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IFPRI Discussion Paper 00905

October 2009

HIV and Mobility in the Lake Victoria Basin Agricultural Sector

A Literature Review

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FINANCIAL CONTRIBUTORS AND PARTNERS

IFPRI's research, capacity strengthening, and communications work is made possible by its financial contributors and partners. IFPRI receives its principal funding from governments, private foundations, and international and regional organizations, most of which are members of the Consultative Group on International Agricultural Research (CGIAR). IFPRI gratefully acknowledges the generous unrestricted funding from Australia, Canada, China, Finland, France, Germany, India, Ireland, Italy, Japan, Netherlands, Norway, South Africa, Sweden, Switzerland, United Kingdom, United States, and World Bank.

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ACKNOWLEDGMENTS

The Regional Network on AIDS, Livelihoods, and Food Security (RENEWAL) was launched in 2001. Facilitated by the International Food Policy Research Institute, RENEWAL is a growing regional network-of-networks. Currently active in Kenya, Malawi, South Africa, Uganda, and Zambia, RENEWAL comprises national networks of food- and nutrition-relevant organizations (public, private, and nongovernmental) together with partners in AIDS and public health. RENEWAL aims to enhance understanding of the worsening interactions between HIV/AIDS and food and nutrition security and to facilitate a comprehensive response to these interactions. The core pillars are locally prioritized action research, capacity strengthening, and policy communications. RENEWAL is operated on the idea that the process of developing networks is both a means and an end. Impact can be enhanced and sustained when locally prioritized research is linked with capacity strengthening and policy communications.

This paper was developed as part of a collaborative project initiated between the African Medical and Research Foundation (AMREF) and RENEWAL as part of the East African Lake Victoria Partnership Program (EALP). The EALP is a three-year (2007–10) program of the East Africa Community that is coordinated by the Lake Victoria Basin Commission, managed by AMREF, and funded by the Swedish International Development Agency.

Comments from Peter Atekyereza of Makerere University, Uganda, and John Msuya of Sokoine University, Tanzania, are gratefully acknowledged.

ABSTRACT

The Lake Victoria region has the highest HIV prevalence in the East African Community, which comprises Kenya, Uganda, Tanzania, Rwanda, and Burundi. This region also has a significant concentration of commercial agricultural plantations, which rely on mobile workers, an extensive system of out-grower schemes, and linkages with neighboring communities and transportation routes. This paper reviews the relationships between the various components of the plantation system and the spread of HIV, which is a complex and dynamic process. There has been relatively little research on these dynamic interactions, and the relevant policies and programs are generally silent on mobility-induced vulnerability to HIV. As such, this review first examines how the conditions and structure of the migration process may increase HIV vulnerability for migrants, thereby illuminating key challenges. Second, the review considers what may be done to address these issues, particularly within the plantation system. A comprehensive response to HIV would require that the plantation companies engage in efforts against HIV/AIDS across its entire time line (that is, ranging from efforts to prevent infection to attempts to mitigate its full impact on both agricultural workers and the business as a whole). Despite the logic of this argument, we do not yet have strong financial evidence proving that companies should invest in a comprehensive strategy. This critical gap should be addressed. For example, pilot programs on select plantations could be used to show the cost-benefits of addressing HIV/AIDS through a well-designed set of interventions aimed at the different target groups.

Keywords: HIV/AIDS, mobility, migrant workers, agricultural plantations, East Africa, Kenya, Tanzania, Uganda

ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
AMREF	African Medical and Research Foundation
ART	Anti-retroviral Therapy
CMR	Centre for Migration Research, University of Sussex
EAC	East African Community
EALP	East African Lake Victoria Partnership Program
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GLIA	Great Lakes Initiative on HIV and AIDS
GLR	Great Lakes Region
HDI	Human Development Index
HIV	Human Immunodeficiency Virus
IDP	Internally Displaced Persons
IIED	International Institute for Environment and Development
ILO	International Labor Organization
KTDA	Kenya Tea Development Agency
MKUKUTA	National Strategy for Growth and Reduction of Poverty (Tanzania)
MNE	Multinational Enterprise
NGOs	Nongovernmental organizations
NOTU	National Organization of Plantation and Agricultural Workers of Uganda
PLHIV	People Living with HIV
RENEWAL	Regional Network on HIV/AIDS, Livelihoods, and Food Security
SAMP	Southern African Migration Programme
VCT	Voluntary Counseling and Testing

