we compare acreage and output for affected and non-affected households below.

Impact on HIV/AIDS on Smallholder Agricultural Production

Discussions with key informants and individuals regarding agricultural production, and the effect of HIV/AIDS on farming systems were held. A feature that emerges from the qualitative data is growing supply of orphan labour, widows and other vulnerable individuals. Of the interviewed individuals, 32 % depend on group labour during the peak farming seasons. For those that depend on group labour, it is difficult to till their own farms leading to a neglect of their own crops and yields shrink further. This downward spiral of food production leads to insecurity which means they end up consuming directly whatever little is harvested and there is none for storage or sale. Another immediate impact documented in the survey is the impact on agricultural production. A significant number of affected households in the sample did lose production due to HIV/AIDS illness, as they were unable to fully substitute labour of the sick individual. More importantly, the most immediate loss of production emanated from loss of labour, which depending on the timing and the duration of illness results in delays in land being left fallow, changing crop mix and dependence on labour sharing and consequently a reduction in agricultural production. Similar impacts have been reported in Uganda.

Table 4.31: Impact on Farming

Household HIV Status	Maize acres/household Member	Consumption /member (kg)	Kept maize Kg/household	Assets Kshs /household
Affected	0.22	6.6	43	105
Non affected	0.31	9.8	81	128
T-statistic	1.76*	2.17***	0.54	1.23

*Significant 10% level *** significant at 1%.

Table 4.31 presents average acreage under maize, consumption of maize and kept maize and assets per household member for affected and non affected households. We find a 35% decline in households' maize production and 29% decline in maize acreage for affected households. This finding is based on two assumptions. First, those non affected households do not increase their acreage by either leasing or buying out land from affected households. Second, there is no heterogeneity in land holding between non-affected and the affected households. A plausible reason for these findings is the shortage of family labour or due to a shift out of labour demanding crops like maize. Further effects arise from reductions in the productivity of caregivers. These findings corroborate those of Yamano & Jayne (2004) for Kenya. A statistical test was performed whether there are significant differences in the mean values of our household performance measures. As shown in Table 4.32 there are significant differences in acreage under maize and consumption between affected and non affected households. Our findings suggest that declining health of other household members, among affected households may be due to fewer meals and poorer foods compared to non-affected ones. This reduction in household quantity and

quality of food variety has implications for both child and adult malnutrition. Respondents reported the diversification of household activities towards less demanding work and crops such as cassava. There is also an absence of marketed produce for 56% of the affected households. This finding suggests a withdrawal from marketing activities in favour of household subsistence.

Table 4.32: Methods for financing medical care for HIV-related illness

	Affected (morbidity)*	Mortality (AIDS)	Total
Salary	25 (12.0)	3 (8.8)	82 (15.0)
Own savings	120 (57.7)	26 (76.5)	343 (62.8)
Sell assets	6 (1.5)		36 (6.6)
Borrowing	43 (20.7)	4 (11.8)	63 (11.5)
Others	17 (8.2)	1 (2.9)	22 (4.0)
Total	208	34	546

*Percentages in parenthesis

4.2.6 Households' Coping Strategies to Mitigate the Impact of HIV/AIDS

The social, health and economic burden imposed on the households by HIV/AIDS results in various response options, including, but not limited to disposal of assets, borrowing, and withdrawal of children from school and alterations in economic activities. Evidence from various qualitative studies has shown significant declines in household asset ownership, as households experience increased morbidity or adult mortality due to AIDS (UNAIDS 1999; Kelly, 2001). The following suggests that households in the sampled districts use a variety of coping strategies to mitigate the adverse effects of HIV/AIDS.

Sale of household assets and borrowing

Although few affected households (1.5%) compared to 9.6% of the non-affected households disposed off their assets to meet medical expenses, analysis of qualitative data revealed that the most common assets disposed off included cattle, goats, furniture, TV and radio, cooking utensils, bicycles, chickens and wheelbarrows. This was part of financial resource mobilization to meet medical expenses and other costs occasioned by HIV/AIDS. The results further showed that the affected households on average owned relatively few or none of such assets as TV, radio or furniture, so that there wasn't really that much to sell. In principle, however the sale of household assets was notable given, for example, that out of the 210 affected households, 1.5% had sold assets to buy drugs, another significant number of households used assets as collateral against money obtained from money lenders, for use in buying drugs. Those who had sold assets, clearly cited "to buy drugs" as the primary reason for disposing off their assets. Other expenditure items benefiting from sale of household assets included food, servicing debts and paying school fees.

Within households affected by HIV/AIDS, given the burden for paying for the health care of sick family member, the question of how households pay for these services is extremely important. The survey results indicate that only 12% of the affected households were able to meet the cost of health care services from their salaries while about 58% indicated that they financed health care services from own savings. Those households unable to finance themselves opted for multiple methods of paying for health care, including sale of assets, borrowing or receiving assistance. Sale of assets was the least method used for raising funds for meeting medical expenses for the affected households. From the literature we know that sales or liquidation of assets is a frequent mechanism used in response to adult morbidity and mortality. Available evidence show that HIV/AIDS is the greatest cause of households' asset depletion as it strips away all forms of assets (both productive and non-productive assets). In our survey however, we found that few households sold their assets to meet medical expenses for the sick family members. This perhaps may be due to the fact that the affected households on average owned relatively few or none of such assets, so that there wasn't really that much to sell. Using past savings was notable given, for example, that out of the 210 households affected by the epidemic, about 21% borrowed money from friends and close relatives to pay for medical care of sick family members. Those who had borrowed, clearly cited "to pay for medical expenses for the sick household member or to buy drugs" as the primary reason for borrowing.

Such borrowing has the cascade impact of sinking the households as well as PLWHAs deeper into poverty, as more resources are crowded out in favour of medical bills and debt repayment. For instance, a number of households interviewed said that the sale of assets had reduced their income or their welfare. As a result these households were unable to meet household needs including medical care. Furthermore, given that affected individuals lost approximately 105 days of work, implies that they could not engage in income generating activities. In the end, this leads to a situation characterized by near absence of sustainable approaches to mitigation of the socio-economic impacts of the epidemic.

For the households that borrowed funds or received assistance, the survey sought to determine what sources provided such assistance. Analysis of the qualitative data shows that a major source of assistance was family members, friends and relatives. "Other" sources were reported by the affected households, leaving one to speculate as to what those sources might be, or whether the respondents preferred not to disclose their sources. About 21% of the affected households reported having to borrow to pay for HIV-related health services, and listed friends or relatives as the main source of those funds, followed by neighbours.

These findings point to the essential role played by informal networks of family, friends, neighbours and the community in the financing of HIV-related health care services. As part of the coping mechanisms, types of support received by affected households from such networks are tabulated in Table 4.33. Evidence from similar studies indicate that social capital is a vital support system for a significant proportion of households with a member living with HIV/AIDS, who cannot afford health services on their own. Unfortunately, dependence on financial assistance is not a sustainable mechanism whilst borrowing pushes the affected households into deeper poverty, into further indebtedness, and some households may not receive the assistance they need within such an informal system.

Table 4.33: Types of Support for Affected Households.

Type of support	Household HIV Status		Total
	Affected	Mortality (AIDS)	
Money	65 (17)	24 (29)	89
Clothing	20 (5)	14 (17)	34
Medicine	98 (26)	10 (12)	108
Food	85 (22)	19 (23)	104
Care	18 (5)	3 (4)	21
Counselling	86 (23)	13 (15)	99
Others	9 (2)	1 (1)	10
Total	381	84	465

*Percentages in parenthesis

Savings, loans and sale of agricultural products

Apart from the sale of assets, HIV/AIDS can undermine the affected households' financial assets. For example despite having low income, almost 58% of the affected households used their savings to finance medical care. A comparison of the mean difference in utilisation of savings between affected and non affected households was done to test whether there was a significant difference between affected and non-affected. The results indicate that there is a statistically significant difference between the utilisation of savings to cater for HIV/AIDS related medical care between affected and non-affected households.

Apart from the sale of assets, analysis of qualitative survey data revealed that households that had experienced reduced incomes due to illness or death of one of the bread winners resorted to sale of agricultural produce to meet medical costs. Agricultural produce sold ranged from maize, beans, and bananas etc. Other households sought financial assistance from friends, individuals and financial institutions to meet medical and education expenses. Efforts of the affected and non affected households in coping with the HIV/AIDS related financial crisis can best be illustrated by the following observation from one of the respondents:

"In the early stages of my husband's illness we could cope. It became difficult when he lost his job. We had to spend a lot of his savings on special diet for him. I grow maize and try to make money by selling vegetables, but it is not sufficient. I cannot get a job - these days getting a job is even more difficult as a woman because of my condition".

Skipping Meals and Begging

A study by Njeru et al., (2005) showed that households that lost a breadwinner, resorted to reducing their food intake or skipping meals. Qualitative analysis of the survey data showed that this strategy was common in the slum areas in major towns. In Nyanza and Western Kenya, the affected households resorted to cheaper alternatives. For example, among the Luos and Luhya, maize meal or mashed cassava was substituted for a dish served with fish). Cases of begging

from neighbours were reported in the slums of Nairobi and Western region of Kenya. This is exemplified by one case in which a family had lost both parents to HIV/AIDS and the orphaned children left moving from one neighbour to another, begging for food and accommodation.

Children Living with Relatives

Extended family ties have also been used as coping strategies against the negative impacts of HIV/AIDS, by sending children to stay with relatives or in foster homes. The extended family as a safety net is still by far the most effective response to the AIDS crisis. The survey found that whilst 31% of orphans were being cared for in the affected households, mainly the eldest sibling, the unaffected households sheltered the majority of orphaned children than non-affected households. As noted in section 4.2, households that lost the father sheltered more orphans (55%) compared to children who lost the mother (45%).

Withdrawal of Children from School

As noted earlier, the probability of children from affected households dropping out of school exceeds those from non-affected households. The survey data indicates that children from affected households are more likely to fall out of school (36%) due to lack of fees than children from unaffected households (25%). Our discussions with the respondents revealed that affected households withdrew their children from school in order to assist in looking after their livestock, preparing land, planting, weeding and harvesting and taking care of the sick relative. This was seen as necessary because the household labour force had been reduced by the death or sickness of one or both parents. Removal of children from school, for child labour either in their households or working for their better economically endowed relatives, was said to be a very common coping strategy, necessitated by reduced family incomes. Cases were reported of child abuse against such children, leading to their poor social and physical development. Other children left destitute by HIV/related deprivation find their way into the streets, where they experience untold suffering including violent sexual abuse, commercial sex and related risks of pregnancy, STI and HIV infection.

The findings however revealed that a lower percentage of children were likely to fall out of school due to mortality in affected households (29% cf. 43%). Other reasons why children fall out of school include lack of food, responsibility of looking after younger siblings, child labour and family members being unwilling to be supportive.

Our discussion with respondents further revealed that belonging to a social network was also an important coping strategy among the affected households. It was revealed that the social networks enabled affected households to cope with the effects of the disease by providing social support, in addition to assisting households to start income generating activities on a revolving loan basis.

4.2.7 Implications of Coping Strategies on ERS, MDGs and KNASP Objectives

This study is contextualized on the KNASP strategic objective to adapt existing programmes as well as develop innovative response to reduce the impact of the epidemic on communities, social services and economic productivity. This objective aims at contributing towards the achievement of ERS and MDG targets of improving household welfare through fighting hunger, creating jobs

and increased incomes.The main objective of the second target of the MDG-1 on Poverty and Hunger is to reduce by 50% the proportion of people whose income is less than 1 dollar a day by the year 2015. However, a quick glance at the study findings shows that this goal may not be realised unless the economic burden imposed by the epidemic on households is halted. For example, the findings have revealed that a significant proportion of the affected households use a variety of coping strategies e.g. selling household assets, removing children from school, using past savings and borrowing to avert the negative consequences of the disease. Such coping behaviours however, are likely to jeopardise the household's asset base, thus making it more difficult for them to cope with the impact of the epidemic in the long run. This is clearly an impoverishing dimension of HIV/AIDS. Furthermore, there is likelihood that such families will emerge from the illness episode poorer and more vulnerable i.e. with the reduced ability to cope with the disease further. The negative impacts on the current family wealth pose serious concerns over the future welfare of the HIV positive individuals and households, all threatened by critical income reductions, noting, for example, that a significant proportion of households experience reduced incomes, inability to meet personal medical costs and inability to provide for their families.

Furthermore, given that a larger proportion of affected households depend on agriculture, the consequent intra-household re-allocation of labour (to take care of the sick family members) may potentially lead to decline in crop production, resulting in food insecurity and an overall decrease in financial assets. Households may then respond with a further range of coping strategies. In addition to intra-household reallocation of labour, households may cope by changing their demand for, and supply of, wage labour when affected by AIDS (of course, hiring in labour in the first place is a more likely option only for relatively richer households).

The implications for the future of households using the coping strategies must be bleak. It is imperative to note that the households who are driven to sell their assets can hardly be said to be coping: these are the actions of the desperately impoverished households. It within the affected households that costs of the disease is borne. Therefore, to reduce the MDGs it is imperative that mitigation interventions be located if they are to be cost effective and sustainable.
With respect to health expenditures, households used past savings or borrowed money from friends/relatives. However, even when coping was successful in the short run, it is likely to increase vulnerability in the long run by reducing the household's ability to cope with future adverse events. While selling assets enabled affected households to cover health care costs for the infected household member, it also made them poorer and less prepared to cope with future economic or social crises.

Removing children from school to take care of sick relatives and/or to work imply that the universal primary education goal may not be adequately met in the long run. Moreover, the fact that many children were reported to have lost a parent or both, points to a substantial and growing orphan problem in the country. Hence, the government's current initiative to roll out the child support grant to more households will be important in addressing this adverse impact of the epidemic, while the roll-out of home-based care to more affected households and an increasing awareness of the rights of children and women may also be important in this regard.

In addition, government's strategy to meet the cost of infrastructure amounting to US$ 7,285 million for farmer support services and social welfare programmes; while smallholders will pay for materials and services directly benefiting them, such as fertilizers, improved seed and credit (amounting to $966 million may not be realized given that more households are being impoverished by the epidemic.

It has also been revealed that households affected by HIV/AIDS deaths are increasingly headed by grandparents or younger adults, and orphans are being taken in by their relatives, or finding other means of survival when both parents die. Although these phenomena may not necessarily result in large changes in dependency ratios, the longer-term effects of these shifts in household dynamics are likely to be significant, particularly as the older generations die and young people are increasingly deprived of adult support within the family.

It is important to mention that the amount of savings utilized and money borrowed by affected households may be considerable when respectively expressed relative to current savings and total debt, or relative to average household income. Hence, the epidemic appears to be placing considerable strain on household finances. The danger of this is in the longer run is that these actions will move households deeper into poverty as more resources are crowded out in favor of debt repayments in the absence of improvements in the economic circumstances of the household. On a macroeconomic level, this also has implications for the overall level of domestic savings, which may decline, and the level of interest rates, which may increase in the face of increasing defaults on debt, particularly in the micro-credit industry where household have been shown to relatively often access credit. Because of the considerably high cost of funerals, a death puts a much greater financial burden on a household than does illness, even where unemployment levels are very high and household members are primarily cared for by relatives with no direct loss of income

The Millennium Development Goal on education and ERS goal is to ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling. As a result of introduction of free primary education, the enrolment rate has increased significantly and indications are that MDGs and ESR targets could be met. Despite this performance, however, the achievement of this goal is unlikely partly due to increased number of orphans in and out of school as a result of HIV/AIDS. The study has shown that many children are being withdrawn from school to take care of the sick relatives, to cultivate and look after their livestock. Furthermore, given that the majority of the care givers are young girls who drop out of school, the Millennium Development Goal on gender parity in primary education by 2005, and at all levels by 2015 will definitely not be achieved.

In addition to ERS and MDG strategies, and as part of government's commitment towards social protection of OVC, the government decided to conduct a cash transfer pre-pilot project to learn some lessons on selection procedures and transaction costs, in order to obtain empirical information for designing a cash transfer pilot project that could represent a valid model to be scaled-up nationwide. The objective of the cash transfer program is to provide a social protection system through regular cash transfers to families with OVC in order to encourage fostering and retention of OVC in their families within the communities and to promote their human capital

development. The initiative initially targeted 500 children in 3 districts (Nairobi (320), Kwale (130) and Garissa (50)). The coverage of OVC rose to 12,000 orphans by June 2006, spread over 10 more districts. The amount of cash transfer to households amount to Kshs. 1,000 for 1-2 orphans, Kshs. 2000 for 3-4 orphans and Kshs. 3,000 for 5 or more orphans. In addition to cash transfers, other benefits to the OVC include ARV and referral to other programmes for beneficiaries who voluntarily declare to be HIV/AIDS positive. Though the cash transfer programme is an excellent move towards social protection, the government needs to expand coverage and also screen beneficiaries and closely monitor the utilization of the funds so that they can be fully utilized to take care of OVC.

5 SOCIO-ECONOMIC IMPACT ON SECTORS

5.1 Labour Market and Employment Implications

From the standpoint of its economic impact, HIV/AIDS has become a major threat to employment goals and labour market efficiency. The loss of workers and work-days due to HIV/AIDS related illnesses or the demands for care can result in significant declines in productivity, loss of earnings and attrition in skills and experience. HIV/AIDS is changing the sex and age distribution of the labour force and increasing the number of women, children and the elderly. The early entry of orphans into the labour force exacerbates the worst forms of child labour and the epidemic is forcing older persons back into the work force due to economic need and labour shortages. The epidemic also strikes the poor who can least afford treatment and care, thereby increasing existing problems of poverty. The effects of HIV/AIDS on employment and on the labour market are therefore a major concern of the Government of Kenya, which views the epidemic as a major development challenge.

Another concern which may have implications is the discrimination against workers and people living with AIDS (PLWHA). Discrimination of any form threatens fundamental principles and rights at work and undermines efforts to prevent the spread of the epidemic and mitigate its impact at work. Kenya as a member of the international community recognizes the need to promote social justice and equity and to protect workers' rights and is committed to fight discrimination and stigma related to HIV status.

The effects of the epidemic on employment patterns and the labour market, particularly from the standpoint of its concentration in the working age population and the impact on children is crucial. A critical issue is the impact of human capital losses on productive activity and development. The matter is complex, since the effects of HIV/AIDS on labour supply over time are influenced by a variety of economic, social and cultural factors. The problem is further compounded by the fact that in Kenya, the most dynamic sector in terms of employment is the informal sector on which data is both unreliable and scarce. Yet this is the sector where workers are likely to suffer more from the consequences of HIV/AIDS because of poor health facilities, greater job and financial insecurity, precarious employment and heavier dependence on labour.

Most significant for the labour force is what the epidemic does to the structure of populations. Majority of those who die of AIDS are adults in their productive, sexual and reproductive prime. For this reason, the impact of HIV and AIDS on the labour force is more severe than its impact on the population in general. According to estimates, people infected with HIV world wide are workers aged 15 to 49 years, in the prime of their working lives. The effects are said to be catastrophic-not just on workers and their families, but on enterprises and the overall national economy. The loss of people of working age, particularly those over the age of thirty five, with proportions of men and women varying according to age group drastically increases the dependency ratio and has profound implications for work.

