challenges
AIDS

3. The emerging contexts

The evidence discussed in the previous chapter reveals the complex socio-economic context of AIDS and its impacts on agriculture and food security. It highlights the need for more sophisticated analyses informed by both short- and long-term trends, including the evolution of the impact over time. This chapter discusses the contexts that are changing the nature of the AIDS epidemic: the stabilization of prevalence in many countries and areas; the availability of ARV drugs that prolong people's lives; and changing population attributes. The chapter examines these factors, including the opportunities offered by the changes for food security in rural societies.

Many of the impact studies conducted in recent years (and the analysts citing such studies) have assumed that the AIDS epidemic and its impacts would continue unabated into the foreseeable future. Worst-case scenarios spoke of the collapse of rural economies, widespread hunger and failed social safety nets, without considering the other factors affecting rural societies.

Two new factors must now be considered in assessing the future course of the epidemic: a stabilization and/or decline of HIV prevalence in a number of countries (Table 3); and the growing availability of ARV drugs and related therapies that allow people to live longer and more productive lives with HIV.

The reasons why the epidemic is stabilizing or declining are not well explained. Suggestions include the following:

- An epidemiological peak has been reached, where nearly all people at risk are infected in what is called "the saturation of susceptible hosts in risk groups" (Levin *et al*, 2001: 507).
- Deaths from AIDS-related illnesses nearly equal the number of new infections.
- The growing availability of ARV drugs is reducing the number of AIDS-related deaths.
- Changes in sexual behaviour are resulting in fewer new infections.
- Aggressive prevention programmes are having the intended outcomes.
- The methods used to determine prevalence are changing to population-based surveys rather than estimations.

Whatever the reasons for changes in the AIDS epidemic, the implications for livelihoods can be far-reaching. The following discussion of some of the implications for agriculture and rural livelihoods is preliminary – numerous factors contribute to diverse impacts and responses in local areas and even from household to household. The discussion aims to help create a fuller understanding of the epidemic in all its various manifestations. It does not suggest that AIDS will suddenly disappear as an adverse reality for individuals or societies. Even where surveys suggest that the epidemic has stabilized, new infections continue to occur, as do illnesses and deaths related to AIDS, and the lingering effects of illness and death continue to shape the lives of thousands of households and communities. The discussion seeks to recognize that new age cohorts are coming into puberty, and their sexual behaviour and well-being will influence the intensity of the AIDS epidemic. The stabilization of the epidemic in some countries or areas does not mean that it will stop flourishing or will not resurge in other areas. The virus has shown considerable ability to evolve, and may do so to resist existing or new drug therapies, thereby sustaining the epidemic. Overall, there are causes for hope that after two decades of sustained efforts to control HIV, the epidemic will no longer be pushing at an open door. However, epidemics do not end with a bang but with a whimper, so despite the evident stabilization and decline, AIDS will continue to be a major social problem in the foreseeable future.

The epidemiological context: a slowing momentum of the AIDS epidemic?

It appears from prevalence data that the AIDS epidemic is slowing or stabilizing in a number of countries: UNAIDS (2007) points out that the epidemic began to stabilize some nine years ago. Data must be viewed with caution, however, as few long-term trends are clearly discernible, and national aggregate prevalence data mask huge provincial and district differences in terms of HIV prevalence and AIDS cases.

Table 4 identifies countries with declining or stable HIV prevalence. The evidence is taken from the 2008 epidemiological reports issued by UNAIDS, the most recent available for this paper (UNAIDS, 2008). For both declining and stabilizing countries, a three-year period – and not simply a single survey – is used to indicate a short-term trend. Stability over two years is not considered long enough for making a judgement. In all the countries cited, periodic prevalence surveys have been undertaken for many years, so changes in the course of the epidemic are measured over a fairly long time frame. National prevalence figures are used with the understanding that in-country regional, socio-economic, age and gender group differences are likely to exist. In fact, local variations in prevalence, impacts and responses are very diverse and more important to a full understanding than is simply looking at national prevalence levels.

Unfortunately, trend data for rural areas are often weak or incomplete; where possible, rural trends are included in Table 4 where evidence allows. A fourth column in the table provides the percentage of HIV-infected people who are on ART treatment. Countries where the epidemic remains generally limited to specific risk groups (e.g. injecting drug users as in Pakistan or Indonesia) and countries where the epidemic has not spread significantly into the general population are not included in Table 4. The table divides countries into four categories to indicate the existing diversity in prevalence and potential impacts: countries with low prevalence of less than 2 percent; countries with moderate prevalence of between 2 and 5 percent; countries with high prevalence of 5 to 15 percent; and countries with very high prevalence of more than 15 percent.

TABLE 4 - COUNTRIES WITH STABILIZED OR DECLINING HIV PREVALENCE, 2008

Country	National adult prevalence (over at least 3 years)	In-country variations[1]	Percentage of eligible HIV-positive people receiving ART[2]
Low prevalence (< 2%)			
Burkina Faso	Decline from 2.1% in 2001 to 1.6% in 2007	Decline in rural areas and significant decline in urban areas	35%
Brazil	Stable at 0.6%		80%
Cambodia	Decline from 1.5% in 2001 to 0.8% in 2007	In Phnom Penh, rate among pregnant women fell from 4.4% in 1999 to 1.8% in 2003	67%
Dominican Republic	Generally stable at c.1.1%		38%
Ghana	Decline from 2.3% in 2001 to 1.9% in 2007	Highest rates are in the east	15%
India	0.3%; gradually declining, but wide variations by locality; in southern states decline from 1.7% in 2000 to 1.1% in 2004	Highest rates in Mumbai-Karnataka corridor, the Nagpur area of Maharashtra, Nammakkal district of Tamil Nadu, coastal Andhra Pradesh, and parts of Manipur and Nagaland	7%[3]
Jamaica	Stable at c. 1.6%	HIV prevalence of 9% among sex workers	43%
Myanmar	Gradual decline from 0.9% in 2001 to 0.7% in 2007		15%
Thailand	Generally stable at 1.4%	Among men who have sex with men, prevalence increased by more than one-third between 2003 and 2005	61%