1. INTRODUCTION AND BACKGROUND

The Lake Victoria region has the highest HIV prevalence in the East African Community (EAC), which comprises Kenya, Uganda, Tanzania, Rwanda and Burundi. In this region, there is a significant concentration of commercial plantation agriculture, which relies on mobile workers, an extensive system of out-grower schemes, and linkages with neighboring communities and transportation routes. The relationship between these components of the plantation system and the spread of HIV is complex and dynamic. Mobile populations are, for example, exposed to different circumstances during transit, upon reaching their destinations, and on their subsequent return to their homes. Research into the dynamic interactions of HIV, mobility, and vulnerability in the context of commercial agricultural systems in this region is limited, and the relevant policies and programs are generally silent on mobility-induced vulnerability to HIV.

In response to this situation, a collaborative project was initiated between the African Medical and Research Foundation (AMREF) and the Regional Network on HIV/AIDS, Livelihoods, and Food Security (RENEWAL) as part of the East African Lake Victoria Partnership Programme (EALP). The EALP is a three-year (2007–2010) program of the EAC that is being coordinated by the Lake Victoria Basin Commission, managed by AMREF, and funded by the Swedish International Development Agency. The purpose of the program is to establish a framework for improving the effectiveness of HIV responses for mobile populations within the Lake Victoria Basin by 2010. The vulnerable mobile populations of interest are migrant workers in agricultural plantations, fisher folk, and students in the basin's institutions of higher learning. Within the program, RENEWAL focuses on mobile workers in the agricultural plantation system.

Migration and Migrant Workers

The possible link between migration/population mobility and HIV has been discussed since the beginning of the AIDS epidemic (UNAIDS 2001). One key concern at the outset was that population mobility might be responsible for the spread of HIV, in that people might carry the virus from one place to another. Indeed, much of the literature confirms that migration has clearly facilitated the rapid spread of HIV in Southern and East Africa over the past two decades (Crush et al. 2006). Many studies have found that the links between HIV and migration appear to be close and complex, while other reports argue that there may not be a causal relation between migrations per se and the transmission of HIV (Haour-Knipe and Rector 1996; Decosas and Adrien 1997; IOM 2001; Kalipeni, Craddock, and Ghosh 2004).

This review takes the position that the spread of infectious diseases such as HIV (and other sexually transmitted diseases) is not only the result of individual actions, but is also influenced by the political, social, and economic organizations of society. It has been increasingly recognized that mobile populations may be more vulnerable to HIV infection than nonmobile populations, and that migration thus not only facilitates the rapid spread of the virus along so-called *corridors of migration*, but also fosters behaviors and situations that can facilitate transmission from one person to another. These conditions and approaches have been discussed in previous reviews covering Southern Africa, and were recently updated by a joint RENEWAL and Southern African Migration Programme (SAMP) report (Crush, Frayne, and Grant 2006). Here, we focus on first examining the way in which the conditions and structure of the migration process may increase HIV vulnerability for migrants, and then address what may be done to address such effects.

Key Objectives of the Desk Review

One of the key objectives of the East African Lake Victoria Partnership Programme is to identify and build on the existing HIV responses within participating plantations. In essence, the research will be used explicitly to strengthen each plantation's understanding of and response to the epidemic in the context of mobile plantation workers and (where appropriate) to pilot programs that will enable a more

comprehensive response to HIV. The present desk review is intended to feed into this process by identifying the risk and vulnerability factors associated with the plantation system. In this context, "vulnerability factors" can be defined as social and contextual factors describing the individual's condition in society (for example, living in a gender-exclusive environment or having a low level of empowerment) (see IOM/UNAIDS/SIDA 2003; GLIA 2008). "Risk factors" can be defined as factors that are directly linked (or on the causal pathway) to HIV infection, such as concurrent sexual partners, frequent partner changes, sharing of contaminated instruments, and low condom use (see IOM/UNAIDS/SIDA 2003; GLIA 2008).