Changes in structure are reflected in projections of labour force. Projections do not take into account possible age and gender specific changes in labour force participation rates- for example the rising number of widows and orphans; the early entry of children into the active labour force;

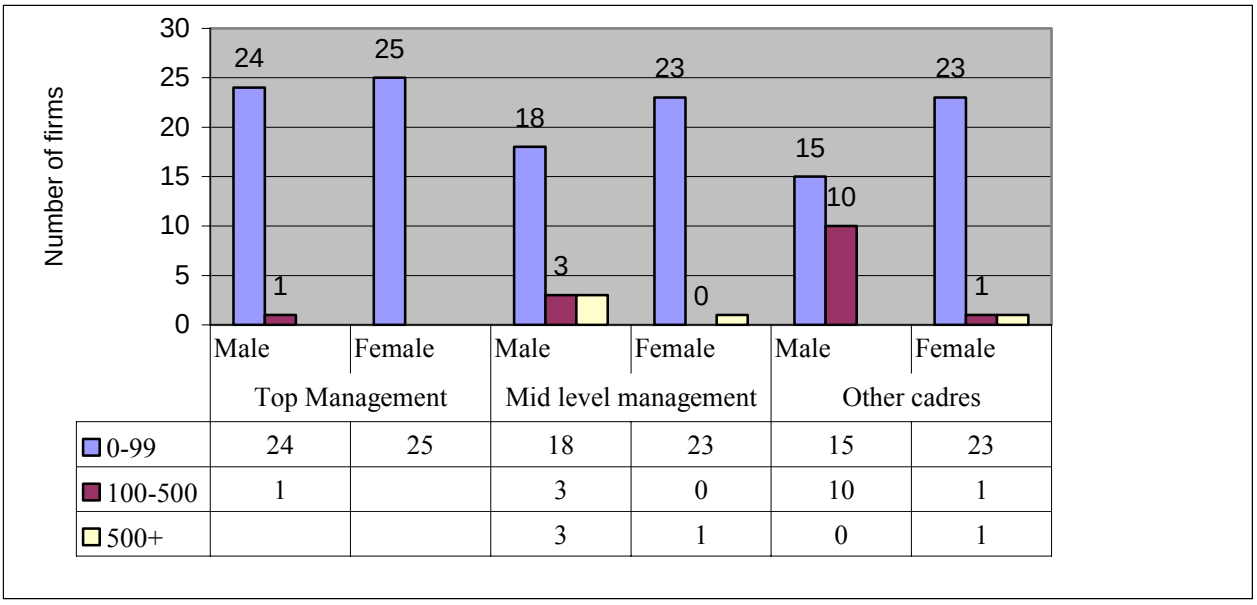
early withdrawal of people with AIDS; and the retention of older persons in the labour force. The concern is not only with reduction in the size of the labour force, but also its quality. Many of those infected with HIV are experienced and skilled workers in their productive prime representing considerable human capital losses. The loss of skilled workers and the changing structure of the labour force, is likely to lower both the average age of many workforces and their level of skills and experience. It is also useful to note that human capital formation and quality will be seriously eroded by the impact of epidemic on education resulting from fewer teachers; increasing class size and rise in drop out levels.

The labour market impact of HIV/AIDS has serious implications for the achievement of ERS and MDG goals. Though MDGs do not have a particular target for the commerce and industry sector, it is recognized that given its role in employment and poverty reduction, the sector is a major contributor to the achievement of the MDG targets. Approaches to meet the MDG on eliminating hunger, create jobs and increase incomes however translate to the ERS pillar of revitalizing productive sectors: Agriculture, Tourism Trade and Industry. By reducing labour productivity and requiring that increased resources are devoted to health expenditures, HIV/AIDS is an impediment to the achievement of these goals and targets and also the 3rd objective of the KNASP of mitigating the socio-economic impact of the epidemic on households and also on the productive sectors. It is therefore very important that all firms mainstream the fight against the epidemic and also adopt appropriate responses to the impact of HIV/AIDS.

5.2 Characteristics of Formal Sector Firms Included in the Sample

The first section of the firms' questionnaire required the respondents to provide details of the company employees. Respondents were asked to state employee numbers; the percentage of male versus female employees and the number of employees in each skills category. The results indicate that small firms had employed the largest percentage of female top management, middle management and other cadres. Only one firm reported having between 100 and 500 employees. Similarly, 18 firms employed the largest percentage of middle level workers (Table 5.1). In contrast, only the majority of employees in the middle level management and lower level management were classified as semi-skilled/middle level management.

Figure 5.1: Distribution of employees by size of firm.



	Top Management		Mid level management		Other cadres	
	Male	Female	Male	Female	Male	Female
0-99	24	25	18	23	15	23
100-500	1		3	0	10	1
500+			3	1	0	1

Table 5.1: Distribution of Employees per Size of the Firm

	Large: more than 500 employees	Medium: 100 to 500 employees	Small: less than 100 employees
Total number of employees	419 (100)	6,241 (100)	4,602 (100)
Average % of male employees	343 (82)	4,993 (80)	4,050 (88)
Average % of female employees	76 (18)	1,248 (20)	552 (12)

With regard to the salary scale of the employees, the survey data revealed that the top management in 20 of the firms earned a minimum of Kshs. 15,000 and a maximum of almost Kshs. 700,000. It is interesting to note that the middle level management in 19 of the firms earned between Kshs. 4,800 and Kshs. 200,000. Lower middle cadres in 23 firms earned a minimum of 3,000 and a maximum of 75,000 (Table 5.2).

Table 5.2: Average Monthly Salary (in Kshs)

Cadre	No. of firms reporting	Range	Min.	Max.	Mean	Std. Deviation
Top Management	20	77,000	15,000	92,000	201,562	99,684
Mid-level management	19	195,200	4,800	200,000	44,337	45,559
Lower cadres	23	72,000	3,000	75,000	16,168	15,237

5.3 Impact on Enterprises

5.3.1 Effects on Productivity and Labour Costs (formal sector)

In enterprises, AIDS related illnesses and deaths reduce productivity and increase labour costs. Enterprises in all sectors indicate increases in absenteeism due to illnesses and bereavements, in labour turnover (due to illness and deaths) and in costs of recruitment, training and staff welfare including health care and funeral costs. Absenteeism is usually the first sign in a company that something is wrong and has a disruptive effect on productivity. Loss of skills and tacit knowledge make it difficult to replace staff, even where a pool of unemployed exists. The workload of non-infected workers rises to the detriment of their morale. Health care costs increase particularly fast in enterprises which provide medical services to employees' and their dependants. The costs of HIV/AIDS for enterprises are both direct and indirect. These costs combine and reinforce each other to reduce the revenues and profits of enterprises.

Firms visited in this study reported to have faced a number of challenges due to HIV/AIDS, which impacts negatively on production. Key respondents from some sampled health facilities noted that staff members have been dying as a result of the ailment and other associated ailments such as tuberculosis and pneumonia. One key informant pointed out that an average of 1-2 % of staff members have either been affected or infected by HIV/AIDS. Loss of staff members has consequently led to under-staffing of facilities and slowed down provision of services. One of the key impacts of HIV/AIDS has been reduced manpower, leading to the need to hire more employees or for current employees to work overtime. This was reported by 69% of the health facilities visited and 8% of the commerce and industry and transport sector. Another impact is low output and productivity due to absenteeism, reported by 63% of the Office of the President entities, 33% of commerce and industry firms, 8% of health and transport sectors and 6% of all informal sector firms (Table 5.3). The commerce and industry sector (both formal and informal sectors) had according to this survey suffered big losses as a result of low outputs occasioned by death and absenteeism from work by infected and affected workers. In addition, the sector has suffered heavy costs of training and retraining workers. A number of the sampled firms within this sector reported that they had not had any known cases of infected or affected employees.

Table 5.3: Impact of HIV/AIDS on Production across Sectors (%)

Impact	Commerce & Industry	Informal Sector	Health facilities	Transport & Communication	Office of the President
Need new employees /work overtime	8		69	8	
Low output	33	6	8	8	63
Increased costs	5	1		8	25
Not affected	14	29		8	
Duties shared				8	
No response/NA	41	64	23	60	12
Total	100	100	100	100	100

In addition to reduced output, there were increased costs to all sectors due to the HIV/AIDS epidemic. This is due to the cost of free services provided such as Voluntary Counselling and Testing (VCT), and in some instances subsidized medication usually given to HIV/AIDS patients. Services offered to HIV/AIDS patients are normally costly though offered to people at highly subsidized charges and sometimes free of charge. This has led to substantial amount of resources meant for provision of other services being channelled to take care of HIV/AIDS patients. Bed occupancy in many health facilities is also high, owing to the presence of the HIV/AIDS patients, who tend to crowd out other patients.

The survey revealed that most of the affected persons across firms were from the lower or even lowest cadres of workers. For instance, in the GJLOs sector, it is mostly corporals that were reported to be infected compared to other cadres. In the health sector nurses were reported to be the single largest group of health personnel most affected by the epidemic. This is mainly because of the fact that they are the ones responsible for taking care of the patients on a daily basis and thus are in more frequent contact with the patients than any other group of health personnel. Some facilities however reported that it is hard to tell which cadres are mostly affected.

Morbidity and associated costs

Previous studies have shown death due to AIDS related causes as the leading cause of employees' exit from work followed by illnesses. These studies indicate that a combination of death and illness associated with HIV/AIDS outstrips all other causes of staff turnover. Although most commerce and industry companies surveyed did not have record of death due to AIDS related causes, the respondents admitted that HIV/AIDS was the leading cause of employees' exit.

Mortality due to AIDS was estimated on all the surveyed firms. Since there were no recorded cases of AIDS by the firms, we used the current HIV prevalence of 6.1 % (NACC, 2005). The results show that about 16% of the top management male employees were positive compared to about 6% of the top female managers. Out of the estimated top managers with full blown AIDS, about 6 were male and 2 female.

As noted earlier, AIDS is a debilitating disease and mortality due to AIDS related illnesses is preceded by long period of illnesses. Infected individuals experience intermittent illnesses for several months in a year. For example, the average length of illness for the sick employees of the firms interviewed ranged from 82 days among the top level managers to approximately 87 days among the lower level workers. It is during this period of illness that most individuals seek medical care. Some of the firms interviewed provided medical care to their employees. 10 out of the 25 firms surveyed provided treatment for STIs and other AIDS related opportunistic infections to their employees. Five out of the 25 firms provide ARVs to its employees. The respondents noted that much of the medical care services were provided in the company clinics albeit a few cases that are referred by the firm's clinical officer to either public health or private health facilities for specialized treatment. Some of the firms provide most primary care for workers at its main plant site through an onsite clinic.

The Costs of AIDS to the Employer

The impact of HIV/AIDS on manufacturing companies is determined by a number of factors and can vary considerably between companies. Manufacturing firms are more or less labour- or capital-intensive, have varying sizes, and are accordingly more or less exposed to the impact of HIV/AIDS. Labour-intensive firms, on the one hand, are primarily faced with the problem of higher turnover in the labour force, increased medical and other labour benefits expenses, while, capital-intensive companies, on the other hand, typically rely more on the experience and knowledge of a few key personnel (Isaksen et al., 2002).

Similar to many other sectors, HIV/AIDS infection amongst the personnel in manufacturing firms may influence productivity and staff moral negatively. Low productivity will primarily be experienced in a situation where the infected employee is not on ARV therapy and during the last stages of the disease. Illness and death of colleagues, increased workloads, potential stigma and discrimination may also undermine the morale and lead to a lowered productivity. There have been instances of stigma when workers refuse to work with a colleague known or believed to have HIV (e.g., Ching'ambo et al., 1995.)

The most obvious of all costs associated with the death of an employee are the terminal benefits. Data obtained from the firms surveyed revealed that a firm spends on average Kshs. 166,000 per year per person on terminal benefits. Taking into account that a firm loses 8 top management employees due to AIDS, the total cost incurred by the firm would amount to Kshs. 2,160,000 per year. The total cost to the firm on top management personnel would amount to Kshs. 3,816,285 for males and Kshs.1, 341,916 for females per year. On average, the firms in the survey recorded 21 deaths of top management employees (of which 8 were estimated to be due to AIDS).

In order to estimate the expenditures incurred by firms due to HIV/AIDS we used data from the firm to estimate the costs incurred by the firm due to HIV/AIDS. These included costs incurred when an employee died, or lost days, retirement benefits or replacement of the sick or dead employee. In the case of the death of an employee, we estimated cost of losing an employee by the multiplying the number of days lost when an employee was ill and the wage rate.

Estimates also show that 320 employees were infected out of whom 127 died of AIDS related causes. The loss to the firms in the middle level employees in terms of salaries amounts to Kshs 12.29 million for males and Kshs 4.7 million for females. The total loss to the firms due to HIV/AIDS related illness and mortality was estimated to be Kshs 26.575 million (Table 5.4).

Table 5.4: Total cost incurred by firms due to HIV/AIDS

	Top Management		Mid level management		Lower cadres		Grand total
	Male	Female	Male	Female	Male	Female	
Total no. of employees	343	76	5,022	1,219	4,059	543	11,262
% of Total	3.0%	0.7%	44.6%	10.8%	36.0%	4.8%	100.0%
Estimated positive	15.78	5.55	231.01	88.99	186.71	39.64	567.68
Estimated with AIDS	6.31	2.22	92.40	35.59	74.69	15.86	227.07
Cost to firms in terms of wages per person	604,685	604,685	133,011	133,011	48,503	48,503	1,572,398
Total cost in salaries	3,816,285	1,341,916	12,290,855	4,734,500	3,622,463	769,041	26,575,060

Expenditure on Medical Care and other Related Expenses

In addition to the direct medical reimbursement costs, the study revealed that sick employees first sought treatment from the company clinic. The respondents were asked to provide information on the cost of medical care related to HIV/AIDS incurred by the company. The data obtained from 7 companies that responded to this question indicates that companies are incurring huge medical expenses for HIV/AIDS related cases. For example, analysis of survey data shows that the total expenditure on medical care for the 7 companies that responded to this question ranged from Kshs 15,000 to Kshs, 4,050,000 per year. External medical costs in terms of payment to insurance companies averaged between Kshs 100,000 to Kshs 1 million. In addition, companies spent on average between 10,000-and 5,784,513 Kshs per year on funerals. A further analysis of the survey data shows that companies spent on average Kshs. 10,804,959 on retirement benefits due to HIV/AIDS related causes.

Although the survey did not obtain data on the trend of expenditure on HIV/AIDS, it is evident that with the increase in AIDS cases, the costs to the firms are substantially higher than what has been reported. Our discussion with key informants in the firms visited indicates that when an employee of a company dies, especially the top management, the firms took up the financial responsibility for funeral arrangements. Our results support the study by Rugalema (1999), who found that medical expenditures increased significantly in commercial agricultural estates due to increase in AIDS reported cases among the employees. A significant proportion of the medical costs were attributed to the illness of senior managers. Each week a company was spending about Kshs 100,000 per person for hospitalization.

Funeral Expenses

Apart from medical costs incurred by the companies, the study sought to determine funeral expenses incurred by the companies for the last one year (2005). Evidence obtained from discussions with key informants revealed that some companies take up the financial responsibility in relation to funeral organizations when an employee passes on. The funeral expenses include mortuary costs, funeral preparations and transport costs. Our survey data

contain information on some of the direct costs to the firms of departing workers. Table 5.5 presents a summary of total expenditure by firms due to HIV/AIDS related illnesses. The data collected revealed that the median expenditure on funerals was Kshs 62,500. The data presented in the table shows that funeral expenses range from Kshs 10,000 to Kshs 5,784,513 per year. Given that 227 employees were reported to have died from HIV/AIDS related causes, it is clear that the companies are spending large amount of money on funeral expenses. The median cost of terminal/retirement benefits to firms was Kshs 500,000. Insurance costs on HIV/AIDS ranged from a minimum of Kshs 100,000 to a maximum of Kshs 1 million. The median expenditure on insurance was Kshs 300,000 per annum. The study findings reveal that in total firms; spent a median expenditure of Kshs 1,178,500 on HIV/AIDS related illnesses. These expenditures have serious repercussions on savings and future growth and expansion of the firms due to a falling capital base. This would be expected to negatively impact on the ERS objective of revitalizing the sector and also on the MDG target of eliminating hunger and poverty.

Table 5.5: Expenditure (Kshs) by Firms due to HIV/AIDS

Expenditure	No. of firms	Minimum	Maximum	Median	Std. Deviation
Medical	7	15,000	4,050,000	150,000	1,496,030
Funeral	9	10,000	5,784,513	62,500	1,900,038
Insurance	4	100,000	1,000,000	300,000	390,246
Terminal /retirement benefits	4	270,000	41,949,835	500,000	20,763,534
Other	1	166,000	166,000	166,000	-

It is imperative to note that expenditure by firms reported in Table 5.5 exclude implicit costs such as labour time lost by employees to attend funerals or take care of a sick relative and psychological stress experienced by workers after losing a family member, close friend or work mate.

5.3.2 Impact of HIV/AIDS in the Informal Sector

Composition of informal firms included in the study

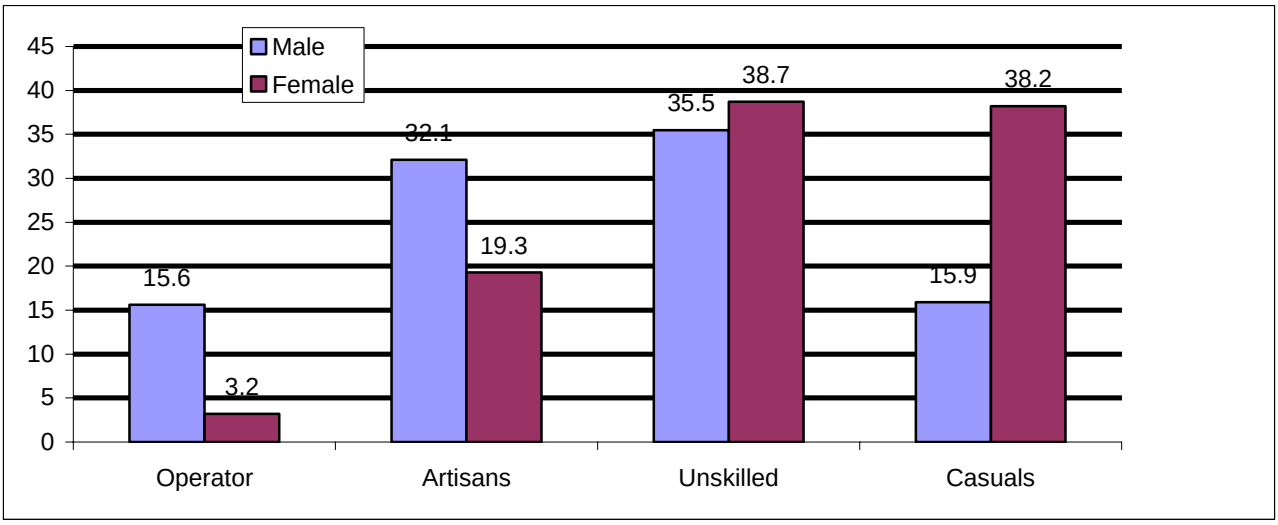
Entry to economic activities in the informal sector in Kenya has permitted the survival of millions who cannot get formal employment. The sector has become increasingly important as urban populations have grown, and employment in the public sector shrunk. Falling wages and rising costs of living have also increased the number of formal sector employees who engage in informal activities on the side. Clearly the definitive measure of the impact of the HIV/AIDS epidemic is its effect on the well-being of households and individuals, not firms. However, because firms provide employment and organize production, their performance has an important influence on the welfare of individuals and households. The sample characteristics for the firms surveyed are shown in Table 5.6.

Table 5.6: Sectors included by sector and size

Sector/skill	Number of workers	Number of firms
Woodwork	194	15
Metal and Iron	214	10
Textile	197	10
Retail	89	15
Others	188	19
Total	882	69

Figure 5.2 reports the types of workers and their skills. Most firms do not have permanent employees and hire mostly casual low skilled workers.

Figure 5.2: Composition of the workforce in sampled firms



In general, casual workers are paid in cash with no other benefits and few records are kept on their activities. One effect of this practice is that the firm employment records kept are not accurate making it difficult to assess the impact of their entry and exit on overall firm productivity. Among the workers leaving informal firms because of illness and death 2.6 percent were categorized as operators, 22 percent as artisans and the remaining 75 percent as unskilled or casual workers. This finding coincides with the employment structure of the work force in firms and concurs with the finding that low cadres of workers are most affected by the epidemic.

