AIDS and Economic Welfare in Peasant Agriculture: Case Studies from Kagabiro Village, Kagera Region, Tanzania

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Summary. − The progression of the Aquired Immune Deficiency Syndrome (AIDS) pandemic in Tanzania continues at a rapid rate because of cultural, economic and institutional factors. The adverse impact on household and community welfare has been considerable because of the production forgone as labor is reallocated to nurse and mourn the victims; declining farm productivity as assets and working capital are sold to pay medical bills; and rising dependency burdens. To bring the epidemic under control sustainably and efficiently the study recommends careful research into community-based strategies which can: foster new social ethics; promote rural productivity and employment; improve health services; and provide survival safety-nets for the victims’ families.

1. INTRODUCTION

There is increasing evidence that in many countries in sub-Saharan Africa the Acquired Immune Deficiency Syndrome (AIDS) is now the most critical threat to health and thereby overall economic development. HIV infection (presence of the virus associated with AIDS) poses a far greater threat to economic development than the other diseases because prevalence rates are highest among the economically productive age group. The World Health Organization has asserted that 15–20% of the workforce in Africa could die from AIDS in the next decade, leaving more than 10 million orphans (Palca, 1991). This paper presents a general review of the progression of the AIDS epidemic in Tanzania from a regional developmental perspective. It is followed by a case study which attempts to quantify the impact of AIDS on the economic welfare of households and a village community in Kagera region — the most seriously affected area in Tanzania. section 2 outlines the analytical framework for the case study. Sections 3–11 present the survey results. section 12 concludes.

2. THE MAGNITUDE OF THE PROBLEM

According to the World Health Organization (WHO) Africa accounts for 34% of the 1,025,073 cumulative AIDS cases reported as of December 31, 1994. The WHO report underestimates the number of cases mainly due to poor and delayed reporting. Africa actually accounts for 62% of the estimated 11.1 million global HIV infections and 70% of the estimated 4.5 million AIDS cases. Tanzania is one of the most seriously affected African countries, accounting for an estimated 7.2% of global HIV infections and 7.9% of the estimated 3.15 million AIDS cases on the continent (Weekly Epidemiological Review, 1995, pp. 5–12). In Tanzania the first AIDS patient was clinically diagnosed and reported in 1983 from the Kagera region to the west of Lake Victoria. By December 1994 a cumulative total of 53,247 cases had been reported to the National Aids Control Program (NACP). The NACP estimates that only one in every four to six cases is diagnosed in health facilities as most deaths occur in homes and go unrecorded, thus the estimated total number of AIDS cases in Tanzania is approximately 250,000. In the Kagera region, HIV infection is estimated at 9.6% with an unadjusted cumulative incidence of 1–6% in a period ranging from 1.5 to 2.3 years (Killewo et al., 1989, 1993; NACP, 1994). By 1988,* This research was funded under the research project on the "Social Economic Effects of Structural Adjustments Programs in Tanzania" (SEESA) funded by the Swedish Agency for Research Cooperation with Developing Countries (SAREC) at the Economic Research Bureau between 1988–93. The author also wished to acknowledge the assistance of Anna Cormack in the course of updating this paper. Final revision accepted: December 12, 1996.
### Table 1. Trend in hospital reported AIDS cases in Tanzania and the Kagera region, 1983–94

<table>
<thead>
<tr>
<th>Year</th>
<th>All Tanzania Cases</th>
<th>Dar es Salaam Cases</th>
<th>% Tanzania</th>
<th>Kasgara Cases, raw</th>
<th>% Tanzania</th>
<th>Kasgara Cases, adjusted*</th>
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<tbody>
<tr>
<td>1983</td>
<td>3</td>
<td>0</td>
<td>100</td>
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<td>1984</td>
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<td>322</td>
<td>87</td>
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<td>1985</td>
<td>404</td>
<td>6</td>
<td>13</td>
<td>51</td>
<td>80</td>
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<td>87</td>
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<td>1986</td>
<td>1,525</td>
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<td>471</td>
<td>47</td>
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<td>33</td>
<td>1,470</td>
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<td>1,470</td>
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<tr>
<td>1988</td>
<td>9,280</td>
<td>11</td>
<td>33</td>
<td>3,093</td>
<td>14</td>
<td>3,093</td>
<td>14</td>
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<tr>
<td>1989</td>
<td>14,107</td>
<td>20</td>
<td>33</td>
<td>5,203</td>
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<tr>
<td>1990</td>
<td>22,089</td>
<td>19</td>
<td>33</td>
<td>7,196</td>
<td>14</td>
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<td>1991</td>
<td>34,208</td>
<td>19</td>
<td>25</td>
<td>8,651</td>
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<tr>
<td>1992</td>
<td>42,884</td>
<td>37</td>
<td>21</td>
<td>8,947</td>
<td>10</td>
<td>8,947</td>
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<tr>
<td>1993</td>
<td>50,483</td>
<td>51</td>
<td>19</td>
<td>9,824</td>
<td>10</td>
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<td>1994</td>
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<td>156</td>
<td>19</td>
<td>10,213</td>
<td>10</td>
<td>10,213</td>
<td>10</td>
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<tr>
<td>Rate/100,000</td>
<td>199.2</td>
<td>710.6</td>
<td>3.57</td>
<td>328.3</td>
<td>1.65</td>
<td>492.1</td>
<td></td>
</tr>
</tbody>
</table>

*Based on Lwihula (1989) and recent records from the Muhimbili medical center. The adjusted figures assume that the share of Kagerites in the cases in Dar es Salaam was 60% until 1987; 50% in 1988; 40% in 1989 and 25% since 1990.