Country	National adult prevalence (over at least 3 years)	In-country variations[1]	Percentage of eligible HIV-positive people receiving ART[2]
Moderate prevalence (2.1–5%)			
Côte d'Ivoire	Decline from 6% in 2001 to 3.9% in 2007	Data from northern and western areas not subject to study and may obscure reality; significant decline in urban areas	28%
Ethiopia	Gradual decline of c. 2.1% in 2007	Generally stabilized, at 14–16% since mid-1990s in Addis Ababa, and at 11–13% in other urban areas	29%
Haiti	Stable at 2.2%	Urban prevalence declined from 9.4% in 1993 to 3.3% in 2004	41%
Nigeria	Generally stable at c. 3.1%	Prevalence in pregnant women exceeds 5% in almost a dozen states; considerable variation from state to state	26%
Rwanda	Decline from 4.3% in 2001 to 2.8% in 2007	1998–2003 in rural areas stabilized at 2.1–2.8%; in Kigali declined from c. 16% to 13%; decline in urban areas	71%

Country	National adult prevalence (over at least 3 years)	In-country variations[1]	Percentage of eligible HIV-positive people receiving ART[2]
High prevalence (5.1–15%)			
Kenya	Slight decline from 7.6% in 2001 to 7.1% in 2007	Prevalence at some antenatal sites fell from 25% in 1998 to 8% in 2004, at others from 15% in 2001 to 4.3% in 2004; rate among women is twice that among men; significant declines in both urban and rural areas between 2000 and 2005	31%
Malawi	Generally stable at c. 12–13% in 2001–2007	Urban and semi-urban rates declined from 26–27% in 1999 to 17–20% in 2005. In 2004, the rate in southern region was 17.6%; c. 6% in central region; and c. 9% in northern region; significant decline in urban areas	35%
Tanzania (United Republic of)	Gradual decline from 7% in 2001 to 6.2% in 2007	In Mbeya and Iringa regions, HIV infection was 15– 19% in several urban areas in 2004; decline in rural areas	31%
Uganda	Decline from c.10% in late 1990s, now generally stable at 5.4%	Areas of conflict have rates of more than 8%	33%

Country	National adult prevalence (over at least 3 years)	In-country variations[1]	Percentage of eligible HIV-positive people receiving ART[2]
		Very high prevalence (> 15.1%)	
Botswana	Decline from 26.5% in 2001 to 23.9% in 2007	HIV infection rates of 40% of pregnant women aged 25–39 years; 21% in the Goodhope district in the south to 47% in Selebi-Phikwe; significant declines in both rural and urban rates between 2001 and 2006	79%
Lesotho	Generally stable at c. 23-24%	Declines in both rural and urban areas between 2003 and 2007	26%
Swaziland	Generally stable at c. 26%	Declines in both rural and urban areas	42%
Zambia	Generally stable at c.15% since 2001	Slight increase in rural areas from 11% in 1994 to 12% in 2004; decline in urban pregnant women: 20–24-year-old rate said to have dropped from 30% in 1994 to 24% in 2004	46%
Zimbabwe	Decline from 16% in 2001 to 15.3% in 2007	Significant decline in urban areas and decline in rural areas from 2000–2004; antenatal clinic rates declined from 30% in the early 2000s to 18% in 2006	19%

[1] This column generally follows UNAIDS usage: “decline” indicates non-statistically significant; “significant decline” indicates that the change is statistically significant.

[2] Estimated number of people receiving ART as a percentage of those needing it in 2007.

[3] 2005 data; figures not available in 2008 UNAIDS report.

Tables 5 and 6 provide district-level HIV surveillance trends for Uganda and Zambia. The trend data offer a localized view of the changes in HIV prevalence in both urban and rural surveillance sites in the two countries. The decline in HIV prevalence rates is more dramatic in Uganda than in Zambia, where the trend is towards stabilization, but at high levels. One rural district in Zambia (Kalabo) experienced a near tripling of HIV prevalence between 1992 and 2002, suggesting the variation that exists within countries.

TABLE 5 - HIV PREVALENCE, SELECT ANTENATAL SITES IN UGANDA, 1992 TO 2002

District	1992	1994	1996	1998	2000	2002
Nsambya	29.5	21.8	15.4	13.4	11.8	8.5
Rubaga	29.4	16.5	15.1	14.2	10.7	8.1
Mbarara	30.2	17.3	15.0	10.9	10.0	10.8
Jinja	19.8	16.3	14.8	10.5	8.3	5.0
Kilembe	n/a	16.7	10.4	n/a	4.2	4.2
Soroti	n/a	n/a	7.7	7.7	5.0	4.6
Mutolere	n/a	n/a	2.6	2.5	2.1	1.5

Note: Nsambya, Rubaga, Mbarara and Jinja data obtained at urban antenatal sites; Kilembe, Soroti and Mutolere data from “outside major urban areas” sites, i.e., rural sites with health facilities.

Source: Uganda STI/AIDS Control Programme, 2003.

TABLE 6 - HIV PREVALENCE, SELECT ANTENATAL SITES IN ZAMBIA, 1992 TO 2002

District or locality	1992	1994	1998	2002
Chilenje, Lusaka	27.0	35.3	27.1	30.6
Ndola	n/a	27.5	27.7	22.7
Chipata	n/a	30.3	27.2	27.2
Isoka	n/a	10.6	11.6	7.7
Kalabo	5.9	10.2	11.3	14.4
Macha	7.9	9.1	7.4	7.7

Note: Chilenje and Ndola are urban sites; Chipata is a provincial capital; Isoka, Kalabo and Macha are rural districts. District-level surveillance occurred (or was reported on) less frequently in Zambia than in Uganda.

Source: UNAIDS.