Loss of Days Due to Illness

One would expect that the most direct measure of the effect of HIV/AIDS on firm performance would come from work attrition rates due to sickness or death. An additional effect would come from lower worker productivity, as a sick worker is less productive. However such measures are difficult to isolate let alone measure empirically. Informal workers are especially likely to suffer

from the consequences of HIV/AIDS, first because there are no health facilities or social insurance arrangements at their workplaces. Second, because their activities are rarely based on or lead to financial security, and they depend heavily on their labour. Third, because the transient and vulnerable nature of the workplace (a roadside shelter or a market stall e.t.c) means that they are likely to lose their place as soon as they are away from it.

Our findings suggest that attrition rates due to sickness and death are lower than would be expected. Interview with key respondents suggest an increment to the worker attrition rate associated with HIV infection. However, the data suggests that the magnitude of the effect is extremely small and less than would be predicted based on national seroprevalence. There could be several reasons why the magnitude of the attrition effect is low, while seroprevalence is high. First, most firms do not have permanent employees for whom there are accurate records. Second, the data on worker attrition due to sickness and death may be an underestimate of the true attrition causes, because workers who departed for other stated reasons actually left due to HIV/AIDS. Last, the effect of HIV infection may grow as more infected workers develop full blown AIDS.

Our study findings show that when work is interrupted through their own illness or need to care for a sick person and hospitalization, spoilage of perishable stock rapidly sets in, their financial reserves are quickly depleted so that they cannot replace stock, they forfeit their stalls, and their businesses collapse. This finding was reported by 25 percent of the firms.

There may be demand effects resulting from declining numbers of consumers for the firms' products or from diversion of expenditures away from particular products and toward health services. Labour attrition influences firm performance because it raises costs. As more workers leave the firm, one proportion that may be verified is whether workers leaving due to sickness or death must be shown to be costly to replace or have strategic importance on firm performance. On this score our study found that even if attrition rates were high due to illness and death, recruiting replacements was relatively inexpensive because of the existence of unemployed labour. Most respondents (70 percent) suggested that hiring a replacement with equivalent skills is relatively easy. However, replacement has a hidden cost because of loss of institutional memory and costs (lost time) of transition and adjustment by the new workers

To complement the foregoing information on the informal sector, we draw from secondary national statistics from various Economic Surveys. The results are informed by the current employment levels, HIV prevalence estimated at 5.1 percent and mortality rates estimated at 2.4 percent. The projections reported are achieved by overlaying the demographic estimates with complementary data including earnings in the various sectors as provided in KDHS. Table 5.7 presents the findings. These projections predict the largest deaths to occur in the wholesale and retail, hotels and restaurants followed by manufacturing and the community, social and personal services. In terms of lost man hours assuming away replacement, the wholesale and retail sector incurs the largest predicted loss representing about 60 percent of the predicted loss in man hours and was closely followed by manufacturing at 22 percent.

While all sectors have high AIDS-death projections, the traditionally assumed low risk activities such as community services project relatively higher proportions of AIDS related deaths than a high risk activity such as transport. Catering and accommodation as would be expected is a high risk sector. Reasons for the anomaly are not immediately clear, but serve to underscore the need for a more careful look at emergent high risk activities. The mobile and migratory nature of activities in the hotel and restaurant sector involving non permanent work may account for the high prevalence rates in the sector. There is also an urgent need to get reliable data based on clinical tests to validate and confirm the reliability of these projections.

Table 5.7: Estimated Number of Positive, Sick, Deaths & Hrs lost by Activity

Activity	Estimated number of persons employed	Estimated Number of Positive Persons	Estimated number of Sick and unable to work during part of the year	Estimated Number of Deaths	Total man-hours available per year	Total loss in man-hours (assuming no replacement)
Manufacturing	1,386,100	84,552	33,821	10,534	3,515,149,600	4,971,663
Construction	183,900	11,218	4,487	1,398	466,370,400	659,613
Wholesale and Retail, Hotels and Restaurants	3,760,900	229,415	91,766	28,583	9,537,642,400	13,489,596
Transport	191,300	11,669	4,668	1,454	485,136,800	686,155
Community, Social & Personal Services	593,800	36,222	14,489	4,513	1,505,876,800	2,129,842
Others	291,200	17,763	7,105	2,213	738,483,200	1,044,476
Total	6,407,200	390,839	156,336	48,695	16,248,659,200	22,981,345

Overall, the loss of existing human capital across these activities indicates the need for susceptible activities and firms to be identified so as to inform targeted and anticipatory human resources planning and intervention. Also given the progression of the epidemic, the next few years are critical for human capital development.

5.4 Impact on Manufacturing Sector (Based on RPED data)

To complement our firm survey results, we use a data set collected by the World Bank's Regional Program on Enterprise Development (RPED) in collaboration with Kenya Institute for Public Policy Research Analysis (KIPPRA) and the Federation of Kenya Employers (FKE) in 2003. The objective was to understand the investment climate in the country but also included questions that sought to examine the impact of HIV/AIDS on firms in Kenya. The firms interviewed are located in traditional key sectors such as agro-processing, wood/furniture, textiles/garments/leather, paper and publishing, construction, chemicals and plastics and metal working. Each firm survey included interviews with several firms covering worker health issues by interviewing each firm's managers. Several questions were asked on worker health status and firm interventions. We look at several broad issues: first, the impact of attrition due to HIV on firm performance, second, worker attrition associated with HIV infection and third, the impact of AIDS on several measures of performance, including enterprise productivity and profitability.

Approximately 280 firms operating in all the outlined sectors were interviewed. Although the data set was meant to look at the dynamics of the manufacturing growth sector, a couple of questions related to HIV/AIDS were included to capture the debilitating effects of the epidemic. The questions sought to learn about worker attrition rates due to sickness or death, to categorize the skill levels of the workers leaving and to measure the impact of the attrition on firm performance. We begin with the location and other characteristics of the firms in relation to health status.

Table 5.8: Location of the firms interviewed by town

Location	Frequency	Percent	Cumulative
Nairobi	172	61.43	61.43
Mombasa	42	15.00	76.43
Nakuru	32	11.43	87.86
Eldoret	18	6.43	94.29
Kisumu	12	4.29	98.57
Others	4	1.43	100.00
Total	280	100.00	

Table 5.8 indicates that a majority of the firms (61%) were located in Nairobi, followed by Mombasa (15%), Nakuru (11%), Eldoret and Kisumu with 6% and 4% respectively. The coverage and distribution is in line with the clustering of manufacturing firms in Kenya and is thus representative enough for our purposes.

5. 4.1 Costs of Worker Attrition Due to Illness and Death

Labour attrition influences firm performance because it raises costs. As more and more workers leave, the firm must spend more resources searching for and training new workers. Additionally if high level managers are leaving the firm, key management issues might be affected. This could have deleterious consequences for the firms' competitiveness and performance in the business. Therefore for attrition rates caused by AIDS to have adverse effects on firm performance, two hypotheses must be verified: (i) that the workers leaving due to illness or death must be shown to be costly to replace or to have strategic importance to the firm; (ii) attrition resulting from illness and death due to HIV infection must be shown to affect a large share of the total worker attrition in firms.

To investigate the impact of worker attrition, we examine data on the types of workers leaving, in addition to information on the resources used to replace them. The survey data contain information on a sample of workers who left the firm and the average time in weeks that it took to replace them. Table 5.9 presents the results. Among the workers leaving the firms because of sickness and death, 4% were categorized as professionals, 20% skilled and remaining 76% as semi-skilled or unskilled. This roughly coincides with the skill structure of the work force in most firms. One may conclude thus, that the data does not support the popular proposition that AIDS may be more heavily impacting the more educated segments of the workforce.

Table 5.9: Skill levels and ease of replace of deceased workers

Skill category	Number of observations	Found a replacement	Average time taken (weeks) to find replacement
Professional	8	2	24
Skilled	46	24	3
Operator	62	45	3
Unskilled	106	65	1.7
Total	222	136	

Moreover, as might be expected, the figures in Table 5.9 also indicate, on average, that it appears to be easier to replace less skilled workers. Only 25 percent of professional workers had been replaced at the time of the interviews, compared to about 52 percent in the skilled worker categories. The last column of the Table 5.9 also points to the labour market being tighter for higher skilled workers. It took an average of 24 weeks to find replacement for professional, 3 weeks for skilled and semi-skilled and only 1.7 weeks for unskilled workers. Hence, the hypothesis that search costs are higher in Kenya as the skill category increases receives support here.

The costs of workforce attrition are not confined to search costs for replacement, however, firms often undertake worker training, creating firm-specific human capital, and learning-by-doing over the years also raises firm-specific human capital as worker experience on the job increases. In addition, depending on the complexity of the production activity, the advent of a new person can require other employees to reallocate time away from production to training of the new recruit. Next we explore the magnitude of such attrition-related costs. Table 5.10 below shows summary measures of age at death and of number of years within the firm - a proxy-specific human capital - for workers who departed firms because of death (about 90 percent of the attrition was due to sickness or death).

Table 5.10: Age and years of experience of deceased workers, by skill category

Skill Category	Number of observations	Mean Age in Years at Death	Median age at death	Mean years Worked at Firm	Median years Worked at Firm
Professional	10	48	45	12.9	11
Skilled	97	36	35	9.7	10
Operator	116	40	39	10.9	10
Unskilled	209	40	40	9.1	7

The average age of unskilled workers and operators at the time of death is shown to be about 40 years, while for skilled workers is 36. The mean age at death of the 10 professionals in the sample is higher, at 48. Average experience of all these workers with the firm is close to 10

years, which, in terms of acquisition of firm-specific human capital, is substantial. Depending upon the complexity of production activities and of the organization in the firm, loss of skilled workers with such long firm-specific experience can have substantial costs. Therefore, one would expect a loss to the firm from attrition of experienced workers, particularly if substantial resources were expended for building firm-specific capital. The amounts spent on training were not given in the data.

5.4.2 AIDS-Related Worker Exit and Firm Performance

The characteristics of workers departing firms may suggest that observed attrition due to sickness and death affects the firm performance. The ultimate confirmation of such an impact rests on the estimated magnitude of the relationship between attrition and actual enterprise performance indicators. We begin by examining the correlation between overall attrition rates and firms performance. To investigate this relationship, we will divide the sample of all firms into two groups, those with overall attrition rates above the median value for the full sample and those with attrition less than the median. A statistical test is then performed to examine whether there is a significant difference in the mean value of several broad firm performance indicators between the two groups. Table 5.11 presents the results of this equal means test. The performance measures used are the firm's profit to sale ratio, average labour productivity and average capital productivity.

As Table 5.11 indicates, mean value added per unit capital and labour are both higher for firms with lower rates of attrition, the mean value of the profit to sales ratio shows no significant difference between the two groups. These results suggest that higher rates of labour force attrition have a negative impact on firm performance; consequently, higher rates of attrition from health-related factors like the AIDS epidemic may adversely affect firms over time.

Table 5.11: Performance of Firms with High versus Low Attrition Rates

	Attrated= 1	Attrated=0	t- statistic
Profit to Sales Ratio	0.13	0.14	0.53
Average labour costs	1459 (1597)	1440 (1573)	-1.8
Value Added per Unit of Labour	6014.7 (5597)	6974.8 (8692)	1.68**
Value Added per Unit of Capital	1.32 (3.35)	2.73 (7.64)	2.12*

Firms are divided into two groups: Attrated= 1 for firms with attrition rates lying above the median; Attrated=0 otherwise.
Figure in parentheses are standard errors
* Significant at 5% level, ** Significant a 10% level

One could take the analysis further, by using the same mean-equivalence test to investigate mean differences in firm performance, grouping firms based upon whether they have a positive or zero attrition due to sickness and death. This grouping is more relevant for testing the current impact of AIDS on firms. Table 5.12 shows the results of these statistical tests. There is no discernable difference in mean firm performance between the two groups, except for the capital productivity

measure. These results are intuitively appealing, because firm performance is much more likely to be a function of the overall attrition rate, than the smaller subset due to sickness and death. However, as the AIDS epidemic progresses, if not controlled, one would expect to see much greater attrition due to sickness and death with probable adverse consequences for firm performance.

Table 5.12: Performance of Firms with High versus Low Attrition Rates

	Attsickd=1	*Attsickd=0*	*t-Statistic*
Profit to total sales ratio	0.14 (.15)	0.14	-1.3
Value added per unit of labour	6191.3 (5806.3)	6251.3 (6813.1)	-1.59
Value added per unit of capital	1.52 (4.62)	2.82 (7.22)	1.97*

Firms are divided into two groups: Attsickd=1 for firms with attrition rates from sickness and death above the median values, Attsickd=0 otherwise.
Figure in parentheses are standard errors.
* Significant at 5% level, ** Significant at 10% level

Not finding a significant statistical relationship between the worker attrition due to sickness and death and firm performance using the differences in mean test could simply be the result of the crudeness of the test itself. To address this possibility and to control for several factors that might be influencing the empirical relationship, we utilize multivariable regressions with firm value added as the dependent variable. More specifically, we consider a neoclassical production function in terms of value added per employee as a function of the capital-labour ratio. The basic specification is augmented by the rate of overall work force attrition, and then by attrition due to sickness and death, to analyse their separate impacts on firm performance.

Table 5.13 represents regressions on value-added per worker with three different specifications for the rate of labour force attrition. The estimation method is ordinary least squares, corrected for heteroscadasticity, and using sector dummies. The sector classification follows the standard international classification (SIC) for manufacturing firms, leading to Agriculture and food processing, Textiles/Garments/Leather, Wood/Metal, Paper/Printing and others dummies to control for sector- specific effects. For the location dummies, we have NairobiD, MombasaD, NakuruD and NakuruD, to control for location-specific effects. The reference categories are otherD and KisumuD respectively.

Table 5.13: Regressions: Augmented Production Function with Attrition Rate

	Specification A	Specification B	Specification C
Lcap-Labour	0.287* (0.032)	0.289* (0.032)	0.297* (0.042)
Attrition Rate	0.088 (0.124)		-0.114 (0.229)
Attrated		-0.139 (0.106)	
Attrsquare			0.067 (0.064)
Agricultured	0.305* (0.149)	0.280* (0.148)	0.306* (0.149)
Textilesd	-0.132 (0.143)	-0.133 (0.143)	-0.121 (0.143)
Wood/Metald	-0.207 (0.154)	-0.21 (0.152)	-0.200 (0.154)
Paperd	-0.303 (0.232)	-0.294 (0.228)	-0.301 (0.231)
Nairobi D	-0.715* (0.161)	-0.74* (0.162)	-0.723* (0.163)
Mombasa D	0.395* (0.170)	0.354* (0.172)	0.380* (0.178)
Nakuru D	1.78* (0.190)	1.76* (0.193)	1.759* (0.192)
Eldoret D	-0.354* (0.197)	0.41* (0.19)	-0.371** (0.198)
Constant	3.57* (0.489)	3.66* (0.487)	3.61* (0.490)
Adj. R Squared	0.28	0.26	0.27

Figure in parentheses are absolute standard errors.
* Significant at 5% level, ** Significant at 10% level

In the first specification, the overall rate of labour force attrition, *attrate*, is treated as an exogenous variable. The coefficient of attrition in this specification, as the estimates in Table 5.13 indicates, has unexpected sign and is insignificant. In specification B, the production function is augmented by the overall attrition rate, but in the form of a dummy variable, *attrated*, with the value of one with firms with higher than median attrition and zero for firms with lower than median attrition. In this case, the coefficient of labour force attrition has the correct sign, but is still insignificant. Finally, specification C considers the possibility that costs of attrition to firms are non-linear, by the inclusion of *attrsquare*. That is, at low rates of attrition, the costs are insignificant, but costs increase at higher rates of attrition. Again the results indicate the absence of any significant impact of worker attrition on firm's value-added. The coefficient of attrition

indicates a negative effect on value added, at a rate that decreases (in absolute terms) at higher rates of attrition, but the coefficient is not significant.

To conclude the section, we note that the effect of the AIDS epidemic on firms depends upon the strength of two factors. First, work force attrition resulting from illness or death due to HIV infection must be a large proportion of the total worker attrition in firms. Second, the higher rates of worker attrition must adversely affect firms' costs and performance. Using RPED data from Kenya covering 263 firms, with total employment of 8060 workers, this study finds both effects to be minor. Although the observed attrition rates due to death or sickness of workers conform to patterns of HIV seroprevalence in the country, the quantitative impact of AIDS-related exodus seems quite small. Even under the extreme assumption that all attrition due to sickness or death observed in the sample is AIDS related, the attrition rates are lower than would be suggested by HIV seroprevalence data. Moreover, attrition due to illness constitutes a relatively small proportion of total work force attrition in the country.

The data indicate that the costs to firms of replacing departed workers increase in proportion to the skill levels but are, on the whole, not very high. Replacement for all non-professional workers is found in less than three weeks on average while it takes about six months to replace professional vacancies. However, observed rates of worker attrition do appear to influence firm performance.

One is left, then, with the overall conclusion that AIDS has not yet had a significant negative effect on Kenyan firms. But, left unabated, and given current trends in the HIV seroprevalance data from many countries, this finding may not hold true for long. The impact may also be easier to track if panel data was available as opposed cross sectional data. Nevertheless, the negative effect on firms is likely to have serious long term impacts on firm productivity and profits and therefore undermine the achievement of relevant ERS and MDG goals.

5.4.3 Coping Strategies in Manufacturing Sector (based on survey data)

In light of the seriousness of the social and economic implications of HIV/AIDS, it is imperative that companies develop an organized, formalized response to the epidemic. Respondents were asked to indicate which activities in relation to HIV/AIDS had been undertaken to mitigate the effect of the epidemic at work place. The findings revealed that firms have instituted a range of coping strategies to mitigate the impact of HIV/AIDS. These strategies can be classified broadly into strategies aimed at prevention of new infections among the employees and strategies aimed at minimizing the cost burden associated with HIV/AIDS morbidity and mortality.

HIV/AIDS Prevention Programmes

Distribution of condoms

It is encouraging to note that 67% of the firms that responded to the question on prevention activities were found to have implemented a number of prevention measures. Over two thirds of the firms were found to be distributing free condoms to the workers. Discussion with key informants in these companies revealed that a significant number of employees were using

condoms partly because of increased awareness of the threat posed by HIV/AIDS and also due to inclusion of condoms as a family planning device. The fact that majority of the companies have implemented this intervention in their work places, is a clear indication that the managers have a clear understanding of how the epidemic can undermine the productivity of their employees as well how the disease might undermine overall performance of the enterprise.

HIV/AIDS prevention messages

The majority (70%) of the firms surveyed were found to have a peer education programme for the employees. Although we did not obtain information on individuals responsible for educating the employees, there is possibility that the task is undertaken by some of the employees as well as external resource agencies e.g. ministry of health through the District AIDS Coordinator. Some of the messages relate to the facts about HIV and AIDS, *i.e*. modes of transmission of HIV; preventive measures, including use of condoms; communication skills for behavioural change; dissemination of posters and other kinds of literature on AIDS; and counseling of AIDS patients.

STD control programme

About 37% of the firms included in the sample reported were found to have implemented a programme for controlling sexually-transmitted diseases among its employees. It is imperative to note that STI management is one of the priority strategies for preventing new infections. However, given that 67% of the firms did not provide STI management services in their work places suggests that most of these firms have not yet responded well in mainstreaming HIV/AIDS in their organizations. This observation should however be treated with caution given that only 25 firms out of 76 responded well to this question. If the KNASP interventions are to reduce the incidence of new infections, and achieve the KNASP targets of preventing new infections and those of mitigating the socio-economic impact of the epidemic, the NACC should speed up scaling up of prevention efforts to the private sector as well put in place human resource policies both in the private and public sector that reflect the impact of HIV/AIDS on productivity.