Source: Compiled from Killewo et al. (1989) and the NACP (1994) Annual Report.

33.3% of the total of 9,250 hospital confirmed AIDS cases in Tanzania were in Dar es Salaam and 23.1% were in the Kagera region. In addition, 60% of notified patients in the Dar es Salaam metropole were known to have originated from the Kagera region (Lwihula, 1989). Given the prevalence of the Kagera peoples (here-in-after called the Kagerites) in many other urban centers in Tanzania, it is likely that the Kagera region accounted for more than half of all hospital-reported AIDS cases in 1989. The region also has 47% (70,000) of Tanzania’s 150,000 AIDS orphans.

As high-risk groups become saturated with infection, the spread of HIV to other groups will be limited and the aggregate (and cohort-specific) growth rate of infection will diminish. Signs of this leveling off emerge from the national data shown on Table 1 (column 3). The doubling time for reported AIDS cases has diminished sharply from six months in 1986 to 156 months in 1994. Since most cases still go unreported, however, it is realistic to assume a scenario where HIV will continue to spread rather rapidly. In the Kagera region the steady-state infection rate is likely to be high, possibly reaching 20% in the year 2000. There are four reasons for such a trend.

(a) A polygamous culture

The pattern of HIV infection in the region, as elsewhere in the country, is predominantly through heterosexual sex. Swai (1989) reports that out of 1,682 AIDS patients, 4.5% had never had a sexual partner so must have contracted HIV by nonsexusal means; 14.9% had only had one partner so are most likely to have been infected by an unfaithful partner; 60.4% had had 2–5 partners; 19.3% had 6–20 partners; 0.7% had 51–200 partners while 0.2% had more than 200 partners. Kaijage (1989) argues that the predominance of AIDS in the Kagera region compared to other parts of the country cannot be attributed to differences in the sexual habits of the Kagerites from other African societies. Rather, the high HIV prevalence rates are due to the fact that before it was finally diagnosed and identified in the United States, the disease initially spread in the unsuspecting societies of the interlucustrine area west of Lake Victoria.

After discounting for this misfortune on the part of the Kagerites, however, it needs to be acknowledged that the polygamous African society in general is inherently bent toward multiple sexual partners (MSP) and this contributes to the rapid spread of the disease. Regrettably the introduction of condoms under the National AIDS Control Program seems to have had the negative unintended effect of creating a false sense of security thereby encouraging MSP particularly among men. There is a view that given existing social and cultural realities, rather than emphasizing access to condoms, teenagers might be better protected by some combination of a conservative abstinence upbringing campaign and, where necessary, early marriages after the 18th birthday.

(b) Poor levels of public health facilities

To the extent that some people are being infected by nonsexual means, the deplorable state of public
health facilities in the country will continue to contribute to the spread of disease, including HIV. Despite the pledge of considerable resources to the National AIDS Control Program by donors (US$ 3.0 million in 1987) the actual implementation of preventive measures is lagging behind, e.g., patients are still receiving unscreened blood in some rural hospitals, there are still not enough disposable syringes to go around, while sterilization kits are not always in working condition (URT, 1989). Discussing the nursing situation in the Kagera region, Karuandira (1989) confirms that supplies from the NACP are inadequate and irregular. This state of affairs compels nurses to boil disposable syringes several times, thereby running the risk of spreading HIV infection due to inadequate or improper boiling while also risking their own health due to the lack of protective facilities. Moreover, in Dar es Salaam nurses were observed boiling disposable syringes in order to be able to sell the new ones to improve their low and dwindling real official incomes (Tibajuka, Rugemalira and Kikuli, 1995, p. 50)

(c) Continued economic distress and deprivation

Kajjage (1989) attributes the rapid spread of HIV in Kagera to economic decline and the associated increasing poverty. A combination of (i) weakening of traditional restraints; (ii) frequent migration by one or both partners; (iii) rapid economic deterioration and rising social inequality have created conditions for both the demand for and supply of economically motivated sexual relationships (EMSRs) which have worked to increase the incidence of HIV.

The introduction of coffee as a cash crop by the colonial government caused fundamental social and economic changes in the region, creating relative increase in the standard of living among the Kagerites but also causing considerable level of social inequality (Rald and Rald, 1975). During the 1970’s the process of economic and social differentiation in the region increased because of: an outbreak of banana pests, drastic fall in farm yields and returns on rural investments (Tibajuka, 1984); the region’s remoteness against a background of declining transport infrastructure and marketing services (Maliyamkono and Bagachwa, 1990); and deliberate (and now discredited) national policies pursued after independence to decelerate the development of the relatively well-off districts and regions to enable the backward ones to “catch-up” (URT, 1968). Since then the region has been plagued by lack of economic alternatives and schooling opportunities. The number of primary school leavers entering secondary school in Kagera has fallen from 6% in 1965 to 3% in 1980, compared to the national average which has seen an improvement from 2% to 5%. This drop was caused primarily by the nationalization of secondary schools in the area and a policy of reserving almost half the places in such schools for students from outside the region (KCU, 1984). These factors have combined to prompt young men to travel frequently between home, towns and border areas in search of wage employment or to engage in petty trade in essential commodities, which are always scarce in this remote border region (Kajjage, 1989). The movement of these young men to and from their homes necessitates leaving behind wives or permanent sexual partners. While Kagera has always had a far higher level of migration to and from its villages than other regions in Tanzania, because of its trading activities, migration has increased as the economic situation deteriorated.