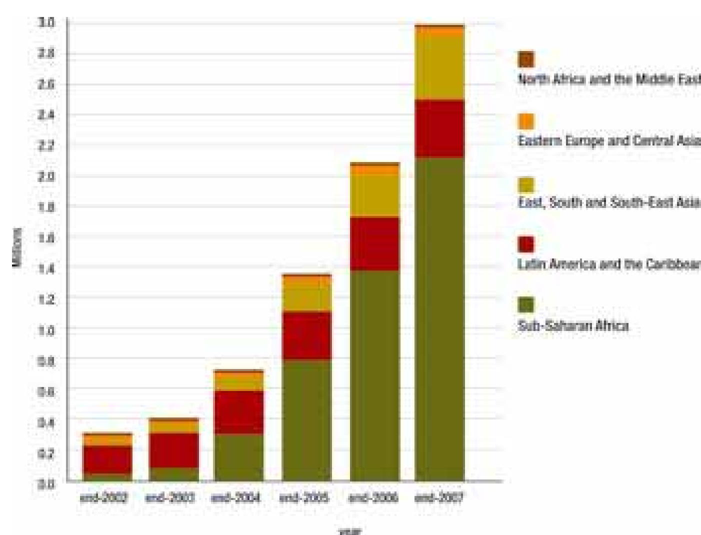
There are obvious gaps in the optimistic picture of a downward or stabilizing trend in HIV rates across Africa: there are countries where the epidemic continues to increase, such as South Africa, Namibia and Mozambique. The pace of growth in Southern African countries has moderated from that of several years ago, but neither prevention initiatives nor the availability of ART has yet halted the expansion of HIV and AIDS.

Despite the exceptions and the continued presence of HIV, there is reason to hope that the number of countries in which the epidemic is in decline will continue to increase. Countries and many NGOs are promoting prevention initiatives and expanding the availability of voluntary counselling and testing (VCT) sites where people can learn their HIV status. National governments and international organizations are allocating significant resources to making ART available for increasing numbers of people.

The treatment and care context: growing availability of ART

UNAIDS reported that at the end of 2007, nearly 3 million people were receiving ART in low- and medium-income countries. This means that ten times more people are now receiving ART than were at the end of 2002. The UNAIDS' graph shown in Figure 2 provides a regional breakdown of the increase in the number of people receiving ART.

FIGURE 2 - NUMBER OF PEOPLE RECEIVING ART IN LOW- AND MIDDLE-INCOME COUNTRIES, 2002 TO 2007



Source: UNAIDS, 2008.

About 950 000 people began receiving treatment between the end of 2006 and the end of 2007. The World Health Organization (WHO) estimated that 31 percent of the people who needed ART were receiving it at the end of 2007, compared with 7 percent at the end of 2003 and 20 percent at the end of 2005: “The year 2007 also saw an unprecedented annual increase in the number of people receiving antiretroviral therapy... However, global coverage of antiretroviral therapy is still limited, reaching 31 percent of the 9.7 million people in need at the end of 2007” (WHO/UNAIDS/UNICEF,

2008). Of the total number of people receiving ART, more than 2 million are in sub-Saharan Africa, were the percentage of people covered grew from 2 percent at the end of 2003 to 21 percent in 2006 and 30 percent by the end of 2007. Table 7 provides a regional summary of the numbers of people on and needing ART.

TABLE 7 - ESTIMATED NUMBERS OF PEOPLE RECEIVING AND NEEDING ART AND PERCENTAGE OF COVERAGE IN LOW- AND MIDDLE-INCOME COUNTRIES, BY REGION, END OF 2007

Region	Estimated number of people receiving ART	Estimated number of people needing ART	Percentage of ART coverage
Sub-Saharan Africa	2 120 000	7 000 000	30%
Latin America and the Caribbean	390 000	630 000	62%
East, South and Southeast Asia	420 000	1 700 000	25%
Europe and Central Asia	54 000	320 000	17%
North Africa and the Middle East	7 000	100 000	7%
Total	2 990 000	9 700 000	31%

Source: WHO/UNAIDS/UNICEF, 2008.

Following several years of debate, legal action and civil society activism to make ARV drugs available to people who need them, including to prevent transmission from mothers to newborn infants, South Africa currently accounts for one-fifth of those receiving treatment in sub-Saharan Africa. It was reported that in South Africa 28 percent of the people needing ART were receiving it towards the end of 2008. Treatment sites have expanded rapidly, in both the public and private sectors. The latter meets about half the current demand for ART. Men are more likely to use private sector treatment services, while 60 percent of the people using public services are women (WHO/UNAIDS, 2006: 20; International Treatment Preparedness Coalition, 2006: 33). Although extensive evidence is lacking, it appears that access to treatment is lower in rural than in urban areas. Rural access is hindered by inadequate health facilities, staff and laboratory services, and the distances that people have to travel to obtain services (International Treatment Preparedness Coalition, 2006: 34; Makwiza *et al.,* 2005).

In some countries, disparities similar to those that occur in the impacts of HIV and AIDS also occur in who has access to ART. Although the percentage of pregnant women estimated to be receiving ARV prophylaxis has increased significantly in recent years (from 10 percent in 2004) only about 33 percent received treatment in 2007 (UNAIDS, 2008: 4). However, in most African countries, women account for more than half of all people receiving ART, corresponding to the higher HIV prevalence among women (WHO/UNAIDS/UNICEF, 2008: 2). In terms of preventing HIV transmission to infants, about one-third of pregnant women in low- and middle-income countries were being covered by services in 2007 (UNAIDS, 2008: 5). Findings reveal, however, that figures vary among and within countries and correlate to the level of HIV testing. Few HIV-positive pregnant women received ART for themselves (WHO/UNAIDS/UNICEF, 2008: 5). Recent changes in the drug regimen to prevent infection of the foetus or newborn infants are improving outcomes for newborns. In Zambia, however, the new procedure is used only in urban health facilities, and has not yet been introduced to rural health centres (IRIN, 2007).