Provision of ARVs and VCT

Of the total number of firms that had implemented some form of work place policies, 19% of the firms were providing ARVs to the infected employees whilst 11% were providing VCT services in the workplace. These measures are consistent with the KNASP priority interventions for an enhanced national response.

Anonymous HIV testing

Only 2 out of the 57 firms were found to be carrying out anonymous testing for its employees. This is however contrary to the guidelines contained in *Sessional Paper No 4 of 1997 on AIDS in Kenya*. Although there was no evidence that employee who were found to be HIV positive were being discriminated, there is possibility that those found to be positive were terminated. These companies may however have carried the testing as a cost cutting measure rather than to improve the welfare of the infected employees.

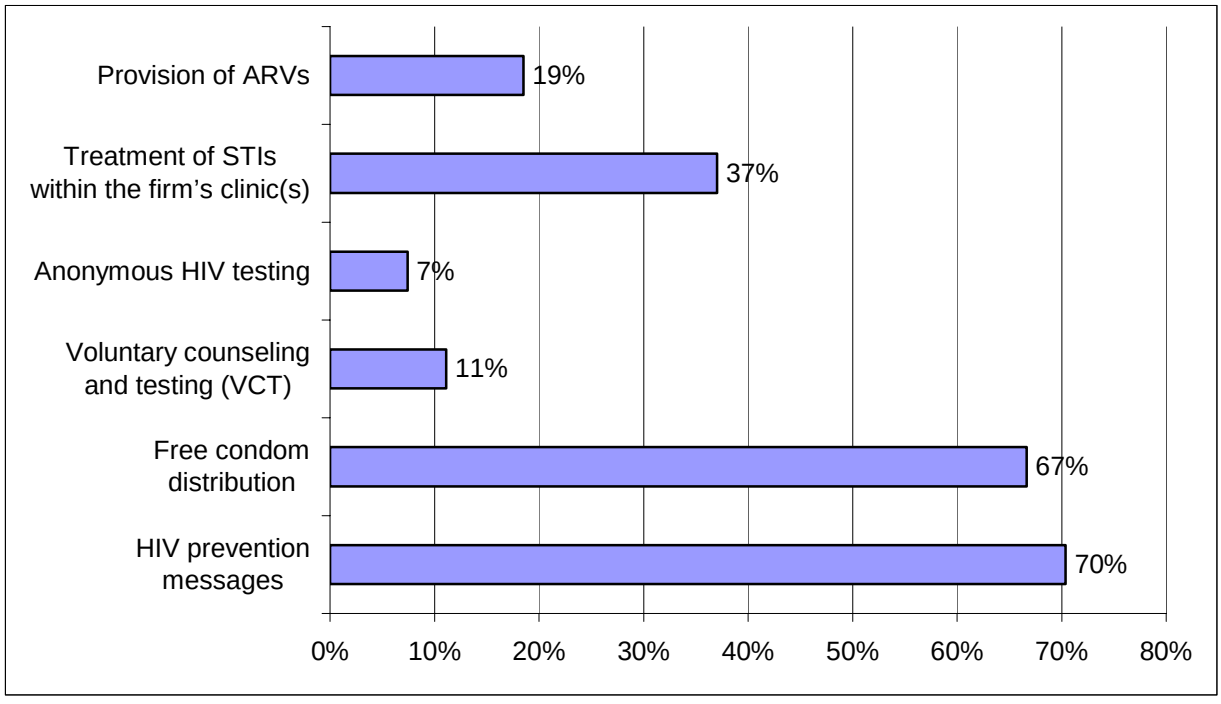
Table 5.14 and Figure 5.3 show various coping strategies employed by firms. It was found that majority of medium and large companies have implemented HIV/AIDS workplace activities while small firms were found to have done little in the way of action against the epidemic. In

view of this, it is imperative for the NACC to ensure that mitigation initiatives based on the national response are mainstreamed into existing local structures, including the private sector.

Table 5.14: Percentage of Companies that Have Implemented HIV/AIDS Interventions

Interventions	No of firms	% of total firms
HIV prevention messages	19	70%
Free condom distribution	18	67%
Voluntary counselling and testing (VCT)	3	11%
Anonymous HIV testing	2	7%
Treatment of STIs within the firm's clinic(s)	10	37%
Provision of ARVs	5	19%

Figure 5.3: Percentage of companies that have implemented HIV/AIDS Interventions



Cost Reduction Measures

Retirement on medical grounds

This is a common practice among many firms in the private sector. Employees who are chronically ill or have been sick for a long time are advised to retire on medical grounds. The most obvious of all costs associated with the death of an employee are the terminal benefits. As noted earlier, firms surveyed revealed they spent on average Kshs. 166,000 per year per person on terminal benefits. Upon retirement, an employee is paid terminal benefits and is expected to leave the firm. It is evident that encouraging people to retire on medical grounds is a cost cutting measure being employed by companies. Perhaps, this may explain why some of the firms were carrying out surreptitious tests for their employees.

Short-term contracts

To cushion against loss of production, some firms replace the sick employees with employee contracted on temporary basis. Normally, employees hired on temporary basis are not entitled to medical benefits and have to use their meager resources to meet their medical care.

Contributory financing

Information obtained from previous studies indicates that companies have a pre-determined amount that they should pay beyond which the employee meets the extra cost. In some cases, companies cover the cost of the employee alone but not the immediate family members. Although the cost of medical care is highly subsidized, some firms require that employees pay the medical care expenses for their families at the company clinic. Although this could save money for the company, it may be very costly to the affected households. The employees who are unable to pay the medical bill mobilize resources by either obtaining a short loan from the company, or the company meets the medical bill on condition it will recover the money from the employees' salary or from his/her terminal benefits. This has serious implications on the employee and the immediate family members. First, the probability of losing all the terminal benefits on medical care is very high. Second, if the family exhausts all the benefits on medical care, then other expenditures may be crowded out.

5.4.4 Coping Strategies (based on RPED data)

Information from RPED data revealed that firms are employing a wide range of coping strategies, most of them in line with the national response to the impact of HIV/AIDS (see Table 5.15). The HIV/AIDS prevention activities listed included the following:

- Prevention messages, which mainly constitutes placing of posters around the factory
- Distributing condoms to employees within the firm premises
- Providing counselling services to employees
- Availability of anonymous HIV/AIDS testing
- Financial assistance to employees with HIV/AIDS.

Table 5.15: HIV/AIDS Prevention Activity by Sector

Sector	HIV/AIDS Posters*		Condoms Distribution		Counselling on HIV		Anonymous tests		Monetary help	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Agro-industry	27(28.1)	5(33.3)	18(31.6)	13(24.5)	26(35.6)	5(13.9)	1(14.3)	30(29.1)	3(33.3)	28(28.0)
Bakery	4(4.2)	0 (0.0)	2(3.5)	2(3.8)	3(4.1)	1(2.8)	0(0.0)	4(3.9)	1(11.1)	3(3.0)
Chemicals & paints	10(10.4)	3(20.0)	6(10.5)	7(13.2)	8(10.9)	5(13.9)	0(0.0)	4(3.9)	0(0.0)	13(13.0)
Construction material	9(9.4)	0(0.0)	5(8.8)	4(7.6)	7(9.6)	2(5.6)	1(14.3)	8(7.8)	2(22.2)	7(7.0)
Furniture	2(2.1)	0(0.0)	1(1.8)	1(1.9)	1(1.4)	1(2.8)	0(0.0)	2(1.9)	0(0.0)	13(13.0)
Metals	12(13)	1(6.7)	6(10.5)	7(13.2)	6(8.2)	7(19.4)	2(28.6)	11(10.7)	1(11.1)	12(12.0)
Machinery	3(3.1)	1(6.7)	2(3.5)	2(3.8)	3(4.1)	1(2.8)	2(28.6)	2(1.9)	1(11.1)	3(3.0)
Paper, printing	4(4.2)	0(0.0)	2(3.5)	2(3.8)	2(2.7)	2(5.6)	0(0.0)	4(3.9)	0(0.0)	4(4.0)
Plastic	6(6.3)	1(6.7)	5(8.8)	2(3.8)	4(5.5)	3(8.3)	0(0.0)	7(6.8)	0(0.0)	7(7.0)
Textile	5(5.2)	2(13.3)	3(5.3)	4(7.6)	4(5.5)	3(8.3)	0(0.0)	7(6.8)	0(0.0)	7(7.0)
Garments	7(7.3)	2(13.3)	2(3.5)	7(13.2)	5(6.9)	3(8.3)	0(0.0)	9(8.7)	0(0.0)	8(8.0)
Leather	1(3.1)	0(0.0)	1(1.8)	0(0.0)	1(1.4)	0(0.0)	1(14.3)	0(0.0)	0(0.0)	1(1.0)
Wood	3(3.1)	0(0)	2(3.5)	1(1.9)	1(1.4)	2(5.6)	0(0.0)	3(2.9)	1(11.1	2(2.0)
Rubber	2(2.1)	0(0)	1(1.8)	1(1.9)	1(1.4)	1(2.8)	0(0.0)	2(1.9)	0(0.0)	2(2.0)
Glass	1(1)	0(0.0)	1(1.8)	0(0.0)	1(1.4)	0(0.0)	0(0.0)	1(0.9)	0(0.0)	1(1.0)
Total	96(36.5)	15(5.7)	57(21.7)	53(20.1)	73(27.8)	36(13.7)	7(2.7)	103(39.2)	9(3.4)	100(38.0)

*Percentages in parenthesis

Table 5.15 shows HIV/AIDS prevention activity by sector. The agro-industry sector has the highest percentages of prevention activities followed by chemicals and paints and construction, while the others are rather minimal. There is little difference for leather wood, rubber and glass sectors. The data suggest that most prevention activities by the firms are largely public sector intervention efforts. The activities the firms undertake are modest involving placing posters and distributing condoms. The largest prevention activity is the putting up of posters (37%) followed by counselling (28%) and condom distribution (22%). Notably only (9) 3.4% of the firms provide financial support to HIV/AIDS activities for their staff.

Pre- Employment Health Checks

Pre-employment health checks appear to be a common strategy among firms. The firms were asked whether they performed pre-employment health checks. The survey data did not specifically ask whether pre-employment health checks include testing for HIV or whether managers understood that HIV/AIDS status would be visible from general health examinations. Table 5.16 shows the incidence of pre employment health checks by sector. Our data shows that (39) 44% of firms in the agro-industry engaged in pre-employment health checks of potential employees. This was the highest proportion in the sample followed by chemicals and paints (15%). There was no clear reason for the observed status but one may attribute the finding to safety concerns in food industry.

Table 5.16: Pre-Employment Health Check for Employees by Sector

Sector	Yes*	No	NA	Total
Agro-industry	39 (43.82)	20 (11.76)	1 (25.00)	60 (22.81)
Bakery	6 (6.74)	8 (4.71)		14 (5.32)
Chemicals & paints	13 (14.61)	10 (5.88)		23 (8.75)
Construction material	7 (7.87)	10 (5.88)		17 (6.46)
Furniture	1 (1.12)	7 (4.12)		8 (3.04)
Metals	6 (6.74)	31 (18.24)		37 (14.07)
Machinery	3 (3.37)	3 (1.76)		6 (2.28)
Paper, printing	5 (5.62)	12 (7.06)	1 (25.00)	18 (6.84)
Plastic	3 (3.37)	16 (9.41)		19 (7.22)
Textile	3 (3.37)	17 (10.00)		20 (7.60)
Garments	1 (1.12)	17 (10.00)	1 (25.00)	19 (7.22)
Leather		5 (2.94)		5 (1.90)
Wood	1 (1.12)	10 (5.88)	1 (25.00)	12 (4.56)
Rubber		4 (2.35)		4 (1.52)
Glass	1 (1.12)			1 (0.38)
Total	89 (100)	170 (100)	4 (100)	263 (100)

* Percentages in parenthesis

5.5 Impact of HIV/AIDS on the Education Sector

5.5.1 Introduction

One of the greatest effects of the HIV/AIDS epidemic on the education sector takes the form of increased rates of morbidity and mortality among teachers. Available evidence shows increased teacher morbidity and mortality associated with HIV/AIDS, which has had serious impacts on the supply of teachers in primary, secondary and tertiary institutions of learning. Though not comprehensive, information obtained from the Teachers Service Commission and the Ministry of Education, Science and Technology on teacher attrition reveals that a significant number of trained and untrained teachers have left their schools due to HIV/AIDS related morbidity and mortality.

5.5.2 Number of positive teachers

Based on the current national estimates of the total number of teachers engaged in primary and secondary schools for 2005, we estimated the proportion positive and sick from the epidemic based on national prevalence rates for males with secondary and post secondary education estimated at 5.2% in the KDHS (2003). For women, the estimates are based on sentinel survey rates for pregnant women aged 15-50 years (7.3%). Based on these rates, it is estimated that

about 5000 male primary school teachers were HIV positive compared to 5,500 female teachers. Assuming that 40% of all positive teachers were too sick to work, about 2000 male and 2,200 female primary school teachers were estimated to be in this category (Table 5.17). The largest number of positive and sick teachers was in the cadres of P1 and approved teachers for both male and female categories. Though total number of female teachers were fewer than male teachers, the estimated positive and sick were more due to a higher prevalence rate.

Table 5.17: Estimated numbers of positive and sick Primary School teachers by Cadre

	Male			Female		
Cadre	Total Employees	Estimated HIV positive	Estimated Number sick	Total Employees	Estimated HIV positive	Estimated Number sick
Graduate	510	27	11	380	28	11
Approved	25,755	1,339	536	21,447	1,566	626
S1/Diploma	4,338	226	90	4,475	327	131
P1	53,985	2,807	1123	41,716	3,045	1,218
P2	8,688	452	181	6,477	473	189
P3	821	43	17	972	71	28
KCE/KCSE	538	28	11	184	13	5
KJSE	67	3	1	34	2	1
CPE/Others	405	21	8	241	18	7
Total	95,107	4,946	1,978	75,926	5,543	2,217

The estimated number of HIV positive and sick secondary school teachers is presented in Table 5.18. Given the concentration of secondary school teachers in the top cadres, the concentration of the affected population is also in these cadres with graduate teachers being most affected by the epidemic. Overall, the estimated impact was not as huge as commonly publicized, with only about 3,000 of all secondary school teachers estimated to be positive and only about 1000 estimated to be too sick to work. The proportion of both the positive and sick teachers was higher for male than for females across all cadres due to the relatively smaller proportion of female teachers in each cadre.

Infected teachers are more likely than uninfected ones to be regularly and for longer periods absent from class due to the progressive nature of the disease. Absence from teaching is certainly necessitated by the time spent in seeking treatment by the sick teachers, sick offs (exemption from duties on medical grounds), and providing care to the sickly family member, resulting in less teaching time and reduced quality and quantity of teaching service provision and learning. Discussion with the Teachers Service Commission and the Ministry of Education officials indicated that they were aware of the increasing cases of absenteeism as the bereaved service providers took time off to attend to funeral rites.

Table 5.18: Estimated numbers of positive and sick Secondary School teachers by Cadre

Cadre	Male			Female		
	Total Employees	Estimated HIV positive	Estimated Number sick	Total Employees	Estimated HIV positive	Estimated Number sick
Graduate	19,734	1,026	410	10,629	776	310
Approved	8,415	438	175	4,425	323	129
S1/Diploma	1,542	80	32	1,035	76	30
Technical	449	23	9	208	15	6
Graduate	606	32	13	85	6	2
Dip/technical	212	11	4	96	7	3
Total	30,958	1,610	644	16,478	1,203	481

5.5.3 Cost of HIV/AIDS to the Education sector

The financial impact of HIV/AIDS has been analysed in terms of the days lost to illness (long-term sick leaves) by teachers and the resulting loss in salaries to the government. Morbidity associated with the HIV/AIDS epidemic constitutes a serious resource handicap. Absenteeism is a serious problem against teacher availability for quality service provision in the Kenyan educational system. Teachers take time off not only because of sickness but also to care for their sick or dying relatives, close friends and to attend funerals. To estimate the monetary cost of HIV/AIDS to the education sector, we estimated the total number of days lost for both male and female teachers and the resulting loss in salaries to the government. This was based on the estimated number of sick teachers and the estimated number of days lost, based on a survey of a sample of schools in the sampled districts.

From the field survey, it was estimated that a teacher on average losses a third of his/her teaching time due to sickness. This cumulates to a total of about 178,000 days per year for all primary male teachers compared to about 199,000 days for female teachers. P1 teachers were estimated to lose the largest number of days, followed by approved teachers (Table 5.19). Gender dissegration of the data showed the same scenario. Women teachers lost more days of work to HIV/AIDS than their male counterparts and this was the case for all cadres. Cumulative, the proportion of days lost due to HIV/AIDS morbidity was very low at only 1% for both primary and secondary education and also by gender of teachers. Female teachers however still lost more days on average than their male counterparts. The lost days of work translate to monetary cost to the government in terms of salaries paid for days not worked. The estimated cost to the government from morbidity among female teachers was estimated at 96 million Kshs per year compared to 84 million Kshs for male teachers. Though P1 teachers lost the most number of days, approved teachers costed the government more in monetary terms, due to higher salaries for this cadre. This cost was estimated at about 39 and 45 million Kshs for approved male and female teachers respectively and was followed by cost of P1 teachers estimated at 34 and 37 million Kshs for male and female teachers respectively.

Table 5.19: Estimated Cost to the Education (Primary) Sector

Skill Category	Male			Female		
	Estimated Days Lost to illness	Total No. of days of work	Cost to the education sector in terms of salary	Estimated Days Lost to illness	Total number of days of work	Cost to the education sector in terms of salary
Graduate	955	137,700	763,776	999	102,600	798,912
Approved	48,213	6,953,850	38,570,688	56,363	5,790,690	45,090,173
S1/Diploma	8,121	1,171,260	4,872,442	11,760	1,208,250	7,056,180
P1	101,060	14,575,950	33,686,640	109,630	11,263,320	36,543,216
P2	16,264	2,345,760	4,879,181	17,022	1,748,790	5,106,467
P3	1,537	221,670	461,074	2,554	262,440	766,325
KCE/KCSE	1,007	145,260	302,141	484	49,680	145,066
KJSE	125	18,090	37,627	89	9,180	26,806
CPE/Others	758	109,350	227,448	633	65,070	190,004
Total	178,040	25,678,890	83,801,016	199,534	20,500,020	95,723,149

Estimated cost to the government due to HIV/AIDS among secondary school teachers is presented in Table 5.20. Unlike in primary schools, the estimated number of days lost are lower for female than for male teachers. This is because female teachers in secondary schools are significantly lower in number than male teachers. Another difference with primary is that higher cadre teachers lost much more days of work than the lower cadres. Consequently, the highest loss in salaries was from graduate teachers, estimated at 29 million Kshs for male teachers and 22 million Kshs for female teachers. Overall, female teachers cost the government relatively more than male teachers.