The review is based on a detailed and comprehensive literature search using both primary and secondary sources of data. A diverse literature has been drawn upon, including research reports, policy documents, books, newspaper articles, journal articles, internet searches, and sector interviews with officials from key government departments, research institutions, agricultural universities, national governing organizations, and plantation managers. This review is not an end in itself. Rather, it is a beginning—an attempt to identify the key challenges and facilitate discussions that will feed into in-depth research within the plantation system surrounding Lake Victoria.

Structure of the Desk Review

The paper starts by looking critically at HIV prevalence in the Lake Victoria Basin, particularly in Kenya, Tanzania, and Uganda. The African Great Lakes region represents the second highest AIDS-affected area in Africa (the Southern Africa region ranks highest). There are important variations in HIV prevalence among the groups and regions in each country, and some groups are more at risk for HIV than others. A recent World Bank-facilitated study in East Africa (GLIA 2008) identified eight groups as being particularly at risk. Mobile agricultural (or plantation) workers were not identified as being among the most vulnerable groups, but this was largely due to the lack of relevant data. Using the available data, the authors argued that some subpopulations display higher-risk sexual behavior, are in mobile occupations, are in contact with mobile populations, or are exposed to violence and conflict, and as a result, have a higher median HIV prevalence than the general population in the Great Lakes region. The characteristics of mobile plantation workers correspond with several of these factors, making them another subpopulation likely to be at an increased risk for HIV.

Section 3 seeks to provide insight into the conditions (risk and vulnerability factors) of workers in the plantation sector by examining the commercial agricultural sector in the three countries studied herein. In particular, the section considers the rise of large-scale operations in each country and the commodities that characterize the relevant sectors. Building on this, Section 4 then explores the working arrangements of workers in those sectors. We argue that deregulation, globalization, and competitive pressure have had an impact on agricultural employment. Three major trends have emerged in the agricultural labor markets: an increase in the share of agricultural waged employment in total rural economic activity; an increase in the share of women in agricultural waged employment; and an increase in the casualization of agricultural waged labor (for example, increased outsourcing). An exploration of these trends in the studied countries shows that the terms of employment for mobile plantation workers render them increasingly vulnerable.

Section 5 considers region-wide and country-specific issues of migration, with a particular emphasis on the factors driving migration in the focus countries. For example, rural households engage in short- and long-term migration to maintain and diversify household incomes, and to reduce risk in the face of agriclimatic constraints. The need to diversify livelihood strategies by ensuring remittance flows is particularly important. Having provided a background to some of these issues, we then consider the characteristics of migrant workers, their migration patterns, and the ways in which these factors could contribute to the spread of HIV. In this regard, we find that the largely seasonal or temporary character of migration, wherein migrants return home to their families on a regular basis, is important. Furthermore, migrants often live in substandard accommodations with poor nutrition; these factors indicate their potential vulnerability to HIV and are explored in detail.

Migration is a marker of vulnerability, and migrant communities are often marginalized in economic, social, and political terms. Efforts to reduce the spread of HIV and the impact of AIDS should be geared toward changing their high-risk sexual behaviors, and the conditions or contexts that lead to this behavior. Section 6 therefore considers how different groups of mobile agricultural workers might be vulnerable to HIV, making important distinctions between individual-, social-, and program-related sources of vulnerability. This helps the discussion move beyond the potentially stigmatizing practice of focusing solely on individual risk.

As such, Section 6 focuses on each of these three types of vulnerability. In essence, "individual vulnerability" is partly driven by the fact that people's behaviors often differ when they are away from home, separate from the social norms that help guide and control the way individuals act in stable communities. This behavior, facilitated by the lack of these home-based norms, is often exacerbated by issues of powerlessness, gender inequality, loneliness, and isolation. The second type of vulnerability to HIV considered herein is "social vulnerability," which encompasses factors that reduce the ability of migrants to control or influence their context: these include poverty, the lack of legal protection, exploitation, discrimination, xenophobia, and the lack of power. The final form of vulnerability to HIV is "program-related vulnerability," which reflects migrants' lack of access to programs for HIV prevention, voluntary counseling and testing, treatment, care, support, and mitigation.