Economic reforms introduced since 1986 in the context of the World Bank supported Economic Recovery Program have led to the liberalization of agricultural marketing services and thereby improved farm prices by breaking the monopoly previously enjoyed by state-controlled marketing institutions. But the price of robusta coffee — the region’s main export — continues to witness sharp price fluctuations on the world market particularly after the collapse of the International Coffee Agreement in 1989. Statistics show that between 1986 and March 1996 price indices for robusta coffee on the world market have progressed as follows: 100, 69, 64, 51, 37, 34, 29, 36, 81, 64, and 62. It means the base and (apparently) peak price of US cents 148.32/pound in 1986 had dropped to only US cents 75.09/pound in 1989. The prices sank to a trough of US cents 43.63/pound in 1992 but showed some recovery to US cents 119.82/pound in 1994. In March 1996 the price was US cents 91.99/pound or only 62% of the 1986 price (IMF, 1995, pp. 182-183 and IMF, 1996, pp. 80–81).

There remains the problem of high levels of prostitution among the Kagera women. Kajjage (1989) traces the origin of this problem to deliberate policies of the colonial government that lured single women from Kagera region into towns to provide sex to plantation workers. As documented by Coulson (1982) plantation workers were not paid a sufficient wage to allow them to bring their wives along from the countryside. While this observation is correct, both Swantz (1985) and Tibajuka (1984) regard the lack of land rights and cash-earning opportunities for women as the main factor that has sustained this trade into the present. Land in Kagera region is inherited patrilineally and the practice of village and clan exogamy is widespread. This entails the wife moving into her husband’s clan territory without being admitted
as its member (Lwihula et al., 1993). As a result, a widow without children has little chance of staying on her dead husband’s estate and is rarely welcomed on her own (natal) clan land. A divorced woman has no rights to land at all. Lack of land rights has meant that in the process of modernization and further integration into the cash economy, women wishing to acquire land have to purchase it. Prostitution and the illegal brewing of alcohol are the major means by which widows and divorcees can raise the cash income to buy land and become independent farmers. Even with the threat of AIDS, disowned divorced women and widows often view it as a risk that must be taken in this survival strategy (Tibaijuka and Kaijage, 1995).

The above account suggests that continued lack of economic alternatives in Kagera region is likely to contribute to an increase in migration and the associated increase in economically motivated sexual relations, and in turn the spread of HIV.

(d) People with AIDS (PWAs) and high risk groups are not easily identified

A critical factor in forecasting long-term HIV incidence and hence the overall impact of AIDS is to establish whether certain characteristics, for example, sexual behavior or social class, distinguish people with AIDS (PWAs) from other population groups, and what proportion of the population appears to be similar to PWAs. AIDS in Africa, unlike in Europe and the United States, does not primarily affect subgroups of the population but is spread evenly within communities and primarily through heterosexual contact. Lwihula et al. (1993) have come to the conclusion that given the high prevalence rates in urban centers in the Kagera region it seems “irrelevant” to try to categorize risk groups. In their opinion “everybody in the area is at risk from being infected with the AIDS virus and the stigmatization of special groups (even if relevant) maybe a masquerade to hide the real magnitude of the HIV infection in the area” (p. 356).3 HIV in Africa has spread beyond the initial high-risk groups, such as prostitutes and truck drivers, to affect the general population. The 1994 Kilewo study (Kilewo, Dahlgren and Sandstrom, 1994) estimates that there are approximately 8,200 newly infected adults in the Kagera region every year indicating a serious level of continued HIV infection. The prevalence of HIV in different sections of the population makes it more difficult to formulate targeted interventions to combat the epidemic.

3. AIDS, PEASANT AGRICULTURE AND RURAL WELFARE

(a) Analytical framework

Theoretical insights into the likely impact of AIDS on peasant agriculture have been attempted by Barnett and Blackie (1989). Their framework involves (i) estimating the spread of the disease; (ii) estimating the loss of labor due to the epidemic; and (iii) superimposing this on the production system in question to establish declines in output, especially food. To this basic framework it is necessary to add: (iv) the diversion of income hence capital, in both cash and kind, from production and consumption to medical treatment; and (v) the rise in dependency burdens due to an increasing number of orphans and old people in the population. Farm incomes, and in particular nutritional welfare, will fall because production decreases due to a shortage of labor and falling productivity. The latter would result from the lack of operational and investment capital for the farm. Falling output and incomes will in turn force reduced consumption and worsening nutritional status, which in turn accelerate morbidity and mortality rates thus tying up even more labor in illness and/or nursing the sick. Women will be most affected since they are the main producers of food and are the caretakers of the children, the sick and the old. At the village level the economic welfare of the community is likely to deteriorate because of (i) working days diverted from economic activities and spent in attending funerals, providing moral support to the victims and their families; (ii) income diverted from consumption and/or investment to support the victim households; and (iii) lack of labor for hire as young people who normally look for paid work become sick. This framework is applied to analyze the impact of AIDS on a village economy in the Kagera region.

(b) The case study

The case study is Kagabiro village in Muleba district, some 70 km from Bukoba town along one of the country’s major trunk roads. Since 1974 the village has been virtually surrounded by the expanding district headquarters which might have contributed to the rapid spread of HIV.