Table 5.20: Estimated Cost to the Education (Secondary) Sector

Skill Category	Male Teachers			Female Teachers		
	Estimated Days Lost to illness	Total No. of days of work	Cost to the education sector in terms of salary	Estimated Days Lost to illness	Total No. of days of work	Cost to the education sector in terms of salary
Graduate	36,942	5,328,180	29,553,638	27,933	2,869,830	22,346,410
Approved	15,753	2,272,050	12,602,304	11,629	1,194,750	9,303,120
S1/Diploma	2,887	416,340	1,731,974	2,720	279,450	1,631,988
Technical	841	121,230	504,317	547	56,160	327,974
Graduate	1,134	163,620	680,659	223	22,950	134,028
Dip/technical	397	57,240	238,118	252	25,920	151,373
Total			129,112,027			129,618,041

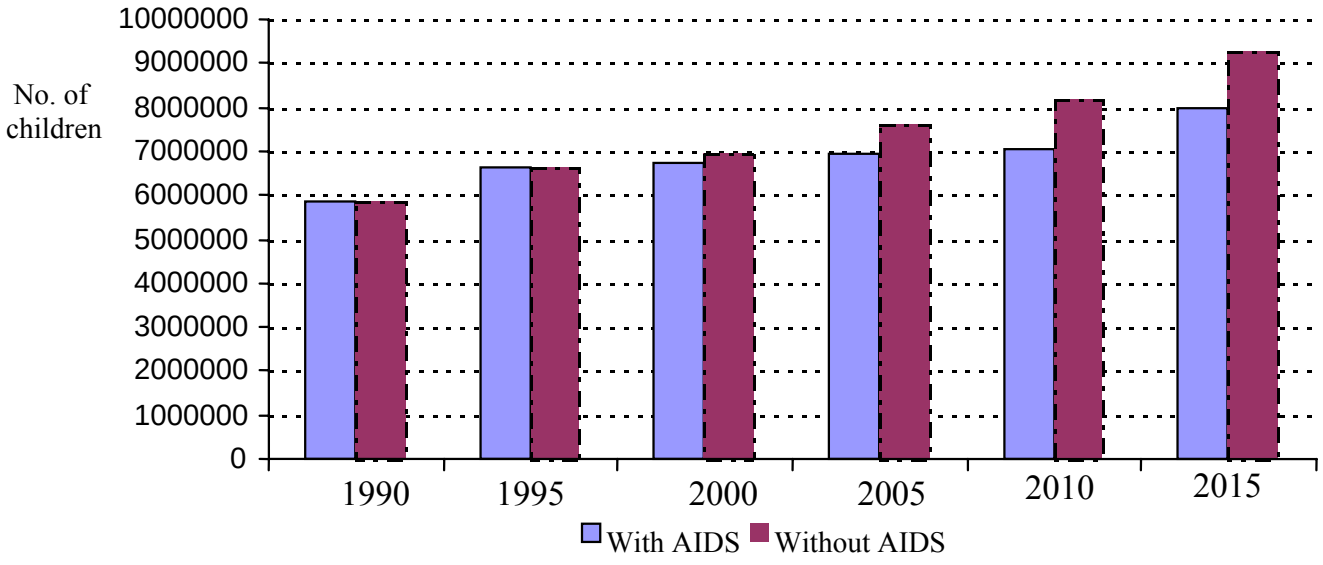
While enormous resource inputs have gone into awareness raising and attitude change activities across the country, one proposed intervention is to institute special teacher access efforts in order to enhance the already existing efforts to equip the teachers with more knowledge and skills that help them avoid HIV infections, coupled with enhanced access to health services for more appropriate care and support.

5.5.4 HIV/AIDS and Demand for Educational Services

Demand for education refers to the projections on the number of children requiring education, taking into account the declining birth rates and increasing child mortality rates. The school survey could not gather information on enrolment and changes in the same due to HIV/AIDS among pupils. For this reason, this report made attempts to assess the impact of the epidemic by looking at the current and projected school enrolment for 1990 to 2015 period based on secondary sources of information. Determination of the impact of the epidemic on the demand for education is based on the current and projected primary school age population (6 to 13 years) over time (see figure 5.4), taking two scenarios: Kenya with HIV/AIDS and Kenya without HIV/AIDS.

Projections using data from the Ministry of education suggests that in the Kenya with AIDS scenario, the size of the primary school age population[6] is expected to rise from 5.8 million to 7.9 million children by 2015. In contrast, under Kenya without AIDS scenario, the number of school age children would increase to 9.27 million or by about 15 percent more children. Taking into consideration the impact of AIDS on enrolment, the primary school age population will grow by about 19 percent between 2000 and 2015 under the Kenya with AIDS projection compared to 33 percent in the Kenya without AIDS scenario.

Figure 5.4: Primary School Age Children (1990-2015)



[6] Data on the number of primary school children was obtained from the Ministry of Education. This information was then used to calculate the number of primary students by taking in to account the declining fertility and HIV/AIDS mortality.

From the above projections, it is clear that the enrolment in the primary school sector will be less by 2015 because of the HIV/AIDS epidemic than it would be without HIV/AIDS. Moreover, with projected declines in the fertility rate, the growth rate of primary school age population is expected to decline further over the 2000-2015 period. The overall emerging picture is that of reduced demand for educational services, if the current HIV/AIDS trends continue.

5.5.5 Coping Mechanisms for the Education Sector

The most common strategy adopted by schools is to hire teachers on temporary basis to replace teachers who have died or unable to work. However, while the school boards are able to employ teachers as a direct response to the loss of teachers to the epidemic, it is not necessarily the most cost-effective strategy. Indeed, employing new teachers is extremely costly because the cost of new teachers is met, in most cases by the parents.

Discussion with informants from the education sector revealed that some schools which are worst hit by the epidemic have resulted to dividing students into shifts. Some students are taught in the morning while the rest come in the afternoon. Although this is a short term measure, it has serious implications on the quality of teaching because the teachers handling such classes are usually overworked. The study team was also informed that some schools have adopted a system of multi-grade teaching where one teacher handles pupils at different levels concurrently.
While the ERS and the MDGs goal on education is to ensure that, by 2015, children everywhere have access to universal primary education, the quality of learning is threatened by the epidemic in several respects: The loss of experience embodied in teachers who are lost to the disease represents an aspect of human capital that will be impossible to replace in the short run; Perhaps even more critically, the loss of threatens access for students, especially in rural areas where it is difficult to find replacements. Attendance is affected both directly and indirectly as a result of AIDS-related morbidity and mortality; Increased teacher absenteeism and increased class size compromises the quality of education; and short term replacement of teachers and workload sharing have a long term adverse impact on quality of learning and this has serious repercussions for the achievement of ERS and MDG goals.

5.6 Gender Mainstreaming in Sectors

The third pillar of the ERS is investment in human capital. Though this and other pillars do not directly address gender equality, it is expected that targeted investment in human capital would be gender sensitive. The equivalent MDG target however addresses directly the issues of gender equality and empowerment. The Millennium Declaration commits all UN member countries to promotion of gender equality and empowerment of women as effective ways to combat poverty, hunger and disease, and as necessary means to stimulate development that is truly sustainable. Persistent and pervasive gender inequalities hinder access to and control of resources while perpetuating unequal distribution of resources with greater bias against women. This in effect contributes to social insecurity, lack of opportunity and instils a deep sense of powerlessness, lowering the quality of life for both men and women. Women empowerment and equality between women and men are issues of human rights and justice not just women's issues. They are bedrock for lasting political, social, economic and cultural security among all people.

The first step towards ensuring gender equity and empowerment is through gender mainstreaming. Gender mainstreaming is the process of ensuring that gender issues and concerns are fully taken into account in all legislation, policies, processes, practices and programs, in all areas and at all levels including tackling the HIV/AIDS epidemic. It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programs in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated (FEMNET, 2003). Efforts to fight the HIV/AIDS epidemic fail because they do not reach women and girls, who are the most affected in the poorest countries. Half of all people affected by HIV are women. Girls are two and a half times more likely to be infected than boys of their age (UNAIDS, 2002e).

There are three critical factors, all interconnected, which place gender issues at the core of the HIV/AIDS problem in Africa: (i) Risk factors and vulnerability- these are substantially different for men and women, as is most evident in the marked age and sex differentiated HIV prevalence rates. This has implications for strategies to reduce overall prevalence in Kenya and for how and to whom AIDS prevention activities are directed (ii) The impact of HIV/AIDS differs along gender lines and this has implications for care, treatment, and coping mechanisms, including addressing the needs of AIDS orphans; and (iii) tackling the AIDS epidemic is fundamentally about behavior change. This essentially means effecting a transformation of gender roles and relations in Kenya. Generally, women are more infected than men, and are more vulnerable yet the existing strategies are more male oriented (Walsh, 2000).

5.6.1 Gender Mainstreaming in Sampled Sectors

The survey instrument for firms included a module on gender mainstreaming and HIV/AIDS in firms. The analysis revealed that some of the major impacts of the epidemic include psychological and emotional suffering, usually as a result of social exclusion and stigmatisation by society, where victims are viewed as failures. This was mostly reported in the GJLOs sector (34%) either due to infection or where a spouse or a loved one died of the epidemic. In the event of the husband's death, women are most affected and often succumb to societal pressures of inheritance and submission. Often women are left without any property and assets, making them poorer and more vulnerable. Related to this has been the effect of a more difficult work environment to cope with. Often, widows may suffer discrimination at work and also in the family. This often leads to frustration and depression, in turn affecting an individual's productive capacity.

A large proportion of firms however were more conservative and preferred to say that HIV/AIDS had not affected any of their workers. For instance, 32% of all commercial firms, 24% of GJLOs and 32% of health sector firms reported that the firms had not experienced any cases of HIV/AIDS (Table 5.21). More firms declined to provide any information on the excuse that they would not know the effect since they do not disaggregate information along gender dimensions in their firms. The GJLOs and health sectors however easily reported that due to HIV/AIDS, there was increased workload especially for male workers both at home and at the work place.

Specifically, men whose wives had died were reported to have been forced by circumstances to take up the roles as "fathers and mothers".

Table 5.21: Impact of HIV on Men and Women (%)

Impact	Commerce & Industry	Informal Sector	GJLOS	Health facilities	Transport & Communication
Stigmatization			34	4	
Psychological and emotional suffering				20	
Behavioural change	12		7		
Increased work load			10	16	
No effect	32	19	24	28	
N/A (no women/men in firm)		17	24		
No response	56	64		32	100
Total	100	100	100	100	100

Key informants in the health sector also reported that there is HIV/AIDS related sickness work place stigmatization. Consequently, infected workers suffer psychological and emotional suffering (reported in 20% of the health facilities). A positive impact of the HIV/AIDS scourge, in both men and women, is that there have been corresponding changes in behaviour whereby people are today more cautions in choosing their sexual partners. Other respondents reported that the epidemic had forced women in particular to be much more careful. This behaviour change was reported by 12% of commercial firms and 7% of the GJLOs firms. In other cases, widowhood resulting from the epidemic may lead to negative behaviour changes, especially resulting from feeling of loneliness and fear of being stigmatised by the community. It is therefore natural for people to hide behind the norms in society, if only to avoid the curious and watchful eye of the public.

5.6.2 Gender Mainstreaming Policies

In a large number of firms visited, there were no policies to promote gender mainstreaming (Table 5.22). The worst hit sectors included the informal (41%), transport and communication (40%) and GJLOS (36%) sectors. One key informant in the GJLO sector was quoted as saying *"an officer is an officer, men and women undergo the same training, same postings and working environment"*. However, within this sector and especially in the disciplined forces, there are increased changes in the traditional approach. For example, the survey noted that today women with families are in some areas exempted from night duties, and that they are nowadays considered for office work as opposed to active field work.

In 4% of GJLOs firms, it was reported that infected persons (of either sex) who openly declared their *serostatus* are promoted and given the responsibility to lead campaigns that educate

colleagues on dangers of the HIV/AIDS epidemic. Such people particularly in the armed forces are also currently being posted to stations where they can easily access medical attention. In other instances, they are posted to their home areas so as to be close to their families. Though, the sector lacks a clear gender policy, efforts mentioned clearly indicate the willingness within the sector to integrate the affected and the infected into the normal duties and procedures. This is important for the purposes of minimising the negative effects of the epidemic. The efforts in some of the disciplined forces is a learning point for many other departments within this sector, which have just gone to the extent of ensuring equality and open door policy, as mentioned by about half of the respondents in this sector.

Going by responses drawn from the sampled commerce and industry firms, there seems to be a bias against the capacity of women to carry out various activities in this sector. Most of the firms interviewed preferred to employ men and quite a number said they had no women employees. While 12% of the firms lacked any gender policy, 16% noted that their guiding policy is 'equal opportunities for all'. Others were beginning to mainstreaming gender through efforts to redistribute key positions in a gender sensitive manner. In the informal sector firms, 41% had done nothing at all to mainstream gender aspects in the organisation. Many of them are still dominated by men believing that the nature of their business or work is suitable only for men.

Majority of the firms in the sample however declined to provide information on gender mainstreaming. Those that responded said that most existing policies require that men and women are accorded equal opportunities in both recruitment and promotions. This was reported by the GJLOs (62%), health (68%) and transport and communication (40%) (See Table 5.22). Among the informal sector firms, 10% reported having no gender mainstreaming policy because the sector is male dominated, while 2% reported that women actually get some preferential treatment.

Table 5.22: Gender Policy and Mainstreaming (%)

Policy	Commerce & Industry	Informal Sector	GJLOS	Health facilities	Transport & Communication	Office of the President
Gender Equality	44	5	62	68	40	100
Male Dominated		10				
Women privileged	2					
None	17	41	36	13	40	
No response	38	45	2	19	20	
Total	100	100	100	100	100	100

Respondents in the health facilities noted that while there may be some gender considerations in efforts to fight HIV/AIDS, women are generally disadvantaged. The high percentage of firms

with no gender mainstreaming policies points at the need for a gender policy to ensure that women and men get equal opportunities and deliberate efforts to ensure more women involvement at all the levels. This would not only help to engender the fight against HIV/AIDS in terms of prevention and support for affected workers but would also contribute towards achievement of the ERS and MDG target of gender equality and empowerment.

5.6.3 Addressing Gender Concerns and Welfare

Efforts to promote the welfare of both men and women with respect to HIV/AIDS differ from one sector to another. Workers in the health facilities are given protective materials such as gloves to reduce the chances of infection. In addition, ARVs have been provided in almost all district hospitals to facilitate access by as many people as possible (6%), while education and awareness campaigns have been implemented (17%) (Table 5.23). Some respondents (26%) within the health sector were, however, of the opinion that nothing much is happening as far as efforts to improve the working conditions of workers is concerned (40%). A number of the respondents were of the opinion that the efforts being carried out by the government so far are successful, but others felt that much more will require to be done particularly in the provision of drugs and equipment.

The GJLO sector has carried out a number of important activities to address the welfare of both men and women. The prisons department has for instance set up a number of VCT centres for use by the inmates (as reported by 7% of the prisons visited), in addition to offering seminars for both men and women inmates on the HIV/AIDS epidemic (22%). The department has gone further to train the wardens in VCT counselling so as to enable them reach as many inmates as possible. In other departments, referral networks for the sick have proved successful in making patients take to follow-ups of their therapy. This is supported by numerous training sessions and seminars on HIV/AIDS issues that are carried out by almost each of the departments individually.

Not much has been done to safeguard the welfare of both men and women in the informal sector mainly due to male dominance in the sector (Table 5.23). Likewise, no information was reported in this sector on its experience on HIV/AIDS interventions. Though this was based on the premise that there were few or no HIV/AIDS cases, it is obvious that the respondents were unwilling to provide the information. In addition, most workers in the sector are casuals who are often laid off when their working habits become irregular due to HIV/AIDS sickness. Only 1% of all firms reported that people have become more open on HIV/AIDS issues as a result of increased cases of patients suffering from the epidemic. Related to this, people have further changed their behaviour and have become more cautious in what they do. Some respondents also observed that religious beliefs particularly those that prohibit use of condoms are retrogressive with respect to fighting this scourge. Stakeholders in this sector strongly recommended the need for sensitisation, to make people bolder to take up VCT services. Towards this end, the government needs to come up with a comprehensive policy of fighting HIV/AIDS in the informal sector.

Respondents from the GJLOS survey recommended the need to step up sensitisation and training campaigns on knowledge needed to fight HIV/AIDS. Secondly, respondents noted the need to

upgrade the available facilities and to ensure that the materials and equipment in use are up-to-date and safe. This will give people the confidence they need to utilise services on offer. Thirdly, respondents also noted that it will be futile, in the disciplined forces, to transfer an officer who had been living with his/her family from one station to another and leave the family behind. This is counter-productive to the fight against the epidemic.

The recommendations from the GJLOS survey were supported by respondents in large commercial firms where 8% recommended improved counselling and 20% an awareness program policy. In addition, 16% recommended provision of more funds to fight the epidemic and 4% a screening policy, prior to employment. The latter recommendation would however lead to discrimination in job offers.

Table 5.23: Addressing Gender Issues and welfare (%)

Initiative	Commerce & Industry	Informal Sector	GJLOS	Health facilities	Transport & Communication	Office of the President
Awareness/education programmes	20		22	17	33	67
VCT			7			17
Free medical assistance	4			6	17	17
Some effort		7	15	11	17	
No effort		31	39	26		
No response	70	62		40		
Total	100	100	100	100	100	100%

5.6.4 Experience with gender initiatives to fight HIV/AIDS

Initiatives to fight the HIV/AIDS epidemic in different sectors have led to a number of experiences. The most reported experience is success, with large commercial firms reporting 12%, GJLOS 58%, health 15% and transport and communication 40% (Table 5.24). In the GJLOS sector, the respondents reported that the use of ARVs and associated counselling sessions have led to behaviour change among people in the sector as well as positive living among the people who are infected and affected. To some of the respondents, the impact of such initiatives can be seen and has actually been felt on the ground. However, this is being crippled by the fact that there isn't enough money for drugs and for monitoring initiatives to follow up on the progress among people using the medication. In addition, other respondents feared that the progress made on therapy for HIV/AIDS patients and those affected may soon be lost due to lack of similar initiatives at all local levels.

Table 5.24: Experience with Efforts to fight HIV/AIDS (%)

Experience	Commerce & Industry	Informal Sector	GJLOS	Health facilities	Transport & Communication
Success (behaviour change)	12	5	58	15	40
Failures	28		13	31	40
No experience		29	29	8	
No response	60	66		46	20
Total	100	100	100	100	100

Other respondents had misgivings about the efforts, which to them have actually failed to gain any impact on the ground, as reported by 28% of big commercial firms, 13% of GJLOS firms and 31% of health sector facilities. In some departments in the GJLOs sector, such as the Shimo la Tewa Prison, for instance, it was noted that since the VCT centre was opened in August 2005, not more than 20 officers have visited the facility. This implies a problem with the sensitisation programmes targeting this group of people. The survey also revealed that inmates in prisons are restricted from visiting VCTs. In one of the centres, only 4 prisoners are allowed to visit the facility per day. Condom use was said to be poorly or not facilitated at all, with some noting that if any condoms were provided, they would be low quality brands. Such issues if not checked may lead to failure of the initiatives in question.

Gender analysis in sampled sectors suggested that there were marked gender differences in interventions to fight the epidemic. The results suggest the need for gender mainstreaming in sectors, more so the small scale and informal sector firms. Such efforts would help the government to achieve the ERS and MDG targets of improving the welfare of vulnerable groups, ensuring gender equity and empowerment and also the KNASP strategic objective of mitigating the impact of HIV/AIDS on vulnerable groups.

6 MACROECONOMIC IMPACT OF HIV/AIDS IN KENYA

6.1 Introduction

The Kenya government has been pursuing human development objectives since independence, with a focus on the elimination of poverty, disease and ignorance. Various development and sectoral plans, strategy papers and other policy documents have been geared towards achieving broad-based sustainable improvement in the welfare of all Kenyans. The ERS is anchored on four pillars, namely, restoration of economic growth within the context of a sustainable macroeconomic framework, strengthening the institutions of governance, restoration and expansion of the physical infrastructure, and investing in the human capital of the poor. The MDGs are linked to the four ERS pillars and focus on: Investments (public and private; foreign and domestic); Transportation (roads and rails), housing, energy, water and sanitation; Education; gender equality; child mortality; maternal health; HIV, TB and malaria; health systems; Declaration to improve governance; Approaches to meet the Millennium Goal on hunger, create jobs and increase incomes. However, so far, the successful implementation of these plans and strategies has been hampered by limitations in capacity, financing and governance problems. The impact of the HIV/AIDS epidemic is likely to frustrate further the endeavours to achieve these objectives unless appropriate ways of mitigating the impact are designed. The impact of the epidemic on the macro economy can be analyzed by looking at all micro level impacts (households, gender and children, and each of the priority sectors) or by carrying economy wide analysis.