Factors affecting use of ART

Several factors influence who has access to ART. Botswana, Brazil, Cuba and Thailand, for example, have adopted policies and budgets to assure universal access. Other countries have yet to set priorities. Whether treatment is free or involves a partial payment by patients can make a major difference in access. It has been noted that: "in several African countries… when treatment is free, more women and children access it. When there is co-payment, however small, men are the majority of patients" (IRIN, 2004). A more rigorous, qualitative study in several East and Southern African countries concluded that free access to ART was the determining factor for most women (Silvester *et al.,* 2005: 12–14). A study in several districts in Malawi found that: "cost clearly emerged as the main barrier for patients to access and adhere to ART" (Makwiza *et al.,* 2005: 25). Indirect costs associated with treatment, such as transportation to a health facility and purchase of nutritious foods, make a difference in access to and use of ART. Many of the factors determining access to and use of ART may also play a role in determining adherence to treatment. Table 8 shows ART adherence one year after the commencement of treatment in selected high- and very high-prevalence countries. Although in some cases the percentage of people remaining on treatment appears rather high, this figure is relative to the percentage of people with access to ART in the first place.

TABLE 8 - ART COVERAGE AND ADHERENCE 12 MONTHS AFTER THE INITIATION OF TREATMENT, 2007

Country	Percentage of people on ART	Percentage of people on ART 12 months after initiation of treatment
Botswana	79%	85%
Ethiopia	29%	70%
Kenya	31%	87%
Lesotho	26%	74%
Malawi	35%	69%
Swaziland	42%	64%
Tanzania (United Republic of)	31%	-
Uganda	33%	88%
Zambia	46%	88%
Zimbabwe	19%	93%

Source: UNAIDS, 2008.

Increasingly, transmission from HIV-infected women to their newborn children is being prevented. This reduces the number of young children who become infected and, over time, will have a cumulative effect on non-infection rates. ART also reduces the viral load of people who are HIV-positive, thereby reducing the chances that they pass on the virus to others. Thus, the uptake of ART not only allows more people to live longer and remain productive, but is also likely (depending on sexual behaviours) to slow the spread of HIV. The effectiveness of ART in contributing to reductions in new HIV infections depends on a variety of factors, however: ready access to affordable treatment; a consistent supply of ART drugs; sufficient individual or family income to deal with the indirect costs; and reductions in the stigma associated with AIDS. If newborn children are protected from HIV, but their mothers do not have access to ART, the number of orphaned children will continue to rise steadily. If overall treatment regimes are less available and affordable in rural areas, the focus of the epidemic could shift from urban to rural areas.

Access to treatment for HIV depends on a variety of factors: cost and affordability to households; availability of drugs; access to health centres where drugs are available; trained health personnel; a steady supply of drugs; and a supportive family and community. Efforts are under way to address many of these factors in order to sustain the changing dynamics of the epidemic. Many of these challenges are quite common in rural areas of developing countries, suggesting that access to ART (and related services) in rural areas is severely limited.

In addition, a precondition for people's initial access to treatment is knowledge of their HIV serostatus. Uptake of VCT for HIV remains slow or low in most countries. In Malawi: "the uptake of counselling and testing is lower among the poor and coverage rates in the poorest 20 percent of the population are about half those found in the top 20 percent. Testing is also higher among urban settings and among the better educated people" (Banda *et al.,* 2006: 26, citing Makwiza *et al.,* 2005). WHO reports that: "Worldwide, only 12 percent of people who want to be tested are currently able to do so" (WHO, 2006b: 6) and an average of only 20 percent of people living with HIV in low- and middle-income countries know their status (WHO/UNAIDS/UNICEF, 2008: 3). The stigma and fear surrounding the disease keeps many people from learning their status, despite major campaigns through multiple sources in many countries to persuade people to use VCT services. Most VCT programmes are designed for urban settings. The different communication methods, service availability and transportation circumstances of rural areas are not compatible with such programmes. Testing for HIV is a first step in what is called "treatment literacy" – individual and collective understanding of the factors influencing effective use of ARV drugs and related care and treatment.

Another major factor is the affordability of ART for countries, insurance schemes and families. People not covered by employment-based insurance or who have low incomes would appear to be least likely to obtain ART when payment for services or drugs are required. For low-income households, even nominal payments can be a hindrance to sustained uptake of ART, as has been well documented regarding user fees for other health services (Silvester *et al.,* 2005: 5–6). Where treatment is provided free, adherence to the regimen is usually high (Weidle *et al.*, 2006). Where ART is subsidized, cost is an important consideration for governments and donor agencies. In Thailand, 80 000 people are on ART. In 2004 to 2005, a grant from the Global Fund supported about 30 percent of the cost of providing ARV drugs, at an average cost per patient of US$40 per month. The level of Global Fund support was expected to decline to 15 percent in 2006, as the Thai government covers a larger portion of the cost of ARV drugs. The cost to the government for ART increased

from US$6.2 million in 2002 to US$70 million in 2006. ART has been integrated into the country's Universal Health Coverage (Siraprapasiri, 2006), an important indicator of long-term commitment.

Since the late 1990s, the prices of ARV drugs have fallen dramatically, although for many countries and individuals they remain very high in relation to income. For people for whom the initial combination of drugs does not work, so-called second-line drugs can be offered, but these cost more than ten times as much as the first-line drugs.

Funding for ART is provided primarily by families, national governments and international organizations: "In low- and lower-middle-income countries, governments and external donors together cover 25 to 50 percent of costs. The remainder is covered by out-of-pocket spending by patients and their families" (WHO/UNAIDS, 2006: 7; WHO, 2006b: 15). Serious concerns remain about the sustainability of funding to treat existing and new HIV infections over the next 20 to 50 years. A disruption in funding for drugs can affect drug supply and availability, with implications for patient efficacy and viral drug resistance, as occurred late in 2007 in Rwanda.