The methodology involved conducting a listing exercise in the village whereby all the households were asked basic questions about their socioeconomic situation as well as incidence of deaths since 1980 and their causes. The results of this reconnaissance survey revealed that out of 220 households listed, 51 (23%) reported deaths in the household since 1985. Of these 51 households, 64% claimed
Table 2. Reported adult deaths, 1985–90

<table>
<thead>
<tr>
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<th></th>
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<tbody>
<tr>
<td>AIDS deaths</td>
<td>3</td>
<td>4</td>
<td>8</td>
<td>11</td>
<td>11</td>
<td>34</td>
</tr>
<tr>
<td>Other deaths</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>4</td>
<td>3</td>
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</tr>
<tr>
<td>Total</td>
<td>9</td>
<td>11</td>
<td>14</td>
<td>12</td>
<td>14</td>
<td>60</td>
</tr>
</tbody>
</table>

that death(s) had been caused by AIDS, which means that 15% of all 220 households in the case study village had been victims of AIDS deaths. The reported adult deaths (above 14 years) between 1985 and 1990 are summarized in Table 2.

Altogether 60 adult deaths were reported over a five-year period (1985–89) out of a population of 1,320 (1989 figures) and 56% of these deaths were due to AIDS. This works out to an average mortality rate of 4.5% and a 2.6% AIDS mortality rate. The annualized mortality rate during the retrospective period is 1% and the AIDS mortality rate 0.5% p.a. 4

In the study area there is no tradition of keeping correct age records by households and it is possible that the number of adult deaths has been overstated while others have been missed. Moreover, there is a tendency to blame everything on AIDS and some of the deaths might have been wrongly attributed to it. Nevertheless, the results leave little doubt that AIDS is the number one fatal disease for adults and it has already overtaken conventional health hazards in the area such as malaria and diarrhea.

Of the 33 households with AIDS victims, only 10 (30%) had the cause of death confirmed in a hospital. It was decided to study each of these latter cases more closely. A questionnaire was used to collect the data needed to assess the impact of AIDS on labor supply, incomes and nutritional welfare in August 1989.

4. SURVEY RESULTS: LABOR CONSTRAINTS IN THE FARMING SYSTEM

Kagabiro village has a typical banana-coffee economy based on semi-subsistence agriculture. The staple foods are cooking bananas and beans grown on permanent plantations and are supplemented by cassava and sweet potatoes. Robusta coffee is the main cash crop. A labor utilization survey conducted in the area in 1982–83 established that women devoted 56.5% of their time to economic activities, 31.4% of their time to essential non-economic activities including household chores, and only 14.5% of the time to leisure. Men devoted 50% of their time to economic activities, 13% to non-economic activities and 37% to leisure. The study concluded that while relatively more free than their overworked women, male farmers do not enjoy excessive leisure, the difference between their consumption of labor and the internationally accepted standards (eight hours work and four hours leisure per 12-hour day) (Tibajjuka, 1984). The impact of AIDS on labor supply is therefore likely to worsen an already precarious labor balance. Indeed, the success of new rural development programs in the region has always been constrained by labor shortages. Raikes (1976) concluded that attempts to improve coffee yields hence cash incomes by establishing pure stands failed because of lack of labor. Kamuzora (1978) noted that the smallholder tea program introduced in 1964 failed to spread for the same reason. Yet, within a plantation farming system the scope to introduce labor-saving technologies is limited, which is why it is especially important to contain the AIDS epidemic and thereby safeguard the supply of labor.

5. THE GENERAL WELFARE SITUATION

In 1989 Kagabiro village had 1,320 people of whom only 42% were economically active. The average size of the banana-coffee plantation was 1.2 ha with a range of 0.25–5.25 ha. Fifty-three percent of households had farms less than 0.5 ha, estimated to be the minimum required to provide food subsistence to a family of five (Rald and Rald, 1975). The disparity in size of landholdings is the result of dual processes of fragmentation and consolidation in the region. Population pressure combined with inheritance laws has led to the fragmentation of landholdings and rich farmers have been buying up plots of land from smaller farmers. Half of the households named shortage of labor as their biggest production constraint. Sixteen percent of the infants had low birth weight; 55% of all the under-fives suffered from moderate malnutrition and 8% had severe cases. The corresponding national averages are 15%, 50% and 7% for each of these statistics respectively. The distance between the Kagera statistics and the national averages is probably not statistically significant, implying that the findings from Kagera region will find national relevance and application.

6. THE SOCIOECONOMIC CHARACTERISTICS OF THE VICTIMS

Tables 3 and 4 present summaries of the characteristics of the sample households studied. The following features are discernible: (a) Out of a total population of 73 people in the 10 sample households, 18 (25%) died from AIDS. Sixty-seven percent of the victims were adults between 18 and 50 years old with a median age of 29 years. Twenty-eight
percent of the victims were under-fives born to infected mothers. One victim was a 17-year old
school girl who had discontinued school due to pregnancy. Her infant also died six months later. (b)
By social economic class the majority of the victims were from relatively well off families (60%). (c) By
occupational category all but one of the male victims were traders and business people who traveled
frequently to towns and border countries. (d) By gender there were almost as many women as men
victims coming from all types of families, single, mono- and polygamous. All but two of the adult
victims, however, were believed by fellow villagers to have had multiple sexual partners and an especially
active sex life.