This section presents estimates of the sectoral and economic wide impact of HIV/AIDS. Section 6.2 describes the modeling procedure while sections 6.3 and 6.4 present the results of the econometric model and model simulations, respectively. Evidence continues to mount for a negative association between the health of a nation and its economic growth (Sachs, 2001; Pritchett and Summers, 2001). That ill health reduces not only individual welfare, but also impacts on national economic performance, has been clearly demonstrated, for example, in the case of malaria and HIV/AIDS (Gallup and Sachs, 1998; Kambou et al., 1992; Sachs and Malaney, 2002). Previous research has also shown that poor health reduces the most important input, labour supply by household and second, it increases expenditure on medical care. Recently Haacker, (2004) classified the impact of HIV/AIDS into three broad categories: (i) the demographic impact of the disease, (ii) impact on government finance and public services and (iii) macroeconomic impact. By disproportionately affecting young adults in the productive age groups, the primary demographic impact could be to increase the dependency ratio, which is the increase in the number of younger and older dependants as a proportion of the economically productive age group. In addition to rising health expenditures and lower income generating potential and saving among households, private firms and businesses suffer from lower productivity on account of increased personnel costs due to health related absenteeism, sickness, death and recruitment costs. These factors act as a deterrent to expansion of domestic investment and foreign direct investment. Similar effects occur in the public sector, where there is considerable pressure on the budget exerted through a decline in public revenue following the reduction in working age labour force, and increased expenditure on health and other welfare costs.

6.2 Modeling the Macroeconomic Impact of HIV/AIDS: An Overview

Economic theory, posits a number of ways to assess the economic impact of a chronic disease (in our case HIV/AIDS). The first one is to look at the effect due to morbidity and secondly, the effect due to mortality resulting from the illness. The morbidity effects have been classified in the literature into two broad categories: (i) the negative effects on human capital and labour productivity and (ii) the macroeconomic effect of lower individual savings rates due to the rise in HIV/AIDS related expenditure. The mortality effect of HIV/AIDS has two impacts, first is to lower population growth rates. The second impact is to change the demographic composition of the population.

Different models have been developed for studying the interactions between health and macroeconomic growth. These include computable general equilibrium models (CGE), computer simulation models and econometric models using cross-sectional data or time series data. Computable general equilibrium models are data intensive and require an updated social accounting matrix (SAM) in order to calibrate the impacts across the sectors. However, the CGE is not without limitations. First, there are a number of behavioral specification assumptions that must be met. The behavior of all agents must be specified. For instance for firms and households, the expenditure allocation rules must specified for all agents. Second, CGE models also contain a number of identities that enforce consistency. For example, households must respect their budget constraints, government consumption must be financed through tax revenue, foreign grants or borrowing on domestic or foreign markets. These propositions are essentially a matter of accounting; however, they serve to circumscribe the range of possible outcomes. To achieve equilibrium in these factor and product markets, prices need to adjust to simultaneously satisfy the decision rules and accounting constraints, which are not easy to attain. For these reasons we resort to another alternative model. Recently, some studies have estimated the economic impact of HIV/AIDS by incorporating HIV/AIDS into the traditional macroeconomic models.

Capital is vital for economic development, but the first growth accounting studies such as Solow (1956) focused on physical capital and found that it could not fully explain economic growth. The seminal work by Mankiw, Romer and Weil (1992), extends the Solow growth model by incorporating human capital as an additional factor of production. They conceptualize human capital solely by educational attainment but not health in their empirical estimation. The study by Knowles and Owen (1995) explicitly models both education and health at components of human capital as follows:

$$Y_t = (K_t)^{\alpha}(E_t)^{\beta}(H_t)^{\gamma}(A_t L_t)^{1-\alpha-\beta-\gamma)} \quad (1)$$

They assume that aggregate output in a country at time t, Y_t is a function of physical inputs K_t, educational attainment E_t, health H_t labour L_t, and labour augmenting productivity A_t. The exponents α,β, and γ are elasticities.

There are several reasons to include health as an input of the macroeconomic production process. Healthier populations- due to lower health related expenditures and higher likelihood of future survival are more likely to save and invest for the future. In addition health is directly correlated with labour productivity. Following McDonald and Roberts (2004) we assume that HIV/AIDS prevalence has an effect on accumulation of health capital. In addition to an aggregate

production function, we formulate a second equation characterizing a health production function. Health outcomes in a country are assumed to be a function of several inputs. These inputs Z_t include factors such as health expenditure, education, infrastructure and so forth. Health outcomes are also assumed to be functions of a country's epidemiological environment d_t such as disease prevalence rates. The health outcome function can be summarized as:

$$H_t = f(z_t, d_t) \quad (2)$$

By taking the HIV prevalence rate to proxy for d_t, one can estimate its impact on macroeconomic growth through its effect on health capital accumulation.

6.3 The Model

In line with the economic theory, a production function is used to assess the effect of HIV and AIDS on output and economic growth (see Haacker, 2004). Assuming a Cobb-Douglas production function, the basic production function takes the form:

$$Y = AK^{\alpha} (e_H L)^{\beta} \quad (3)$$

Where $\alpha + \beta = 1$; e_H is the efficiency parameter for labour ; Y, A, K and L denote aggregate output, total factor productivity, capital and labour respectively; α and β are the share parameters for capital and labour, respectively.

And the steady state output per capita for sector i is given as:

$$y_i^* = (A_i)^{1/\beta_i} (s_i / \delta + n)^{\alpha i / \beta_i} e_{Hi} \quad (4)$$

where δ and n are depreciation rate of capital and growth of labour respectively. In this model, HIV/AIDS affects per capita income through its impact on total factor productivity, the growth rate of labour force (n), and labour productivity.

Equations (3) and (4) were used to assess the impact of HIV and AIDS on the total output and output per worker. Equation (3) was estimated to obtain the values for total factor productivity, share of capital in total output and share of labour in total output. The estimated values of these parameters were used in (4) to determine the impact of HIV and AIDS. Three production functions were estimated; for agricultural sector, commerce and industry sectors and for total economy. The definitions, measurements and sources of variable used are provided in Table 6.1.

Table 6.1: Variable Definition, Measurement and Sources

Sector	Variable	Definition and Measurement	Source
Agriculture	Output	Annual value of agricultural GDP at constant Kenya Shillings (1982 prices)	Statistical Abstracts (1984-2001) and economic surveys (various years)
	Labour	Annual number of wage employees in the agricultural sector	Statistical Abstracts (1984-2001)
	Capital	Estimated annual value of fixed capital stock (1982 prices in the agricultural sector	Own calculations based on the study by Njuguna et al., 2003 and Statistical Abstracts (1984-2001)
Commerce and Industry	Output	Annual value of commerce and industry GDP at constant Kenya Shillings (1982 prices)	Statistical Abstracts (1984-2001) and economic surveys (various years)
	Labour	Annual number of wage employees in the commerce and industry sectors	Statistical Abstracts (1984-2001
	Capital	Estimated annual value of fixed capital stock (1982 prices in the commerce and industry sectors	Own calculations based on the study by Njuguna et al., 2003 and Statistical Abstracts (1984-2001)
Total Economy	Output	Annual value of total GDP at constant Kenya Shillings (1982 prices)	Statistical Abstracts (1984-2001) and economic surveys (various years)
	Labour	Annual number of wage employees in the economy	Statistical Abstracts (1984-2001
	Capital	Estimated annual value of fixed capital stock in the economy (1982 prices)	Own calculations based on the study by Njuguna et al., 2003 and Statistical Abstracts (1984-2001)

The results of estimation of the three functions were as in tables 6.2 to 6.4. Table 6.2 shows that the shares of labour and capital in agricultural output were approximately equal to 0.87 and 0.29 respectively. These coefficient estimates suggest increasing returns to scale in agriculture. We imposed linear restrictions, for constant returns to scale, which yielded coefficients (shares) of 0.75 and 0.25 for labour and capital respectively in the agricultural sector. Notably, the share of capital does not change drastically. The assumption of constant returns to scale is important so that any increase or decrease in output may not be attributed to other factors. Table 6.3 shows the estimated results for the commerce and industry sectors, share of labour and capital were approximately 0.78 and 0.13. However with restriction for constant returns to scale gave shares of labour and capital as 0.68 and 0.32 respectively. Similarly, the unrestricted production function for total GDP produced shares of labour and capital as 0.79 and 0.30 respectively.

However, imposing restrictions gave the 0.72 and 0.28 shares of labour and capital respectively. The shares of the two factors based on the restricted models are shown in Table 6.5.

Table 6.2: Determinants of Agriculture Output (1984-2001)

Variable	Coefficient	Std Error	T-statistic	Prob.
Log of Labour	0.867	0.302	2.869	0.012
Log of Capital	0.286	0.029	9.843	0.000
Constant	-3.291	3.645	-0.903	0.381
R-squared	0.912	Mean dependent var		10.152
Adjusted R-squared	0.900	S.D. dependent var		0.087
S.E. of regression	0.027	Akaike info criterion		-4.199
Sum squared resid	0.011	Schwarz criterion		-4.051
Log likelihood	40.793	F-statistic		77.337
Durbin-Watson stat	1.166	Prob(F-statistic)		0.000
Method of estimation: OLS				
Sample: 1984 -2001				

Table 6.3: Determinants of Gross Domestic Product in Commerce and Industry (1984-2001)

Variable	0.779	Std. Error	t-Statistic	Prob.
Log of Labour	0.134	0.213	3.654	0.003
Log of Capital	-0.921	0.105	1.284	0.223
Constant	0.614	1.774	-0.519	0.613
AR(2)	0.998	0.078	7.855	0.000
R-squared	0.997	Mean dependent variable		10.324
Adjusted R-squared	0.010	S.D. dependent variable		0.183
S.E. of regression	0.001	Akaike info criterion		-6.222
Sum squared residual	53.776	Schwarz criterion		-6.029
Log likelihood	1.091	F-statistic		1773.374
Durbin-Watson stat	0.779	Prob(F-statistic)		0.000

Table 6.4: Determinants of Total Gross Domestic Product (1984-2001)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Log of Labour	0.790	0.094	8.378	0.000
Log of Capital	0.299	0.032	9.261	0.000
Constant	-3.284	0.982	-3.342	0.005
AR(1)	-0.096	0.310	-0.310	0.761
R-squared	0.995	Mean dependent var		11.291
Adjusted R-squared	0.994	S.D. dependent var		0.134
S.E. of regression	0.010	Akaike info criterion		-6.104
Sum squared resid	0.001	Schwarz criterion		-5.908
Log likelihood	55.882	F-statistic		892.195
Durbin-Watson stat	1.963	Prob(F-statistic)		0.000
Inverted AR Roots	-0.1000			

Table 6.5: Elasticity parameters (shares) in the model (1984-2001)

Sectors	Labour	Capital	TFP
Agriculture	0.75	0.25	220
Commerce and industry	0.68	0.32	200
Total output (economy)	0.72	0.28	130

6.4 Simulation results: The Impact of HIV/AIDS on the Economy

HIV/AIDS is expected to increase morbidity and mortality of the working age population. Although these have been shown to increase health service and patient/family costs, there are a number of mechanisms, whereby it is reasonable to postulate that HIV/AIDS inflicts a negative effect on the economy. The expected effect of these mechanisms which include: First, increasing mortality and morbidity (mainly attributable to HIV/AIDS directly) leads to a fall in the labour supply and its productivity, which in turn leads to a fall in overall production. Since national output is a direct function of the quantity (labour supply) and quality (productivity) of physical and human inputs available for productive activities, we would expect this to lead directly to a fall in national output. This fall in output will then translate into a reduction in national income. This decline in national income would then follow standard predictions and translate directly into lower national savings and lower welfare. As national savings fall, investment in physical capital also falls, leading to a further decline in the productive capacity of the economy.

The results for the impact of HIV/AIDS on the economy using the two scenarios (with and without HIV and AIDS are summarized in Table 6.6. The values in the last two columns show the percentage changes in the per capita output. We can see that productivity and labour supply decline as a result of prolonged illness (morbidity and mortality) leads to a fall in the per capita output from Kshs. 1437 to Kshs. 1392 (agriculture), Kshs 3140 to 3092 (Commerce and industry) and Kshs 1,024 to 982. In absolute terms this represents a decline of per capita output of Kshs 44, 48 and 42 in the agricultural sector, commerce and industry and the overall economy, respectively.

Table 6.6: Estimated Coefficients and comparisons with and without HIV/AIDS

	A	y	a	s	dep	n	eff0	eff1
A	220	0.75	0.25	0.1	0.05	0.029	1	0.970
I	200	0.68	0.32	0.2	0.1	0.015	1	0.985
Total	130	0.72	0.28	0.2	0.1	0.029	1	0.959
	TFP	Labour share	Capital share	Saving rate	Depreciation rate	Rate of growth of labour	eff0	eff1
A	220	0.75	0.25	0.1	0.05	0.029	1	0.969
I	200	0.68	0.32	0.2	0.1	0.015	1	0.984
Total	130	0.72	0.28	0.2	0.1	0.029	1	0.959

A is the agricultural sector, I = Commerce and Industry, TFP = Total factor productivity, eff0 =labour efficiency without HIV and AIDS, eff1 = labour efficiency with HIV morbidity and mortality.

The loss in time for the agricultural worker due to HIV morbidity was found to average 5 months and 3 months for the commerce and industry. Based on these findings, the estimated loss of time per positive worker was 4 months. In general, a healthy individual is assumed to be 100% efficient. However, our estimates show that sick individuals are 98% efficient for the first 3 months of illness and 96 percent should the illness persist for 6 months. An illness of over 6 months is only plausible in the informal sector, because Kenyan labour laws stipulate that employment for any worker who is unable to work for more than 3 months is terminated. The loss in per capita output due to HIV/AIDS is shown in Table 6.7.

Table 6.7: Impact of HIV/AIDS on GDP (by sector and overall)

	Per capita output without HIV/AIDS (KShs)	Per capita output with HIV/AIDS (KShs)	Loss in per capita output (KShs)	Percent loss in per capita output (KShs)
A	1,436.66	1,392.84	(43.82)	-3.1%
I	3,140.26	3,092.37	(47.89)	-1.5%
Total	1,023.51	981.89	(41.62)	-4.1%

Our simulation results predict a much lower impact of AIDS than predicted by Hancock et al., (1996). With high mortality and morbidity of the most productive labour force, Hancock et al., (1996) predicted that AIDS would lower GDP by 14.5% while per capita income would drop by 10%. They further predicted that AIDS would lead to a 15% and 14.5% decline in savings and aggregate gross domestic product respectively by the year 2005. Our simulation results (Table 6.7) show that with HIV/AIDS, per capita output and total output will decline by 3.1%, 1.5% and 4.1% in the agricultural sector, commerce and industry sectors and the overall economy respectively.

7 CONCLUSIONS AND POLICY RECOMMENDATIONS.

7.1 Introduction

The Kenya National HIV/AIDS Strategic Plan (KNASP) 2005-2010 identifies the socio-economic impact of HIV/AIDS as the key priority area of intervention. Under this priority area, a lot of emphasis is placed on the need to focus interventions towards the most vulnerable populations. This is consistent with the ERS pillars and MDGs targets aimed at achieving sustainable development at the macro level and elimination of hunger, employment generation and increased incomes at the micro level. Five sectors including health, agriculture, transport, education and the governance, justice, law and order sector (GJLOS) have been prioritized for strategically and effectively expanding the national response to the HIV/AIDS epidemic. This is due to their specific mandate and/or vulnerability of the populations they serve as well as current epidemic trends. This study undertook to analyze the socio-economic impact of the HIV/AIDs epidemic on these clusters in the context of the ERS, MDGs and the KNASP objective 3. First, a comprehensive literature search was undertaken to document existing information on impact of the epidemic and also to identify gaps for study and policy interventions. Once gaps were identified, the study used both primary data (collected from household and firms) and secondary information (on firms and the macro economy) to achieve the study objectives. This section presents the key findings and also suggests policy interventions based on the findings.

7.2 Impact of HIV/AIDS on Households, Gender and Children

The third strategic objective of the KNASP is to adapt existing programmes as well as develop innovative response to reduce the impact of the epidemic on communities, social services and economic productivity. This objective aims at contributing towards the achievement of ERS target of revitalizing productive sectors (agriculture, tourism trade and industry) and the MDG target of improving household welfare through fighting hunger, creating jobs and increased incomes. However, a quick glance at the study findings shows that this goal may not be realized unless the economic burden imposed by the epidemic on households is halted. Coping mechanisms adopted by households are likely to jeopardise the household's asset base, thus making it more difficult for them to cope with the impact of the epidemic in the long run and therefore undermining the achievement of the KNASP, ERS and MDG targets.

Socio-economic Impact

- The results show that persons working in lower occupational categories were more likely to be affected than those in more prestigious occupations. For instance, individuals from households headed by self-employed persons were more likely to be affected than those from all other occupational categories. Also, of 74% of household heads engaged in informal sector activities, 16% were from affected households. Consequently, the impact of HIV/AIDS was more severe among low income groups. For instance, 79% of all affected households reported an annual income of less than Kshs.15,000, compared to 69% of household reporting mortality.
- Less educated people were likely to lose more days of work due to hospitalization than the more educated. This was because there was higher morbidity among the less educated

than their more educated counterparts. The incidence of morbidity was higher in female headed households than male headed households, while in households reporting morbidity and mortality, most of the affected female household heads were widowed.

- For male headed households, heads with less education seemed to be much more vulnerable, with 68% of affected households having none to primary education, compared to 55% of unaffected households and households reporting morbidity.
- Women of all ages were more likely to be affected by HIV/AIDS than their male counterparts, implying feminization of the epidemic. However, our findings confirm prior findings that, for both sexes, the hardest hit age bracket was 25 to 49 years.
- Children from affected households were more likely to drop out of school (36%) due to education related costs than children from un-affected households (25%). Younger children were however more likely to drop out of school due to HIV/AIDS related morbidity and mortality than older children.
- A very common coping strategy, necessitated by reduced family incomes was removal of children from school for child labour either in their households or to work for their better economically endowed relatives.
- Unaffected households sheltered more orphans than the affected, but the main care givers for orphans were women irrespective of the HIV/AIDS status of the household.
- For the households with people living with AIDS (PLWHAs), 73% of caregivers were women with mothers, children and grandmothers accounted for the majority of the caregivers. There was substantial decline in productivity of affected members and care givers as shown by differences in number of days lost to illness and care-giving. The care givers spent approximately 8 hours per day taking care of the sick relatives. About 6% of the care givers reported having completely abandoned their normal duties in order to take care of the sick family member. Results also showed that on average, care givers spent 32 days per sickness episode taking care of the sick family member while those taking care of relatives ill from other conditions spent 21 days.
- On average, affected households (both morbidity and mortality) spent more on medical care than unaffected households. The affected households also spend more on funeral expenses than unaffected households. In addition, affected households spent more on monitoring tests which accounted for 32% of the total treatment cost while the transport costs accounted for 25% of the total costs of seeking treatment. The higher cost of monitoring was due to the longer duration of illness and also due to clustering of the opportunistic infections in affected households.
- HIV/AIDS affected households resorted to borrowing, utilization of past savings and sale of assets to cater for hospitalization and other HIV/AIDS related medical costs.
- Social capital was a vital support system for a significant proportion of households with a member living with HIV/AIDS, who cannot afford health services on their own. Social networks enabled affected households to cope with the effects of the disease by providing social support and assisting households to start income generating activities.
- Evidence suggested that household members with sick individuals spent less time on agricultural activities than the non affected members. This led to neglect of fields and decrease in planted area. The analysis also showed that depending on the timing and the duration of illness, there may be cases of land being left fallow, changing crop mix and dependence on labour sharing and consequently a reduction in agricultural production. The study also uncovered significant differences in acreage under maize and

consumption between affected and non affected households. This finding suggested that declining health of other household members, among affected households may be due to lack of adequate food and/or poorer foods compared to non-affected ones.