In terms of annual budgets, whether for households or national governments, outlays for ART are expensive, but the returns are substantial and can offset the cost of the drugs and related therapy. A recent study from Kenya found that within 12 months of starting ART, workers on tea plantations worked: "at least twice as many days in the month than they would have in the absence of ART" (Larson *et al.,* 2008).

Evidence from both Thailand and Western Cape Province in South Africa shows that a well-considered strategy for providing treatment and a well-developed health infrastructure supporting implementation of that strategy are critical for the effective uptake of ART in both urban and rural areas (Abdullah, 2004; Revenga *et al.,* 2006). In turn, health infrastructure influences ease of access and affects the indirect costs that patients usually assume to receive all aspects of treatment. These costs can include transportation to treatment centres and time away from income-generating activities. Whether a person on treatment lives within an easy commute of a health facility is important, especially in rural areas, where people tend to live further away from health facilities that offer ART. A patient's location influences access to ART and to palliative drugs (such as pain relievers or anti-diarrhoea medicines). Existing evidence about disparities in access for rural versus urban dwellers is inadequate (IRIN/PLUSNEWS, 2004). It is reported that at least some areas of rural South Africa

receive less than efficient HIV and AIDS treatment (Beresford, 2004). In Zimbabwe, access is difficult for everybody, but especially for rural dwellers (Timberg, 2005). In 2006, Zambia's Ministry of Health conceded that: "many people living with HIV and AIDS in rural areas are not able to have access to ARVs because of long distances to district hospitals" (Comtex Health Care, 2006).

Socio-economic differences also may influence access to ART, although the limited number of studies on this topic reach differing conclusions. A study of deaths in Sao Paulo, Brazil, after ART was introduced found that trends of mortality (due to AIDS-related illnesses) were more or less evenly distributed across different socio-economic groups. The authors conclude: "it seems likely that in Sao Paulo the large-scale and free provision of ART meant that access to therapies and quality of care was equitable, and patients of different socio-economic background were reached at around the same time" (Egger *et al.,* 2005: 509–510).

Stigma appears to keep some people from obtaining ART, because they fear that they will face prejudice and discrimination from community members if they are seen at a clinic or are known to be taking ARV drugs (Mweninguwe, 2006). Stigma has been a persistent reason for people not using VCT services and is now preventing them from obtaining treatment. In time, attitudes may change, especially if no-cost access to ART and consistent supplies of drugs are sustained. Changed attitudes may open the way for more people to be tested for HIV and to seek treatment.

Emerging opportunities

It has been argued that ART provides countries and public health officials with a pause in the severe impacts of HIV and AIDS and with opportunities to find new solutions and adapt tried solutions to address the epidemic and its impacts more effectively (Barnett, 2006: 342). In addition, new research, as well as established knowledge, suggests that in the coming years, new opportunities for diminishing the risk of HIV infection can contribute to a changing presence of the epidemic. For example, research in several countries has shown that male circumcision reduces men's risk of acquiring HIV during heterosexual intercourse by more than half, compared with men who are not circumcised.

A search for ways in which women can reduce their risk has focused on the development of an HIV microbicide – a gel or cream that women can use prior to intercourse that reduces the risk of transmission of HIV. Some progress has been made in identifying safe and effective candidates, but turning research into consumer products remains at least several years away (early in 2007, two microbicide trials were halted because the gel being tested was shown to increase the risk of HIV transmission or was ineffective in preventing transmission). Condoms for use by women are available in many countries, and with active marketing and education are accepted and used. Female condoms are not always accessible to rural and low-income women, however, and uptake over time has been slower than advocates had hoped (SAPA, 2006; Napierala *et al.,* 2004). As with efforts to develop an effective vaccine against HIV, the search to improve prevention in women has focused on technical solutions. The "magic bullet" for preventing HIV has not been found.

The presence of malaria parasites increases the speed at which the HIV virus affects the body's immune system. In turn, the presence of HIV increases the risk of malaria infection (Centers for Disease Control and Prevention, 2006). Greater malaria control efforts can have important implications for reducing the impacts of both HIV and malaria, especially in sub-Saharan Africa. For pregnant women, the presence of HIV increases the possibilities of anaemia and adverse effects on the foetus (Whitworth, 2006).

The interaction of HIV with other infectious diseases, notably tuberculosis (TB), has implications for healthy people and agriculture, as these diseases have a major impact on people's ability to work, agricultural productivity and rural livelihoods (FAO, 2006). Controlling any of these infectious

diseases either singly or as part of a comprehensive disease treatment programme would release labour for agriculture and other productive activities. Evidence indicates that this is possible. A study by Badri, Wilson and Wood (2002) found that ART reduced the incidence of HIV-associated TB by more than 80 percent in an area endemic with both diseases. If left untreated, or not properly treated, TB can rapidly cause the death of HIV-infected people.

Research continues on producing a viable HIV vaccine, but expectations of finding one soon are hindered by the complexity of the virus and its ability to adapt to different situations. Scientists regularly indicate that successful vaccine development is at least a decade in the future. Preventing transmission of the virus remains an elusive goal. Thus, continued focus on prevention, including by strengthening food and nutrition security as well as rural livelihood options, remains essential.

The emerging socio-economic context

The influence of the epidemic cannot be understood without appreciating other factors that shape society, including the cohesiveness and resilience of many rural societies. Rural areas and groups have been subject to significant strains in recent decades, and these continue, along with AIDS, to affect people's relationships to the land, agricultural productivity, their livelihoods and their neighbours.

The preceding discussion described how the situation is still very complex and fluid, despite encouraging signs regarding stabilization and decline of the epidemic. Given the paucity of data, it is difficult to say whether the decline is significant or not. In any case, the effects on agriculture and rural livelihoods will continue to be felt as long as the epidemic remains at a high threshold. This section analyses the emerging socio-economic context, focusing on demographic, labour and equity outcomes resulting from the evolving epidemic and its impacts.