The results of the 10 cases seem to support general observations that the disease has affected the
economically active group; that initially it affected the well-off families with travelling members; and
that it has affected those with multiple sexual partners. This confirms the observation made earlier
that HIV came from outside this community. But its spread thereafter in low-income households has been
rapid, e.g., while on average women-headed house-
holds make up only 10% of the village, they made up 30% of the victim households studied.

7. IMPACT ON LABOR AVAILABILITY

(a) Household level

In general the reported period when AIDS patients
are bedridden is about six months. The loss of labor
when a person dies is the ultimate loss. In the case
study, deaths due to AIDS account for 56% of
overall mortality. Columns 6 and 8 of Table 4 show
the reported number of days of sickness when the
victim had to be nursed as well as the period of
mourning respectively. Nursing time corresponds
roughly with labor days diverted from other
activities by the members of the household. Gener-
ally the sick are nursed by adults so the aggregated
total labor stock diverted from economic activities in
illness by the victim and in nursing care is obtained
by doubling this amount.

Based on these assumptions, Table 5 summarizes
the impact of the epidemic on the labor supply in the
case study households during 1987. In the four
households affected, an average of 29% of the total
labor stock available was devoted to the AIDS
incidence. The actual amount of time diverted
depends on the number of the incidences in the
household and their duration as well as the number
of people nursing the victim. Following the customs
in the area, all the relatives are involved as far as
possible so that the actual labor reallocated to attend
the victim is much higher than the simple assumption
of one nursing person per day. Column 7 in Table 4
shows the reported number of admission to a hospital
for each victim and the average number of nursing
relatives. In 66% of the cases there was more than
one nursing person in attendance. Therefore assum-
ing two nursing persons, the labor diverted rises to an
average of 43%. While this tradition contributes to

<table>
<thead>
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<th>Household number and gender of head</th>
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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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<th>%</th>
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<tr>
<td>M</td>
<td>M</td>
<td>F</td>
<td>M</td>
<td>M</td>
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<td>F</td>
<td>M</td>
<td>M</td>
<td>F</td>
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</tr>
</tbody>
</table>

* Socioeconomic stratum

| H | H | L | H | H | H | H | M | M | M | L |

A. Demographic characteristics

Wives:
- 2
- 1
- 1
- 1
- 2
- 2
- 3
- 3

Family size:
- 10
- 8
- 5
- 3
- 6
- 5
- 4
- 4
- 12
- 16
- 4
- 73
- 100

0-5 years:
- 3
- 1
- 1
- 2
- 2
- 1
- 3
- 4

6-14 years:
- 2
- 2
- 2
- 1
- 2
- 1
- 3
- 4

15-18 years:
- 1
- 2
- 1
- 2
- 1
- 3
- 3
- 1
- 23
- 32

19-65 years:
- 3
- 1
- 3
- 2
- 1
- 2
- 3
- 3

65+ years:
- 1
- 1

B. Victims by age group, years

0-5 years:
- 1
- 1
- 1
- 1
- 1
- 5
- 28

15-18 years:
- 1
- 1

19-65 years:
- 2
- 1
- 1
- 1
- 1
- 1
- 2
- 2
- 2
- 2
- 3
- 2
- 18
- 100

* H = high, M = medium, L = low

Table 4. Personal characteristics of AIDS victims in Kagabiro village, Tanzania, 1989

<table>
<thead>
<tr>
<th>Victim No</th>
<th>Age</th>
<th>Gen</th>
<th>Edu</th>
<th>Sta</th>
<th>Dat</th>
<th>Lsd</th>
<th>Noh</th>
<th>Lom</th>
<th>Cost</th>
<th>% hos</th>
<th>Sof</th>
<th>Oov</th>
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</thead>
<tbody>
<tr>
<td>Household 1, high income, 3 victims:</td>
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</tr>
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<td>Household 8, medium income, 2 victims:</td>
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<td>Household 9, high income, 3 victims:</td>
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<td>Household 10, high income, 2 victims:</td>
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</tbody>
</table>

Notes: bf—borrowed funds; c—child in household; Cost—medical cost; *000shs; Dat—died in 19xx; d—daughter in household; Edu—years of education; f—farmer; fs—family savings; Gen—gender; h—head; l—infant; Lsd—duration of sickness, months; Lom—days spent mourning; Noh—hospital admissions and family nurses; Oov—occupation of victim; % hos—hospital costs as % total; sf—sold farm; sa—sold assets; Sta—status in household; Sof—sources of funds; s—student; te—teacher; t—trader; W1,2,3—wife no.; Vn—victim no.


The psychological well-being of the victim, its economic costs are high and will be unaffordable as the frequency of AIDS incidences increases. Families with only a few people are virtually grounded when one of them falls sick. Therefore the risk of loss of labor caused by sickness may work as an incentive for polygamy as the means to expand the family quickly and increase the stock of labor to provide nursing care. In social equilibrium, polygamy can only exist if there is a surplus of eligible brides over eligible grooms. This can only occur with higher male mortality, social inequality which makes many men ineligible as husbands because of impoverishment, and large differences between men and women at age of first marriage, combined with a rapidly growing population. In the study area, male mortality is unimportant but social inequality which used to be a constant force, has been accelerated by increasing poverty because of the reasons described in section 2(c), while the age differences between men and women at first marriage shown by Kaijage (1989) are on the increase. Under these circumstances, the emergence of AIDS, together with insecure land rights for
## Table 5. Proportion of total available household labor allocated to nursing AIDS victims in selected sample households, Kagera region, Tanzania, 1987