- The findings revealed a growing supply of labour from orphans, widows and other vulnerable individuals for agricultural production. 32% of households depended on group labour especially during the peak farming seasons.
- Loss of labour due to illness and care of the sick family members resulted in delays in agricultural production, land being left fallow, changing crop mix and dependence of labour sharing and consequently a reduction in agricultural production. Illness therefore compromised labour productivity mainly because sick individuals were unable to work. Even in situations where they could still work, the performance was lowered by physical, physiological and psychological factors. Affected individuals were found to have lost the highest number of days compared to the non-affected individuals. The evidence also suggested that household members with sick individuals spent less time on agricultural activities than the non-affected members. A plausible explanation was that there was a diversion of productive labour to care giving, a feature explored elsewhere in this study.

Households' Coping Strategies

- Majority of the affected households used a variety of strategies to pay for health care expenditures and cope with the impact/costs of illness in order to avert negative effects for household production and assets. The amount from household savings, borrowing or sale of assets, however, was generally insufficient.
- The most common strategies used by affected households to cope with the disease included sale of assets, intra-household labour substitution, borrowing money from friends/relatives, withdrawing children from school, taking children to live with relatives and use of past savings.
- Only 12% of the affected households were able to meet the cost of health care services from their salaries while about 58% indicated that they financed health care services from own savings.
- One lesson from the current study is that there are households at risk of being pushed into poverty as a result of HIV/AIDS. The most vulnerable and least able to cope are asset deprived households.

Recommendations

Short and Medium Term Recommendations

- The evidence pointed to the fact that funds earmarked for mitigation of socio-economic impact were not reaching the target population. There are three related recommendations based on this finding: First, the National AIDS Control Council Government should review the current mechanism of transferring funds from NACC, Ministry of Home Affairs and Office of the Vice President and donors to intermediaries for onward transfer to target groups. One way of doing this is to channel the funds directly to affected or infected groups. Second, NACC should devise a mechanism of ensuring that publicly funded programmes as well as donor funding target the most severe areas such as home support for the basic needs of the households coping with AIDS, food programmes for children and support for educational expenses.

- The NACC should develop a core set of standardized indicators for mitigation of socio-economic impact at the individual and household levels to collect baseline data, monitor, and evaluate mitigation responses. These indicators should be developed to collect information on the number of affected households, individuals and children as well as mitigation activities being supported.
- To address shortage of food and declining nutritional intake, the government through agricultural extension programmes could organize field sessions in which experienced farmers are recruited to help teach women about husbandry and marketing techniques for particular crops.
- Initiate programmes to overcome gender barriers and nurture women farmers' participation in extension programs, cooperatives, and other fora for learning about and participation in cash crops, in order to mitigate shocks to agricultural income faced by affected households.
- Youth programmes should use an integrated strategy to HIV/AIDS and target primarily out-of-school rural youths, with an emphasis on young women. Occasions and sites where out-of-school rural youths can be mobilized should be identified. Out-of-school youths can be mobilized more effectively when labour demand is at its lowest, i.e. during the off peak season. School premises could be used for out-of-school activities during weekends and holidays.
- Major shifts in attitudes and policies are required if effective policies for prevention are to be implemented. This means grappling with sensitive issues of sexuality and gender relationships, where major and fundamental changes are required. Implementation of activities that focus on behavioural change and based on a realistic understanding of the changes required to reduce the spread of infection, will generate enormous benefits in terms of the avoidance of future costs. Non-governmental and community based organizations should play a critical role in such an intervention.
- Prevention programs should aim at attitude and behaviour change and should include: information and awareness-raising campaigns; educational programs; gender-specific programs; linkage to health promotion programs; community outreach programs; and other practical measures to support behaviour change.
- Though voluntary counselling and testing (VCT) for HIV/AIDS is increasingly being adopted as an important prevention and control strategy, access to VCT services remains limited for most vulnerable groups. Increasing access to vulnerable groups would be an important milestone in the fight against the epidemic.
- Mobilizing support for people with AIDS or people who are vulnerable to HIV/AIDS would also help fight the spread of the epidemic. For instance, young widows/widowers whose families have been affected by AIDS could be involved in HIV/AIDS education and related activities and possibly given some incentives. This has been seen to work in other countries and although it was also being practiced in some sectors (e.g. the GJLOS), the government needs to make it a policy to increase effectiveness.
- Given the threat to household food security posed by HIV/AIDS, there is an urgent need for renewed emphasis on household food and nutrition security so as to ensure that the needs of the most vulnerable people are addressed. A strong household food and nutrition security focus could serve as an HIV prevention, care and mitigation strategy alike. Since more women than men become infected with HIV at an increasingly younger age, governments and donors alike need to focus their efforts on ensuring that HIV-positive women have access to adequate food and clean water so that they can live long enough to take care of their children.

This is likely to have a powerful effect on addressing the problem of orphans, enhancing household food and nutrition security and preventing the social breakdown that often accompanies the epidemic.

- Supporting the sustainability of rural agricultural livelihoods must become a priority of the governments and development partners. Ways of maintaining or increasing productivity levels with less labour and/or fewer inputs are needed to counteract the loss of able workers and lost income and savings of affected rural individuals or households. The government and donors should consider allocating more funds to improve agricultural productivity and a conducive environment for off farm income activities in the affected areas. In particular, agricultural education, for women in the rural areas, needs to be developed in order to pass on the knowledge that is being lost due to high mortality. Fundamentally, any intervention must support the viability of the rural household and provide mechanisms to allow the household to escape from the vicious cycle of poverty.
- The need of Home-Based Care (HBC) for HIV/AIDS patients is acutely felt and needs to be implemented on a larger scale with more participation of health care professionals. Based on the study findings, we recommend that as the support for home-based care programmes continues to gain support, the government and development partners need to gather additional information on the cost element in order to inform and scale-up HBC. In addition, the implementation of the programme should ensure that women are not exposed to further burdens of caring for the sick household members at the expense of other critical roles they play.
- The government also needs to clearly identify key components of an effective home-based care programme. The community-based care, should for example be provided by trained community volunteers attached to a non-medical, nongovernmental organization (NGO) and should provide a more "holistic approach" that includes an emphasis on a continuum of psycho-social assistance to both PLWHAs and households with PLWHAs. For an effective home-based care, the government and development partners should support provision of other services including food assistance, psychosocial support, human rights interventions, and health care. Because facility-based and community-based programs both rely on volunteer assistance, staff attrition should be taken into account in the implementation of the programme. The study findings imply the following recommendations: a) Continue the policy dialogue and stakeholder engagement to include HBC programs in the delivery of HIV/AIDS care and treatment, including ARVs; b) Improve data and institutionalizing processes to gather information on HBC services and impact; and c) Improve data on HBC by costing programs.
- The government and its development partners need to devise effective mitigation interventions so as reduce the devastating impact of the disease and poverty among the affected and infected households. Prevention and care are among the key priority interventions of the response to HIV/AIDS but, as this study has shown, HIV/AIDS not only impacts on individuals who are HIV-positive but also affects their households. There is evidence of inequity in HIV/AIDS resource allocation between rural and urban areas and in national AIDS programs due to urban accessibility and the overall marginalization of rural areas. As a result, interventions need to be directed towards rural households. HIV/AIDS-impact mitigation as part of a comprehensive poverty-reduction strategy is necessary, as addressing poverty goes a long way towards preventing the spread of HIV.

Medium and Long Term Recommendations

- Savings schemes: The government and donors can help households that have transitory income patterns and are thus unsuited to credit schemes. Helping such households build savings allows for reduction of economic risks and for coping in times of crisis. The government and development partners can help in establishing grassroots social security systems which include social support groups such as social welfare societies and savings societies which involve rotating savings and credit scheme.
- Diversification of Household Livelihood: Diversification of livelihood has been identified as a key strategy for coping with the economic burden inflicted by HIV/AIDS. Households need more options for obtaining resources and the ability to move rapidly between different livelihood strategies (both on and off-farm activities) at times of crisis, in order to minimize their vulnerability. Exploitation of the resources and opportunities that are available to facilitate livelihood diversification and the costs and benefits involved may provide important information to guide the planning of interventions, which may contribute to poverty alleviation.
- In order to effectively address the economic impact of the epidemic on households, there is need to strengthen inter-sectoral collaboration in the prevention and mitigation of the impact of HIV/AIDS. As shown in the study findings, HIV/AIDS appears to exacerbate short-term survival strategies with households often disposing off their few assets as well as engaging in high-risk behaviour in order to meet immediate needs. Hence alternatives will need to be developed urgently to prevent individuals and households resorting to measures which put them at greater risk of financial and food insecurity. Interventions that lead to livelihood diversification and the economic empowerment of certain target groups may be instrumental in minimizing the impact of HIV/AIDS. By developing practical programmes that link socio-economic change, livelihood strategies and HIV/AIDS prevention, HIV/AIDS will become increasingly understood as a systemic issue, not purely related to health, and the burden of responsibility for addressing the epidemic which is carried by the health sector will be reduced.
- The study findings have shown that burden (in terms of cost of seeking medical attention, coping strategies adopted and care giving) falls heavily on affected households compared to non-affected households. Given that HIV/AIDS is taking a significant proportion of household income, it is imperative that the government explores permanent solutions to the problem of medical care for affected households. The recent initiative by the government through the National Hospital Insurance Fund (NHIF) to cover ARVs is a welcome move. This needs to be extended to all affected households with a focus to rural areas where almost 60% of the population live below the poverty line.
- Income-generating activities need to be developed based on micro-credit, micro enterprises, and rural employment creation and poverty alleviation programmes, particularly to meet the needs of the vulnerable rural groups. Micro credit can be linked to savings and group-based lending schemes. Experience with micro credit has shown that the poor can be disciplined borrowers and savers, able to repay loans on time and to save. If poor families are able to pull themselves out of poverty, they need access to the loans that micro credit programmes provide. The government, donors and financial institutions should play a critical role in setting up micro credit programmes. These can be managed by non-governmental organisations and socially inclined financial institutions.

7.3 Impact on Key Sectors

The KNASP strategic target of mitigating the impact of HIV/AIDS seem to directly target households but not priority sectors. However, reducing the impact on economic productivity requires that sector specific interventions are also put in place. One of the key pillars of the ERS is the revitalization productive sectors, but the MDGs do not seem to directly target all priority sectors. However, the MDGs recognize that given their role in employment and poverty reduction, the productive sectors are major contributors to the achievement of the MDG targets on hunger, employment and income generation. By reducing labour productivity and requiring that increased resources are devoted to health expenditures in all productive sectors, HIV/AIDS is an impediment to the achievement of the KNASP, ERS and MDG targets. It is therefore very important that all sectors mainstream the fight against the epidemic and also adopt appropriate responses to mitigate the impact.

Commerce and industry

Socio-economic Impact

- Most firms visited reported that the main impact of HIV/AIDS illness was low output and productivity due to absenteeism. Loss of staff members was reported to have led to under-staffing of facilities and slowed down provision of services. This reduction of manpower, had led to the need to hire more employees or for current employees to work overtime or in shifts.
- About 16% of the top management male employees were positive compared to about 6% of the top female managers.
- The lower cadres of employees in all the sectors and firms were the most affected. For instance, in the GJLOs and health sectors, it was mostly corporals and nurses respectively that were reported to be more likely to be infected compared to other cadres.
- The average length of illness for the sick employees ranged from 82 days among the top level managers to approximately 87 days among the lower level workers.
- Firms reported that due to interruption of work caused by illness, spoilage of perishable stock rapidly set in, their financial reserves were quickly depleted, forfeiture of stalls and collapsed business.
- HIV/AIDS is eroding firms' capacity not only through losses in human resources but also through the loss of vital technical, administrative and managerial skills. Increased and prolonged morbidity of key staff officers renders the implementation of certain key activities impossible**.**
- 25 percent of the informal sector firms reported that illness, hospitalization and taking care of the sick led to loss of business and depletion of financial resources, while for some this led to eventual closure of business.
- National data projections revealed that activities such as wholesale, retail, restaurant and hotels accounted for 60% of the lost man days in the commerce and industry sector.
- The study revealed that firms spent on average Kshs. 166,000 per year per person on terminal benefits and on average lost Kshs. 2,160,000 per year due to loss of top management cadres. The total loss to the firms due to HIV/AIDS related illness and mortality was Kshs. 26.575 million.
- On average companies spent between Kshs 15,000 and Kshs, 4,050,000 per year on medical care due to HIV/AIDS related illnesses. The findings also indicated that

wholesale, retail and manufacturing sectors incurred very large losses in man hours due to HIV/AIDS sickness.

- 20% of interviewed formal sector firms reported that they provided ARVs to employees. Other firms reported increased costs due to subsidized medication for HIV/AIDS affected workers.
- About 16% of the top management male employees were positive compared to about 6% of the top female managers.
- The average length of illness for the sick employees ranged from 82 days among the top level managers to approximately 87 days among the lower level workers.

Coping Mechanisms in Commerce and Industry

- More than two thirds of the interviewed firms were distributing condoms to employees.
- Majority (70%) of the firms surveyed were found to have implemented a peer education programme for the employees where prevention measures would be encourages.
- More than a third of the firms had implemented a programme for controlling sexually-transmitted diseases among its employees.
- About 20% of the firms were providing ARVs to the infected employees whilst 11% were providing VCT services in the workplace.
- Cost reduction measures: retirement on medical grounds for employees who were chronically ill or had been sick for a long time; short-term contracts to replace sick employees so as to cushion against loss of production

Most coping measures adopted by firms are consistent with the KNASP priority interventions for an enhanced national response.

Recommendations

From the above findings the following short term and long term recommendations can be suggested:

Short Term Recommendations

- Development of comprehensive workplace programmes: The study findings showed that only a few business firms had a workplace policy on HIV/AIDS based on the KNASP 2005-2010 guidelines. In order for the companies to reduce the effect of the epidemic on production there is a need to formulate and implement develop comprehensive workplace policy on HIV in line with the Kenyan National HIV/AIDS Strategic Plan. The workplace programmes should take into account the concerns of employees and employers and should be tailored to the needs of the firm as well as the employees. The formulation of the policies should be done in consultation with the management, employees and the NACC. There are two key issues that need to be considered in the programmes:

    - HIV prevention programmes: For the firms that have already established work place programmes, there is need to extend the services to all employees. Those firms that do not have such programmes should work closely with the NACC to establish the programmes.
    - Improvement of the socio-economic environment. As revealed in the study, poverty is one of the main causes of HIV transmission. The study has also revealed that the few firms which have work place programmes have concentrated on Information Education and Communication (IEC) and behavioural change for

HIV prevention, yet behavioural change is only one aspect of the problem and IEC is one element in the set of solutions. Therefore, we recommend the commerce and industrial sectors in collaboration with employee welfare organizations, the NACC, the government and NGOs, address the social and economic environment within which behaviour is formed and perpetuated. This includes the improvement of and broader access to social facilities by employees, the improvement of sanitation and general hygiene in workers' housing estates and administration.

- Reduction of both Direct and Indirect Costs of HIV/AIDS Related Illness: In order to reduce the burden of taking care of the sick employees, the firms should consider establishing a home-care-based care programme for employees living with AIDS. Various studies have shown that home based care programmes are cost-effective in terms of costs and quality of care. Rather than establishing their own home based care programme, firms could provide support to their employees through the existing home care programmes.
- There is need to implement an aggressive HIV prevention campaign to protect employees and their partners. Since working in the formal and informal enterprises appears to increase HIV risk, albeit indirectly, it would be reasonable for the enterprises to meet part of the costs of such a program.
- An active workplace HIV prevention campaign is needed, with funding from the government and donors. Based on the study findings, most of the staff had not tested for HIV hence did not know their status or have access to prevention-related services such as education and STD treatment. HIV testing is particularly important, both to support prevention efforts and as a prerequisite for care and treatment. Given the existing high degree of stigma that still prevails within the workplace, neither prevention nor treatment is likely to succeed if workers fear being identified as HIV-positive. A concerted effort to reduce stigma will thus also be needed.
- It is in the sector's immediate financial interest for HIV-positive employees to receive effective care and treatment, including antiretroviral therapy as and when it becomes medically necessary. In some of the businesses, a small number of employees are already being treated, but it is not clear whether this proportion represents all employees who need treatment. Given that the number of employees in need of treatment will rise steadily in coming years it is in the enterprise's and government interest, to collaborate with the National AIDS Control Council to explore the possibility of making medical scheme coverage mandatory, either through the existing medical scheme, which many employees have already joined, or through another in-house or third-party scheme. This would offer several potential advantages to the business and its employees:

    - The firms would have access to accurate information about the uptake and outcomes of HIV/AIDS care and treatment.
    - Membership in a private medical scheme would improve healthcare generally and promote the goal of a healthy and thus productive workforce.
    - Delivery of HIV/AIDS services on or near the firm's premises would save workers' time spent seeking treatment outside their workplace.
    - Finally, the welfare of non-permanent staff should be given more attention. Most firms rely heavily on casual and contract workers for many of its core functions. While it may not be feasible to offer them all the benefits available to permanent

staff, the possibility of including HIV/AIDS prevention and treatment programs should be explored.

Medium Term Recommendations

- For the firms to be able to estimate the loss in productivity and output, they should use existing tools such as the "HIV/AIDS Toolkits" and the "Human Resource Development Assessment Tool". The tools will enable the firms to assess:

    - The effects of the epidemic on labour absenteeism caused directly by higher staff morbidity.
    - Exceptional mortality amongst different cadres of workers to identify probable losses of skilled, professional, and other employees by age, sex, and geographical area.
    - The direct costs to the firm due to absenteeism, labour turnover, and replacement (including recruitment, training, health and medical costs, and support for dependents).
    - The indirect effects due to human resource losses, including qualitative evaluation of the effects of morbidity and mortality on morale, attitudes.
    - The implications of scaling up programs, by comparing the costs and benefits within and between programs.

- Opportunities for partnerships between private firms and NGOs and the government agencies for mobilisation of resources and delivery of HIV/AIDS services appear to abound. Although HIV prevention is primarily a public sector and household responsibility, formal sector employers offer one important advantage: a concentrated population made up target groups, which are typically difficult to reach with health education and interventions. Some firms have health-related infrastructure (clinics) that could be utilized by a larger population than solely their own workforces, if there were reason to do so. The public sector and NGOs, for their part, often have access to lower prices for drugs, other medical supplies, expertise, and laboratory testing. There is need therefore to strengthen existing prevention and mitigation initiatives by private firms as well as support new partnerships.
- The firms should explore ways of working together with the insurance industry to work out policies and benefit packages that optimally serve the interests of all stakeholders, especially HIV/AIDS patients, in order to improve access to services. This could be extended to the public sector.
- It is imperative that the government, private firms both in the formal and informal sectors ensure greater involvement of people living with AIDS in major decisions related to HIV/AIDS treatment and prevention. The needs of these people need to be integrated into work place programmes.
- With the evidence of human resource impacts supported by data, business managers, researchers, and policymakers can more accurately understand the relative impact of AIDS on different production units. Data can be used to improve both company and government strategic planning capabilities.