As the AIDS epidemic moderates in spread and intensity, the various impacts that have been predicted need to be reconsidered. This does not mean the complete reversal of existing real and projected impacts, but a more nuanced set of changes, largely determined by a household's demographic make-up and socio-economic features. There may be many contradictory findings, as different societies, with different forms of epidemics, adjust to the new realities.

The moderation of the AIDS epidemic in some areas offers new opportunities and hope, not only for the millions of people who will not become infected, but also for societies as they re-examine their policies and programmes for rural and equitable development. African countries have experienced numerous crises in recent decades, including AIDS. A moderating epidemic offers space to reconsider how past policies have contributed to the spread of the epidemic, and space to rebuild societies.

It also means that many past and current approaches to mitigating the impacts of AIDS are subject to review and revision. The reasons are several, but centre around the fact that households affected by AIDS are not homogeneous, and that many low-income rural households not affected by AIDS are in similar circumstances to those that are most affected. All such households, not just those affected by AIDS, can benefit from short-term mitigation initiatives and long-term development programmes.

Demographic changes

Among the demographic changes that can be expected as results of the slowing of the epidemic and the increased availability of ART will be fewer adult deaths than were forecast several years ago. Overall death rates due to HIV- and AIDS-related illnesses will decline, although deaths will not cease, as many people – especially in rural areas – will remain without access to treatment, and prevention programmes may fail to adjust to rural realities.

The overall death rate related to HIV and AIDS will be determined, in part, by the numbers of people being tested for HIV and obtaining treatment, and by the long-term effectiveness and availability of ART. As noted previously, women tend to be tested for HIV at higher rates than men. Especially in sub-Saharan Africa, women and men are obtaining ART at similar rates.

The implications of the moderating epidemic for rural societies with high prevalence rates – notably in Africa, and conditional to rural people living with HIV having access to ART – may include:

- reductions in childbearing, as women, men or both decide not to risk passing the virus to newborns or to risk having children they cannot afford to raise;
- increased food production, as women, in particular, are able to carry on agricultural functions;
- improved child care and child nutrition, as women are able to devote more time to both;
- a decrease in the number of orphaned children, as fewer parents die and existing orphaned children enter adulthood and are no long counted as orphans. This is likely to lessen the burden for extended family members who have cared for orphaned children.

The downward trend in life expectancy, documented for Southern African countries in particular, is likely to level off and life expectancy will likely begin to rise again. In addition, improved life expectancy for adults will improve dependency ratios. This will occur in two waves: the immediate dependency ratios will improve as adults live longer, especially as parents remain or return to being economically active; and, over the longer term, more children will survive (because HIV will not be transmitted at birth and because of better care by family members who otherwise would have been sick and died) to provide support for parents, grandparents and their own families in the future. Improvements in life expectancy will to some extent reverse the demographic changes in households, which have included increases in orphaned children and child- and elderly-headed households.[3]

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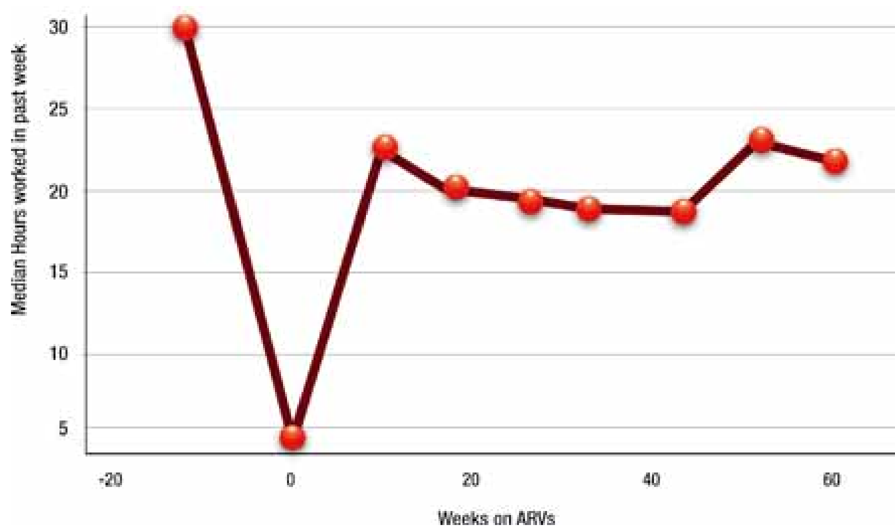
[3] The authors are grateful to Libor Stloukal and Sarka Kasalova Dankova for pointing out these likely demographic changes.

Labour productivity

The degree to which agricultural production, especially in Southern Africa, will be affected by AIDS is likely to differ from earlier predictions. Earlier studies suggested that the loss of household labour was producing changes in the amount and types of crops grown. More recent studies indicate that these changes are more selective.

Very few studies have looked at the changes in productivity once people begin ART, and even fewer at the changes in rural productivity. One of the few to look at rural commercial agriculture comes from Kenya and found that: "…within six months after the initiation of treatment, there is a 20 percent increase in the likelihood of the patient participating in the labour force and a 35 percent increase in weekly hours worked. Since patient health would continue to decline without treatment, these labour supply responses are underestimates of the impact of treatment on the treated" (Thirumurthy, Zivin and Goldstein, 2006: 2). Figure 3 illustrates the rebound effect of ART for tea estate workers in Kenya.