<table>
<thead>
<tr>
<th>Households with victims in 1987</th>
<th>Nursing days recorded*</th>
<th>Labor stock counted†</th>
<th>Annual labor stock‡</th>
<th>1 Nursing person</th>
<th>2 Nursing persons</th>
</tr>
</thead>
<tbody>
<tr>
<td>No.</td>
<td>(a)</td>
<td>(b)</td>
<td>(c)</td>
<td>(d)</td>
<td>(e)</td>
</tr>
<tr>
<td>1</td>
<td>192</td>
<td>4.4</td>
<td>1,597</td>
<td>24</td>
<td>36</td>
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<td>4</td>
<td>124</td>
<td>1.2</td>
<td>436</td>
<td>57</td>
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<td>7</td>
<td>213</td>
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<td>9</td>
<td>201</td>
<td>6.3</td>
<td>2,287</td>
<td>18</td>
<td>26</td>
</tr>
<tr>
<td>All</td>
<td>730</td>
<td>14.1</td>
<td>5,119</td>
<td>29</td>
<td>43</td>
</tr>
</tbody>
</table>

Notes: *Nursing days as reported by the household. Note that the recorded nursing days in households with more victims is not always greater because some victims are infants while in some cases one person nursed two persons.
†(b) = man equivalents of labor as computed in Table 6.
Assuming that the labor is available 363 days in a year, c = 363 days * c.
§d = a * 2/c * 100; c = a * 3100.
Source: Computed from survey data, see Tables 4 and 6.

Surviving women (especially girls) and the need to raise cash by receiving bride-prices for one’s daughters, all seem to be working toward causing the average age of marriage for girls to fall. Such a decline will further encourage polygamy and the associated risk of MSP and the spread of HIV.

Section A in Table 6 shows the changes in household labor stock following the death of the AIDS victims in the case study households. The aggregated labor stocks in labor/man-equivalents dropped a full 38% and as much as 83% in one household which was closed down and the orphans absorbed into the households of relatives.

(b) Village level

Besides the labor input by family members there is also the labor spent by the village community in mourning. By custom funerals are compulsory community events and defaulters are ostracized. Moreover, when a person is buried, all farming activities are postponed for 2–3 days in honor of the dead; mourning takes seven days. It is strictly forbidden to plant anything during this period. The loss of labor time on the village community can thus be estimated by multiplying the number of burials and the average time spent mourning. AIDS deaths make up 56% of all deaths. In 1987 the community could not work for 15 days due to AIDS burials alone. When burials due to other deaths are considered the total mourning time is 30 days. This works out as 4–8% of the available labor time respectively in a year which suggest that since the 1982–83 farm management survey conducted by Tibaijuka (1984) time spent on sickness and funerals in the area has doubled. In light of the very limited leisure time noted earlier, the reallocation of time has had an impact largely on economic activities of women. Long-duration funerals have a high economic cost especially when they coincide with critical farming seasons in which specific farm operations must be performed, e.g., the planting of beans in September. There are also material and financial costs for all involved. All villagers are expected not only to attend funerals but also to contribute material support in cash and kind. In situations where the incomes are already low it means sacrificing household consumption, thus worsening individual welfare.

Of course in the long term, participation in community activities is an investment for the future since society operates on the principle of reciprocity. Nevertheless the immediate strain imposed by this regime on the society is immense. To some extent economic pressure has already forced adjustment. By 1989 some households had started shortening the mourning period from the usual seven days to three or four days in order to minimize costs (Table 4, column 8).

Access to hired labor was assessed as very difficult by 81% of the respondents in the listing survey. The cost of hired farm labor in the region has increased tremendously over the decade. In real terms the index rose from 100 in 1982–83 to 185 in 1986–87 and 323 by 1989–90 (Tibaijuka, 1992). Over the same period both official earnings and farm incomes have declined in real terms (URT, 1989). For the Kagera region real cash farm incomes have declined from 100 to 78 to 72 over the corresponding period (Tibaijuka, 1992). A plausible explanation for rising farm labor costs in the face of falling real incomes in the area is the AIDS epidemic. The respondents insisted that the migrant laborers (from Burundi and the poorer districts of Ngara and Biharamulo) are among the most seriously affected
### Table 6. Changes in labor stock and farm sizes of households with AIDS victims, Kagabiro village, Kagera region, Tanzania, 1989

<table>
<thead>
<tr>
<th>Household number and new head*</th>
<th>1</th>
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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
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<tr>
<td><strong>A. Changes in household labor stock, ME’s†</strong></td>
<td></td>
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<tr>
<td>Before</td>
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<td>4.0</td>
<td>2.4</td>
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<td>2.4</td>
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<td>After</td>
<td>2.4</td>
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<td>3.10</td>
<td>4.3</td>
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<tr>
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<td>75</td>
<td>58</td>
<td>17</td>
<td>58</td>
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<td>55</td>
<td>61</td>
<td>68</td>
<td>75</td>
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<td><strong>B. Changes in consumption units‡</strong></td>
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<tr>
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<td>3.0</td>
<td>1.5</td>
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<td>50</td>
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<td><strong>C. Changes in dependency burdens</strong></td>
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<td>A/B, %</td>
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<td><strong>D. Changes in farm sizes, ha</strong></td>
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<td><strong>E. Changes in economic stratum§§</strong></td>
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</tbody>
</table>

Notes: *Gm = grandmother; W = wife; M = man, F = woman, all as before; S = sister; W2 = 2nd wife.
†ME’s have been compiled using a weighting scheme developed by Tibajjuka (1984) for the Kagera region including: 0, 0.2, 0.4, 0.5, 1, 0.6, 0.3, 0.2 for age groups 0–7, 8–10, 11–13, 14–15, 16–55, 56–65, 66–75 and 76+ years respectively.
‡Consumer units have been computed using slightly modified standard WHO weights of 0.5 for children below 11 years and 1 for all other age categories. In this case all children up to 14 years have a weight of 0.5.
§The dependency burden is computed as labor stock over consumption units. The lower the ratio, the higher the dependency burden, hence mathematically change is B/A.
§§H = high, M = medium, L = low.
Source: Field Survey Data, August 1989.