Education

One of the key pillars of the ERS is investment in human capital of the poor. The equivalent MDG target is to ensure that, by 2015, children everywhere have access to universal primary education. These two targets would be expected to support the KNASP strategic objective of mitigating the impact of the epidemic on the education sector. However, holding demand constant, the supply of education is seriously affected by the epidemic, compromising the returns to increased investment in the education sector and the potentials gains of universal primary education.

Socio-economic Impact

- The largest number of positive and sick teachers was found in the cadres of P1 and approved teachers, for both male and female categories. Among these, the total estimated number of primary school teachers was approximately 10,000 compared to about 3,000 of all secondary school teachers.
- The proportion of both the positive and sick teachers was higher for male than for females across all cadres, mainly due to the relatively smaller proportion of female teachers in each cadre. Women teachers also lost more days of work to HIV/AIDS than their male counterparts in all cadres.
- Infected teachers were more likely, than the uninfected to be absent from class due to the progressive nature of the disease. The survey also revealed that non-infected teachers were likely to lose time in providing care to the sickly family members.
- A teacher on average lost a third of his/her teaching time due to sickness. This cumulated to a total of about 178,000 days per year for all primary school male teachers compared to about 199,000 days for female primary school teachers.
- P1 teachers in primary schools and graduate teachers in secondary schools were most affected by the epidemic. In the primary education sector, though P1 teachers lost the most number of days, approved teachers cost the government more in monetary terms, due to higher salaries for this cadre. This cost was estimated at about Kshs 39 and 45 million for approved male and female teachers respectively and was followed by cost of P1 teachers estimated at Kshs 34 and 37 million for male and female teachers respectively.
- The findings indicate that the cost to the government from morbidity among female primary school teachers was estimated at approximately Kshs 96 million per year, compared to 84 million Kshs for male teachers.
- In the secondary education sector, the highest loss in salaries was from graduate teachers, estimated at Kshs 29 million for male teachers and Kshs 22 million for female teachers.
- Considering both primary and secondary education sectors, female teachers costed the government relatively more than male teachers
- Information from the Teachers Service Commission and the Ministry of Education officials indicated that they were aware of the increasing cases of absenteeism both by sick teachers and by teachers with family members.
- The loss of experience embodied in teachers who are lost to the disease represents an aspect of human capital that will be impossible to replace in the short run.

- Perhaps even more critically, the loss of threatens access for students, especially in rural areas where it is difficult to find replacements. Attendance is affected both directly and indirectly as a result of AIDS-related morbidity and mortality.
- Increased teacher absenteeism and increased class size compromises the quality of education
- These results suggest that though the the Millennium Development Goal on education and ERS goal is to ensure that, by 2015, children everywhere have access to universal primary education, quality of services delivered and learning are likely to be seriously compromised by the epidemic.

Coping Mechanisms in Education

- Incase of severe shortages of teachers due to HIV/AIDS illness, there was hiring of teachers through local arrangements by the district education board.
- In cases of HIV/AIDS morbidity, there was temporary sharing of duties by existing teachers. This sharing was however not sustainable because it is likely to affect the quality of service delivery due to lack of motivation.
- Some schools had adopted a system of multi-grade teaching where one teacher handled pupils at different levels concurrently.

Recommendations

Short Term Recommendations

- The government should lift the embargo on employment of teachers given that there are many trained teachers who are still unemployed. This would mitigate the negative impact of the epidemic on the quality of learning and also contribute to the achievement of the MDG and ERS objectives of achieving full universal primary education by 2015.
- There is need for increased support for orphaned and vulnerable children (OVC) who are likely to fall out of school due to the epidemic. Bursary funds should be used to target the OVC.
- There is need for the Ministry of Education in collaboration with the NACC and NGOs to initiate programmes for sensitising head teachers to collect information related to teacher absenteeism, reasons for being absent, morbidity and mortality among education staff due to HIV/AIDS related causes.

Gender Mainstreaming in Key Sectors

The third pillar of the ERS is investment in human capital. Though this and other pillars do not directly address gender equality, it is expected that targeted investment in human capital would be gender sensitive. The equivalent MDG target however addresses directly the issues of gender equality and empowerment. The Millennium Declaration commits all UN member countries to promotion of gender equality and empowerment of women as effective ways to combat poverty, hunger and disease, and as necessary means to stimulate development that is truly sustainable. In addition, the country specific MDGs target to eliminate gender inequality in primary and secondary education by 2015. The outcome of gender equity and empowerment would be expected to play a key role in the fight against HIV/AIDS and also mitigation of the impact of the epidemic at the household level as in the KNASP strategic objective three. With respect to addressing gender equity and empowerment in key sectors, the study found that:

- Most sectors and ministries had a gender mainstreaming policy.
- Measures and policies instituted to fight the epidemic were reported to be bearing fruits in most sectors through behaviour change and willingness to openly declare serostatus.
- A positive impact of the HIV/AIDS scourge, in both men and women, was that there were corresponding changes in behaviour whereby people were today more cautious in choosing their sexual partners. However, in some cases, it was reported that HIV/AIDS related widowhood may lead to negative behaviour changes, especially resulting from feeling of loneliness and fear of being stigmatised by the community.
- Most sectors had also instituted measures, policies and interventions to deal with HIV/AIDS epidemic in their organizations. For instance, in the GJLOs sector, the survey noted that today women with families were in some areas exempted from night duties, and that they were lately being considered for office work as opposed to active field work. In the same sector, infected officers who openly declared their serostatus were promoted and given the responsibility to lead campaigns that educated colleagues on dangers of the epidemic. Such officers would also be posted to stations where they could easily access medical attention and in other instances, they were posted to their home areas so as to be close to their families.

Recommendations

Short Term Recommendations

- A pro-active gender policy review to address imbalances, particularly with regard care giving, access to productive resources and services. For example, policies concerning home based care should be implemented while ensuring that women are not overburdened.
- Proactive gender policies that support land rights for women and children can make a significant contribution to ensuring the survival of households directly affected by the HIV epidemic and help prevent household fragmentation and dissolution.

7.4 Macro Economic Level

The Kenya government has been pursuing human development objectives since independence, with a focus on the elimination of poverty, disease and ignorance. Various development and sectoral plans, strategy papers and other policy documents have been geared towards achieving broad-based sustainable improvement in the welfare of all Kenyans. The most recent initiatives are the ERS and MDG targets. Achievement of these targets is however seriously compromised by the HIV/AIDS epidemic among other bottlenecks. This highlights the importance of mitigating the impact of the epidemic at the national/macro level and is reason why the KNASP identified the socio-economic impact of HIV/AIDS as a key priority area of intervention

Socio-economic Impact

- Estimation results indicated that productivity and labour supply declined as a result of prolonged illness (morbidity and mortality) leading to a fall in the per capita output from Kshs. 1437 to Kshs. 1393 (agriculture), Kshs 3140 to 3092 (commerce and industry) and Kshs. 1,024 to 982. In absolute terms this represented a decline of per capita output of Kshs 44, 48 and 42 in the agricultural sector, commerce and industry and the overall economy, respectively.
- Simulation results showed that per capita output would decline by 3.1%, 1.5% and 4.1% in the agricultural sector, commerce and industry sectors and the overall economy respectively.

Recommendations

Short Term Recommendations

Based on the study findings, interventions that target to reduce the impact at the household and sectoral levels will essentially reduce the impact at the macro level. However, comprehensive multi-dimensional interventions can only be planned for and implemented from the top rather than from the bottom.

- Addressing the epidemic at the household and sectoral levels would solve the problem at the macro economic level as well, because the macro impact essentially depends on the individual micro impacts on labour supply, incomes, expenditures and savings at the household and firm level. By stimulating and supporting a broad multi-sectoral approach that includes all segments of society, governments can create the conditions in which prevention, care, and mitigation programs can succeed and protect the country's future development prospects.
- An effective national response should include information, education, and communication; voluntary counselling and testing; condom promotion and availability; expanded and improved services to prevent and treat sexually transmitted infections; and efforts to protect human rights and reduce stigma and discrimination.
- At the national level, a strong political commitment to the fight against AIDS is crucial. This support is critical for several reasons. First, it sets the stage for an open approach to AIDS that helps to reduce the stigma and discrimination that often hampers prevention efforts. Second, it facilitates a multisectoral approach by making it clear that the fight against AIDS is a national priority. Third, political support signals to individuals and community organizations involved in the AIDS programs that their efforts are appreciated and valued. Finally, it ensures that the

program will receive an appropriate share of national and international donor resources to fund important programs.

- The extant literature indicated that some health personnel working in a variety of health service capacities had less than optimal knowledge and skills for managing HIV/AIDS cases, fearful attitudes, and unsatisfactory practices which compromise quality of care and their own safety. For this reason, it is important for the government to invest more in training medical personnel on ways of handling HIV/AIDS patients.
- There is also need for NGOs to collaborate with the health sector, equip its staff with skills of working with the affected families, and adopt a holistic community development approach. It is also important for the government to invest more in training medical personnel on ways of handling HIV/AIDS patients.
- Confidence building in medical personnel is also important given that there is a risk of infection from patients.
- A comprehensive analysis of the impact of the epidemic on health workforce in terms of absenteeism and productivity is essential for forecasting future health system costs and performance.
- There is also an urgent need to get reliable data based on clinical tests to validate and confirm the reliability of high AIDS-death projections in all sectors. It is therefore important to develop a core set of standardized human resource indicators for all sectors to collect baseline data, monitor, and evaluate mitigation responses. The indicators should be developed to collect information on human resource capacity at the district and national levels and be standardized for aggregation at the regional level. The data collected should then be pooled together in a data bank that could be updated regularly to facilitate monitoring and assessment of the impact of the epidemic. This is especially crucial for complex sectors such as the GJLOS and the transport sectors.

Medium and Long Term Recommendations

- Government ministries: In order to effectively mainstream the national response to government ministries, the AIDS Control Units (ACUs) should ensure that funds allocated to the ministry for prevention and mitigation purposes are utilized effectively. To ensure accountability, it is imperative that HIV/AIDS programmes implemented by the ministry ACUs are consistent and in line with the KNASP priority areas.
- Given that the impact of HIV/AIDS is a developmental issue, the Ministry of Planning and National Development should include HIV/AIDS and poverty relief aspects in all levels of project cycles/design. It is imperative that the Ministry undertakes a review of the existing development policies and programmes with the view of internalising responses to the HIV epidemic. In designing national development programmes and allocation of resources, the Ministry should play a critical role in co-ordinating the efforts of all key government ministries to mitigate and prevent the epidemic.
- Government of Kenya: In the medium- and long-term perspectives, the Government of Kenya through key ministries and departments should address the socio-economic factors that render the Kenyan society, including employees in the manufacturing and informal sectors vulnerable to HIV infection. Through the various development policies and programmes, the government needs to focus on policies that would address issues of unemployment, food insecurity and poverty. This could be done through: a) increased support to income-generating

micro-enterprise programmes, especially those focusing on youth and women; and b) support for micro-credit programmes to assist those willing to start income-generating, self-employed projects that do not qualify for formal sector financial loans.

- Finally, an argument can be made for the government to target AIDS treatment resources to skilled workers throughout the economy. The contribution of skilled workers—whether teachers, firm managers, or accountants—to national economic growth, and the scarcity of such workers suggest that giving such individuals priority in allocating treatment resources would be a responsible policy decision. The results suggest that employer investments in HIV/AIDS prevention and treatment for employees will have positive returns for all employees in an organization.

Deliberate social policy decisions must be made if the ultimate allocation of the burden is to be socially desirable. These decisions should reflect the country's solution to the optimization HIV/AIDS problem, that of balancing economic growth and employment with business investment in the fight against AIDS. Second, planners and policy makers should develop a set of strategies and tools that will help the country achieve the balance it desires. Finally, a systematic data collection and ongoing monitoring of benefits levels, employment practices, and employment structures are needed to understand the nature and magnitude of the problem, determine where and for what types of industries or employers it is most important, and evaluate the impacts of policy changes. Drawing from experiences in this study and the information generated thereof, it is recommended that both governments and businesses recognize and bear their fair share of the burden and increase support to affected households.

- There is need for government ministries/departments and business, to generate sectorally specific and differentiated responses to the impact of HIV/AIDS which should follow the priority areas of the KNASP. To date, the projections of the impact of HIV/AIDS by sector are based largely on assumptions, as there are no sufficient data for analysis and projections. In view of this, the ministries/departments need to commence compiling sector-specific data, and sectorally specific monitoring of trends, to be facilitated by the ACUs in each ministry and the NACC.
- In line with the National Monitoring and Evaluation Framework, there is need to ensure or establish an ongoing monitoring and evaluation of HIV/AIDS impacts on the key sectors and specifically on the impact of the epidemic at the household level, sectoral level and the national response.
- As government scales up AIDS programs and undertakes assessments across sectors to meet the challenges ahead, human resource policy and management must be considered a priority investment. National indicators for monitoring the performance of HIV/AIDS control programs should include human resource indicators. Results of the monitoring and those from HIV/AIDS impact assessments should form the basis to design sector specific interventions and actions.

7.5 Suggestions for Further Research

Though part of the broad objective of the study was to assess the socio-economic impact of HIV/AIDS in the Transport and Communication, GJLOS and Health sectors, this was not achieved in the present study. The key informant survey of the Transport and Communication

sector did not provide any information on HIV/AIDS. The data collected for the Health and GJLOS sectors contained very scanty information on HIV/AIDS. Some of the information available from these sectors could only be used to analyze gender mainstreaming but not the socio-economic impact. The feasible fall back strategy would have been to use secondary data, but this data was also not forthcoming. As far as we know, there is no secondary data on the GJLOS sector even in government publications, yet the complexity of the sector makes it very difficult to penetrate. Given our field experience, and the sensitivity of the GJLOS sector (for security reasons), we strongly think that it is only a government survey that can gather the requisite information to assess the impact on the sector. The complexity of the Transport and Communication, and the GJLOS sectors, call for comprehensive sector specific studies targeting all sub-sectors and branches of the two sectors. We also recommend a specific study on the socio-economic impact of the epidemic on the health sector.

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APPENDIX

TERMS OF REFERENCE

(1) INTRODUCTION AND RATIONALE OF THE STUDY

Since HIV/AIDS was declared a National disaster in 1999, it is now widely accepted that it has major economic and social impacts on individuals, families, communities and on society as a whole. In Kenya, as in other countries in Sub-Saharan Africa, HIV/AIDS threatens personal, household and national well being. It has detrimental effects on health, the productive capacity of individuals and households, accumulation of human capital and its transfer between generations. Recent research in low income countries clearly demonstrates that HIV/AIDS is the most serious impediment to economic growth and development in such countries. Sectoral reviews suggest that HIV/AIDS is undermining development across all sectors. However, more research is required to determine the impact.

Poverty reduction, driven by economic growth is the central objective of Kenya's Economic Recovery Strategy. To facilitate this national objective, ways of mitigating the socio-economic impact of HIV/AIDS have to be developed and implemented. The Kenya National HIV/AIDS Strategic Plan (KNASP) 2005-2010 identifies the socio-economic impact of HIV/AIDS as the key priority area of intervention. Under this priority area, a lot of emphasis is placed on the need to focus interventions towards the most vulnerable populations. Five sectors including health, agriculture, transport, education and the governance, justice, law and order sector (GJLOS) have been prioritized for strategically and effectively expanding the national response due to their specific mandate and/or vulnerability of the populations they serve as well as current epidemic trends.

The KNASP has also identified the greater vulnerability of women as compared to men. For example, out of the total number of adult Kenyans infected with HIV, about two thirds are women. The gender difference is also mostly pronounced among young people in the 15-24 age range where the female prevalence is nearly five times higher than male prevalence. In addition there are estimated to be 100,000 children infected with HIV/AIDS. AIDS related deaths in Kenya have a profound and increasing societal and economic impact. Out of the estimated 1.7 million orphans, half are due to AIDS.

To facilitate development of appropriate strategies, impact studies will be conducted to assess the situation in key sectors. Due to poverty levels and inadequate services, there is no doubt that people infected and affected by HIV/AIDS have difficulties accessing basic services. However, more detailed, quantitative information is required focusing on the key sectors. Information generated will be critical in informing policy and strategic decisions for effective interventions.

As a step towards the implementation of the Kenya National Strategic plan, the National Aids Control Council (NACC), a parastatal mandated to co-ordinate the national multi-sectoral response to the HIV/AIDS epidemic, has recruited consultants to carry out a survey on the socio-economic impact of HIV/AIDS on economic development, labour force, women and children.

(2) THE BROAD OBJECTIVE OF THE STUDY

To assess the socio-economic impact of HIV/AIDS in the key sectors, which include, Agriculture, Health, Industry/Commerce, Transport and Communication, Education and GJLOS (both formal and informal), in order to guide effective targeting of interventions.

(3) SPECIFIC OBJECTIVES

The study will have the following specific objectives:

- To assess the types and quality of information available on socio-economic impact of HIV/AIDS
- To obtain quantitative and qualitative data on socio-economic impact of HIV/AIDS on gender and households
- To obtain quantitative and qualitative data indicating the impact HIV/AIDS has on economic growth, with a focus on priority sectors
- To determine the effect of HIV/AIDS on labour productivity with specific focus on the priority sectors.

The issues under labour productivity will include:

- Loss of skilled personnel
- Loss of man-hours
- Effect on institutional memory
- Increased cost of training
- Quality of labour
- Effects on cost of health care
- Effects on human capital

(4) OUTPUTS

The study outputs will be:

- An inception report outlining the interpretation, methodology and terminologies used.
- A draft report, on both qualitative and quantitative findings, as per the TORs which will be disseminated to stakeholders for comments.
- A final version of the report incorporating inputs and reactions from the stakeholders.

(5) SCOPE OF THE WORK

The study will be conducted under the three clusters represented by the specific objectives. The specific tasks include:

- To develop an appropriate and agreed methodology for each cluster in consultation with NACC and other stakeholders
- To define agreed indicators to be assessed for each cluster
- To undertake a desk top review to establish the information already available

- To develop appropriate and agreed data collection tools for each cluster
- To conduct data collection under each cluster based on agreed methodology and data collection tools. It is expected that both primary and secondary data will be used.
- To conduct analysis of data collected in relation to the indicators agreed upon
- To propose interventions for mitigating the socio-economic impact of HIV/AIDS under each cluster
- To compile a draft report of findings and recommendations and to present the same to stakeholders for comments.
- Incorporate comments from stakeholders in the final report of finding and recommendations.

(6) DURATION OF THE STUDY

This assignment is expected to be completed by mid-August, 2006.

(7) TECHNINCAL COMPETENCE

Consultancy Firm
The study to be conducted by an established consultancy firm with more than five years of relevant experience in the field of socio-economic public policy analysis and HIV/AIDS.

(b) The Lead Consultant

The lead consultant has a Ph.D. in Economics and over seven years experience in HIV/AIDS and Health related research. The lead consultant also has working experience with reputable Public Policy Analysis Institutes.

(c) Support Consultants

The repertoire of experiences possessed by the three support consultants cover expertise in economics, socio policy, gender, public health and HIV/AIDS and at least five years experience in policy and research related fields.
The support consultants also have a background experience in the following fields:

- Experience on matters of women and children,
- Experience in the impact of HIV/AIDS on labour productivity
- Experience in carrying out economic analysis of the impact of HIV/AIDS on the society

The research team also has:

- Demonstrated ability to analyze and disseminate both qualitative and quantitative data for policy and decision making
- Demonstrated competence in teamwork and participatory review methodology
- Demonstrated ability to deliver and disseminate quality policy oriented reports on time
- Demonstrated ability to engage policy level stakeholders on wide spectrum of socio-economic policy issues.

(8) RESPONSIBILITY

The consultants' team will be expected to work from its private office but will work in close consultation with, and under supervision by NACC and especially the Division of Strategy. All outputs will be channelled through the Head, Strategy Division.

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