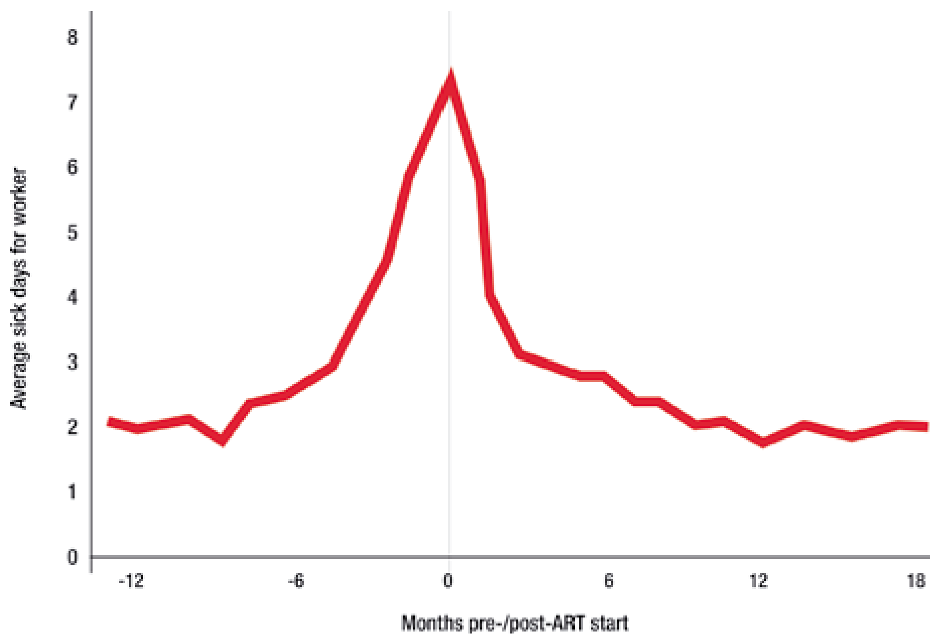
FIGURE 3 - WEEKLY HOURS WORKED BEFORE AND AFTER ART, KENYA



Source: Thirumurthy, Zivin and Goldstein, 2006: 49.

Other studies have focused on labour productivity in the formal sector, usually urban companies. This paper assumes that related responses to ART will be found in most rural areas. For example, in a large food industry company in South Africa, absenteeism of HIV-infected employees who began ART declined significantly (Rosen, Long and Bachman de Silva, 2006). The large Anglo American mining company, with operations in Southern and East Africa, reported: “At the end of 2005 we had 3 034 employees on ART. More than 90 percent of them are well and able to continue with their normal work.” As in the findings from Kenya, Anglo American documented dramatic declines in employee absenteeism after the start of the ART programme (Figure 4). The company concluded: “the cost of ART is more than covered by the reduction in absenteeism, reduced health care costs (particularly hospitalization), retention of skilled employees and improved productivity” (Anglo American, 2006).

FIGURE 4 - CHANGES IN ABSENTEEISM (SHORT-TERM TRENDS), ANGLO AMERICAN COMPANIES



Source: Anglo American, 2006.

It can be suggested that as women devote less time to caring for sick relatives (e.g., women spend up to 7.5 hours per day on care for terminally ill relatives in South Africa: Booysen and Bachmann, 2002: 7–9), more time will be given to food production, income generation and leisure activities. In turn, this will allow speedier recovery of household production and financial stability, although medical costs may continue to be significant for households in which at least one person is receiving ART. An increase in food production can contribute to improved household nutrition, an important factor in a person's ability to benefit fully from ARV drugs. An indirect benefit can be improved nutrition for children, with implications for school attendance and learning.

Equity

Equity is influenced by and reflects national decisions regarding subsidies to consumers to offset the cost of ART or prioritizing specific groups for access (such as health workers). Although one goal of treatment campaigns is universal access for all people who need ARV drugs, most countries are unable to afford that level of coverage, at least for now. There is also the question of who covers the costs of the drugs, the medical and laboratory attention that goes with ART, transportation to medical facilities and provision of adequate food. Some countries provide free access to drugs and medical oversight. Others share the costs with clients. Only a handful of NGO programmes include support for transportation and/or provision of nutritious foods. It seems clear that even as the epidemic moderates, the costs for treatment – and the necessary provisions to obtain treatment – will remain a heavier burden for low-income groups than for high-income groups or groups covered by insurance or employer provision of ART.

There has been little discussion within countries about how prevailing socio-economic and gender conditions may determine access (WHO, 2006a: 12–13). In sub-Saharan Africa, where data are available, women's access to ART nearly equals or exceeds their proportion of the population that is HIV-infected (De Cock, 2006). In the region, 57 percent of the people in need of ART are women, but women make up 61 percent of those receiving treatment (WHO/UNAIDS/UNICEF, 2008: 2). In Malawi, nearly twice as many women as men started ART (Makwiza *et al.*, 2006). This may be an outcome of women's routine or voluntary testing for HIV, either during pregnancy or at stand-alone VCT facilities. Unfortunately, there are no recent, reliable studies that seek to explain in full why women have received ART in such large proportions, especially given existing stigma and the biases in society and health care systems against women. Follow-up studies that trace longer-term adherence by women and lower-income people are also lacking, especially those to determine whether or how much cost or other barriers affect ART outcomes.

A feature in the broad pattern of the epidemic is that it affects young women at higher rates than young men, lower-income people more than upper-income groups, and already disadvantaged households more than better endowed ones. These realities have long-term implications for social and gender relations. The implications vary over time, by region and by existing and new support systems. In sub-Saharan Africa, if the number of young women living with HIV or dying of AIDS-related illnesses remains high, the opportunities for creating stable relations may decrease for both

women and men. The presence of a higher proportion of men to women may increase social tensions and gender violence, as fewer younger women are available for partnering with young men. At the same time, the change may give young women greater control over relationships, if they have greater flexibility in the choices of men they wish to be with. In addition, women have been more assertive in seeking testing for HIV and have been the primary care givers for sick relatives. These factors may increase the status of women in addressing some of the social and legal inequities they face within society.