Social groups. Therefore the availability of these migrant laborers, which had already decreased markedly after independence due to the villagization policies, has become even more constrained. There is also an equity dimension to the problem. The shortage of labor has affected relatively larger farmers, who depend on it to harvest coffee, as well as older farmers and women dependent on hired labor to undertake some of the strenuous farm operations such as thinning the banana plantation. While some larger farmers have compensated lack of paid labor by marrying more wives, women-headed households dependent on hired labor for making critical farm investments have not been able to accumulate the farm capital necessary to increase their future productivity and incomes. Under these dynamics AIDS has contributed to increasing poverty, inequality and thereby paradoxically reinforced polygamous traditions.

8. MEDICAL COSTS AND IMPACT ON HOUSEHOLD CASH FLOWS

Column 9 in Table 3 shows a summary of the reported medical costs of nursing victims, including funeral costs. Excluding the extreme case of TSh 400,000 where the victim went for treatment in Zaire in 1988 following claims (later discredited) that a cure for AIDS (MM-1) had been found, the average cost for treatment per incident over the period is TSh 35,000 or TSh 200 per day of the six-month period when the victim is bedridden. The range is TSh 16,000–135,000. It is noteworthy that this sum refers to cash costs alone and does not include any imputed value of lost productive time by the people infected with AIDS or their families. The amount of money spent seems to be influenced by the ability of the family to raise the cash; the length and nature
of the attack; the frequency and length of hospitalization; the use of private vs public hospitals; and the extent to which households were able to recall the cost. TSh 35,000 is equivalent to 64% of the average total per capita income of TSh 55,000 estimated in the area (Tibaijuka, 1992). Only 20% of this income is in cash form, however, and the bulk (80%) is composed of family subsistence. For an average household the aggregate labor stock is 3.3 man-equivalents. The average household cash incomes is about TSh 36,300 p.a., indicating that virtually all (96%) of the cash earnings of households in the case study went to pay medical bills due to AIDS.

Many households reported that they had either had to borrow funds or sell assets to pay medical bills. Column 11 in Table 4 indicates the sources of funds for medical treatment. Out of the 18 incidences only five reported using their own family savings. Among the rest funds were either borrowed or assets sold including: land (four cases); some cattle (two cases); all cattle (two cases); goats (two cases); bicycle (one case); radio (one case); and bananas (all cases). The sale of bananas (the staple food) is an indication that household nutrition was sacrificed, especially in the households that had small farms with no cattle and therefore low yields. Two households reported to have sold all their cattle while one sold half of their banana-coffee plot or kibunja (Table 6, section D). The establishment of the kibunja takes many years and is a costly operation, while cattle are the source of manure and hence are an important factor influencing productivity. When either of these capital assets are disposed of, it means household farm income and hence welfare in the next season will decline. As a result of these shocks, the AIDS incidence has pushed all but one of the case study households into a lower income bracket (Table 6, section E). These results suggest that irrespective of the initial socioeconomic stratum of the household, the risk (vulnerability) of falling below the poverty line is high because the victims are the productive members of the household. Young orphans might inherit considerable resources but cannot manage them. In two cases the large farms inherited by young orphans were rapidly degenerating into bush for lack of care. This amounts to the loss of capital held in the banana-coffee plantation. Traditionally such farms would have been maintained by clan members. Such institutions have virtually broken down, however, partly because of labor shortage and partly because of increasing privatization and sale of land which is otherwise owned by the clan. Under the emerging land market regime, clan members find little incentive to maintain farms which may later be sold by the orphans when they become of age.

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<th>Changes in dependency burdens</th>
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<td><strong>Table 6 (section C)</strong> shows the exact changes in the dependency burden in the sample households. On average the &quot;after&quot; situation was 40% worse off than &quot;before.&quot; The dependency ratio computed as aggregate labor stock over the aggregate consumption units changed from 0.71 to 0.53, implying an increasing dependency burden by 34%. In some households the dependency burden doubled. A curious case is household number nine where the dependency burden was eliminated — becoming unity. In this case a 55 year-old woman lost both her 17 year-old daughter and the six-month old infant, thus remaining alone with no one to take care of her when she ages. The epidemic has increased the dependency burden significantly and jeopardized the future welfare of the surviving older generation.</td>
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<td>The reallocation of labor by women from economic activities to nursing the sick has had negative repercussions on food security. Sixty percent of the households considered food security in jeopardy because young women no longer produce as many supplementary root crops as before. Ten percent attributed this to the laziness of &quot;modern&quot; youth but the majority, 70%, attributed it to lack of labor, due to the existence of other more pressing commitments (40%) and poor health (30%). Among the victim households all but three have had to reduce food consumption. All but two thought that the health of the orphans had deteriorated markedly since the victim's death. Half of the households said the orphans had lost weight and the reasons for this were poor diet (60%) and poor care (40%). The low-income base of the society under study in general and the high material costs in terms of reduced production due to loss of labor means that impoverishment occurs both at household and community level thereby reducing the chances for the bereaved to attain community support. Green (1992, p. 14) correctly observes that historically the African extended families and communities have supported those affected by calamities but that &quot;this survival net has been weakened by modernization and by over load — more needy or destitute households relative to those with something to share.&quot; While population pressure and economic decline have contributed to the overload of community safety nets, AIDS itself places a heavier burden than other diseases because it attacks above all the income earners while leaving many orphans in need of care.</td>
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10. THE FATE OF THE ORPHANS

The impact on the guardianship situation in victim households is summarized in the top section of Table 6 which shows the new head of household who is assumed to be responsible for taking care of the orphans. In three cases the grandmothers took charge. In two cases there was a surviving spouse and in one case the household was closed down. As expected the material welfare of all orphans deteriorated, except in two cases where a better-off relative took over responsibility for the care of the children. One family also had a benefactor sponsoring the orphan's education. In our sample there was a total of 38 children under 18 years of age, of whom 13 were under five years old; 17 were in the age group 6-14 years and eight were teenagers. Of the five teenagers who were at secondary school, two were forced to drop out due to lack of school fees. Fifty percent of all the orphans did not have sufficient clothing or bedding and two under-fives had been taken to a public orphanage for lack of adequate care. In half of the cases where the mother had died the orphans are being taken care of by their grandmothers, most of whom are over 55 years old. These elderly women have to add this responsibility to their daily chores which are already burdensome. The problem of the Kagera AIDS orphans has already attracted some national attention and voluntary contributions are being mobilized by the Department of Social Welfare and some nongovernment organizations.

11. PUTTING AIDS IN PERSPECTIVE

The impact of AIDS tends to be catastrophic for the families affected but, in the short run, not for the entire village. For example, while Table 6 indicates a 29% labor stock diversion in households with one or more persons with AIDS, in 1987 there were only eight such households in a village of 220 households. Similarly the enormous medical bills affected only the households with AIDS victims (15%). But when AIDS is compared with other common and fatal diseases in Tanzania such as malaria, and epidemics such as cholera and typhoid its cost both in terms of labor and cash is about five times higher (Tibaijuka, Rugemalira and Kikuli, 1995). Partly because AIDS is sexually transmitted, some social opprobrium is attached to sufferers and their families. Generally only close relatives take the risk of caring for the victims and/or young orphans when they are suspected of carrying the virus. It has been observed that many surviving female spouses migrate to urban areas in order to try and escape the social stigma and lead a normal sex life, attempting also to reassure themselves that they are safe from the disease. Safe they sometimes are but exposure to new partners itself means new risk of infection. It is a vicious circle.

12. CONCLUSION

This paper has reviewed the progression of the AIDS pandemic in the Kagera region of Tanzania from regional, household and village community perspectives. The conclusion is that HIV infection continues at a rapid rate because of: (a) a culture that inherently encourages multiple sexual partners and polygamy; (b) the high risk of infection due to inadequate protective supplies and utilities in health facilities; and (c) continued economic decline and lack of worthwhile alternatives which has increased the rate of migration. Long separation of immigrants from permanent partners is associated with higher risks to engage in short economically motivated sexual relationships.

Ten case studies of victim households have shown that the majority of victims were the economically active age group and the impact on production has been disastrous in terms of production forgone as labor is reallocated to nurse and mourn the victims; loss of the victims themselves; orphans and old people left without satisfactory care and subsequent deterioration of their health; declining consumption and farm productivity as assets and working capital are disposed of to pay escalating medical bills; and loss of capital held in the banana-coffee plantations as they degenerate into bush for lack of care.

The present trend in the spread of HIV in the Kagera region and other parts of Tanzania calls for further research and a reexamination of strategies for controlling the epidemic in the coming millennium. The findings suggest that to bring the epidemic under control sustainably and efficiently it is necessary to look into community-based strategies which can: foster new social ethics; promote rural productivity and employment; improve health services; and provide survival safety-nets for the victim's families. The starting point for more optimal public health programs is a comprehensive evaluation of the current National AIDS Control Program.
NOTES

1. The connection between polygamy and "promiscuity" or more correctly revolving pools of multiple sexual partners can be explained by the fact that most marriages after the first tend to result from extramarital relationships. A culture that permits a man to have more than one wife is bound to be more tolerant to his extramarital sexual activities. In many places in Tanzania, traditions are such that when caught in an embarrassing situation, men easily justify their activities by claiming that they plan to marry their new sexual partner.

2. A living wage is defined as that minimum pay package for a worker to meet his/her basic needs and those of his/her nuclear family.

3. Although emphasizing an important point Lwihula's conclusion that because HIV is prevalent in many social groups in Africa it is irrelevant to identify risk factors is erroneous. While one does not have to broadcast the findings, knowing them surely would be helpful in formulating policy.

4. The annualized death rate \( (x) \) can be worked out as \((1 + y) = (1 + x)^n\); where \(y\) is the cumulative death rate and \(n\) the number of years. Therefore the annualized total death rate is given by solving the formula \((1 + x)^n = 1.045\) and the annualized AIDS death rate by the formula \((1 + x)^n = 1.026\).

REFERENCES


KCU, Bukoba.