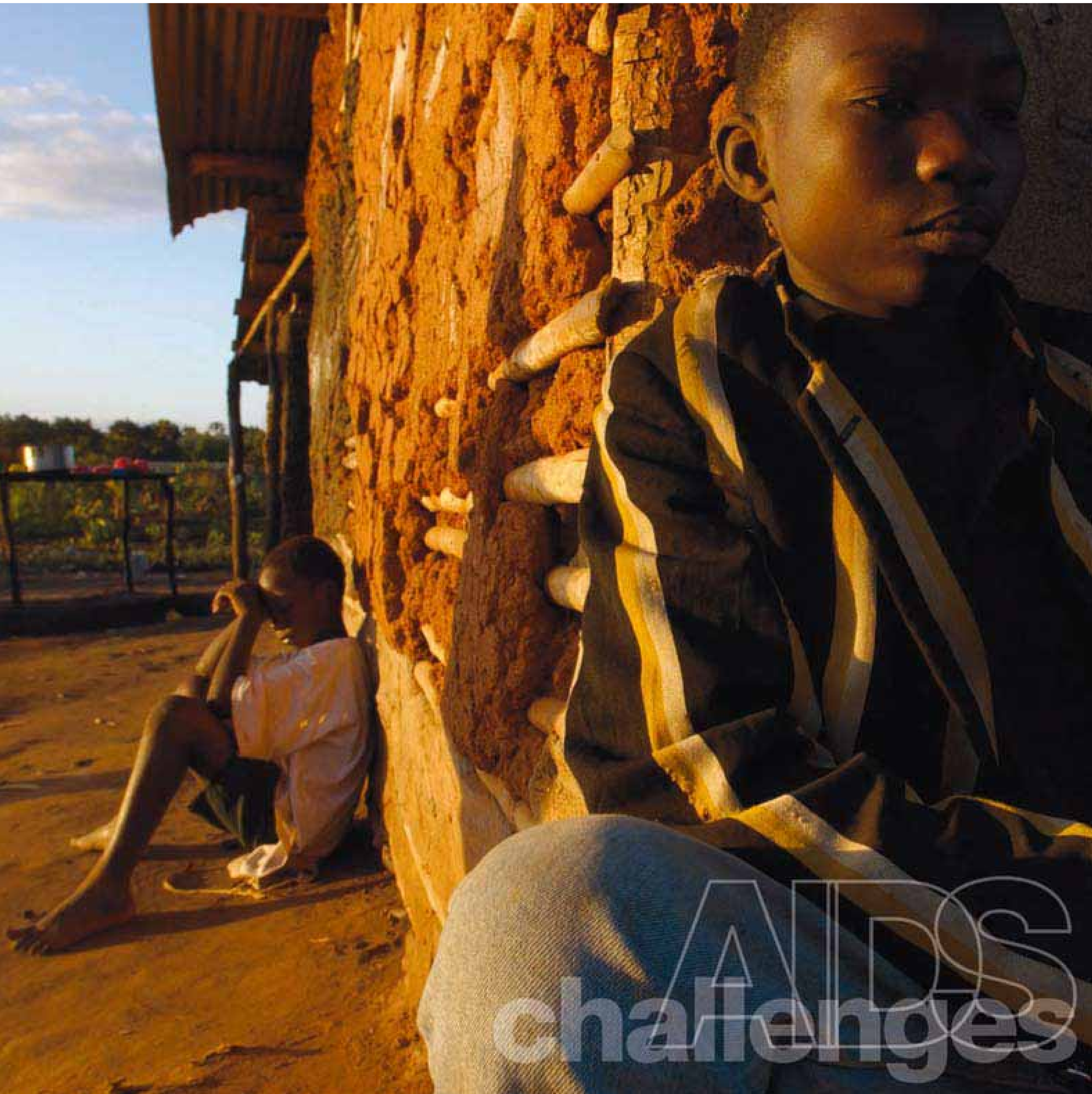
Equity is also influenced by the transfers (by sale, lease, legal or traditional means) of land, inputs, equipment and livestock as households seek to balance financial needs against job and income losses, decreases in crop sales and increases in medical costs. People and households that have gained through such transactions will be in a position to increase agricultural production – perhaps explaining why aggregate agricultural statistics have not changed significantly in the era of AIDS (Table 1).

Opportunities for children in households affected by AIDS may be compromised in comparison with those for children in non-affected households. Although findings from numerous studies show different results, there is sufficient evidence that a portion of children in affected households were withdrawn from school for varying periods or had their entry into school delayed. Some children were expected to assist with care of sick relatives; others entered the workforce to supplement household incomes. As ART roll-out intensifies and becomes more widespread, some of these negative trends may be reversed.

Some early AIDS impact studies speculated that children in affected households were likely to have worse nutritional status than children in non-affected households. At least one study suggests, indirectly, that this may not be the case. A review of demographic and health survey data for Malawi found minimal differences in nutritional status between young orphaned and non-orphaned children (Rivers, Silverstre and Mason, 2004; see also Mason et al., 2005, which discusses the difficulty of identifying AIDS as a primary causative factor in child malnutrition). However, Binswanger (2006) indicates that households fostering two or more AIDS orphans have lower nutrition outcomes for orphans and other children in the household. Further study is needed to determine the impact of ART availability on the education and livelihood opportunities available to children affected and/or infected with HIV, compared with those not affected.

There is evidence that already marginalized groups have much greater difficulty obtaining ART. In Thailand, such groups include informal or illegal migrant workers from Myanmar, injecting drug users, deep-sea fishers and prisoners (Schuettler, 2006; IRIN/PLUSNEWS, 2007). In East and Southern Africa, people in fishing communities are not only at high risk to HIV, but are least likely to have ready access to VCT and treatment. Most of the people in these communities are mobile and low-income. Health facilities are not usually readily available in or near these communities. An adequate diet for those who are able to obtain ART is difficult to maintain, as is easy access to a regular supply of drugs (Seeley and Allison, 2005).

In summary, the evidence now available on the AIDS epidemic presents a mixed picture. In some cases, household well-being has suffered greatly. Assets have been spent or lost, children withdrawn from school, and women's workloads increased. In other cases, informal and formal community groups (extended families, NGOs, local and national governments) have helped families to reduce the burden of AIDS. In some instances, new social movements have emerged to promote effective prevention, treatment and care options. All of these responses, and others, can be seen in many countries and they are expected to persist as long as the epidemic remains a significant problem.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