The paper then focuses more specifically on migrant workers in the agricultural sector, as these individuals face numerous challenges that increase their vulnerability to HIV. The issues of low wages, employment insecurity, and impermanence are important to our understanding of the social vulnerability of these workers. Despite these issues, given increasing poverty, rising unemployment, and decreasing access to land, larger numbers of young people are seeking employment as agricultural laborers each year.

Building on this, Section 7 considers how HIV makes an impact on the agricultural workforce and the commercial agricultural sector at different levels. For example, there is the impact on the individual worker and his or her extended family, the impact on the commercial plantation as a business, and the impact on the agricultural sector as a whole. It is clear from a number of studies that the accumulated costs of AIDS impacts on agricultural workers, including temporary or informal mobile workers, is substantial for companies, and a concerted response will be required to mitigate the impacts of this epidemic.

Section 8 provides a review of potential response programs. In terms of the groups located in the plantation system, different types of programs capable of responding to the varying aspects and impacts of HIV and AIDS are needed. A comprehensive response will need to engage with each segment of the HIV time line, ranging from efforts to prevent infection to strategies aimed at mitigating the full impact of AIDS on both agricultural workers and the business as a whole. It seems, however, that agribusinesses generally do not engage with this full spectrum, instead limiting their programmatic HIV/AIDS responses to prevention and (in some cases) treatment.

The final section reflects on how it may be possible to build on the existing HIV and AIDS responses within plantations. In essence, this means that the research undertaken may be used explicitly to strengthen each plantation's understanding and response to the epidemic in the context of mobile plantation workers, and (where appropriate) to pilot programs that will enable a more comprehensive response to HIV and AIDS. As such, it is recommended that this review be made available to the plantations involved in the study.

2. HIV PREVALENCE IN THE LAKE VICTORIA BASIN REGION

The Great Lakes region is the African region with the second highest AIDS impact, after the Southern Africa region (GLIA 2008). In most East African countries at present, the adult HIV prevalence is either stable or declining slightly (UNAIDS 2008). Table 1 shows the HIV prevalence and the number of people living with HIV (PLHIV) in the three countries surrounding Lake Victoria, in which the studied plantations are situated.

Table 1. HIV in Kenya, Tanzania, and Uganda

Country	Estimated HIV prevalence in adults (15-49 years)	Estimated number of people living with HIV			
		All	Women 15+ years	Men 15+ years	Children 0–4 years
	(percent)				
Kenya	5.1	1,120,000	540,000	480,000	102,000
Tanzania	6.5	1,400,000	710,000	580,000	110,000
Uganda	6.7	1,000,000	520,000	370,000	110,000
Total		3,520,000	1,770,000	1,430,000	322,000

Source: UNAIDS (2008): Kenya data are from National AIDS Control Council (2007); Uganda data are from Uganda Ministry of Health (2006).

The decline in Kenya's national prevalence rate from a high of about 14 percent in the mid-1990s to 5.1 percent in 2007 can be attributed to several factors, including behavioral changes, the maturity of the epidemic (that is, death rates now exceed new infection rates), and the deaths of the more at-risk individuals (which removed them from the transmission circuit) (UNAIDS 2008). While these declines appear remarkable in the broader regional context, it is important to emphasize that in Kenya, as elsewhere, prevalence rates vary significantly across the country, so any average figure will mask hard-hit communities, which may subsequently be bypassed by interventions as a result.

There are other important variations in HIV prevalence among the various groups and regions in each country (for instance, between urban and rural areas, and between men and women). Table 2 shows this variation based on surveys conducted within a three-year period in the focus countries.

Table 2. HIV prevalence, by residence, disaggregated by sex, in Kenya, Tanzania, and Uganda

Country	Women		Men		All		Source
	Urban	Rural	Urban	Rural	Urban	Rural	
	(percent)						
Kenya	12.3	7.5	7.5	3.6	10.0	5.6	DHS 2003
Tanzania	12.0	5.8	9.6	4.8	10.9	5.3	AIS 2003/4
Uganda	12.8	6.5	6.7	4.7	10.1	5.7	AIS 2004/5

Source: Rapid analysis of HIV epidemiological and HIV response data about vulnerable populations in the Great Lakes Region of Africa (2007, cited in GLIA 2008).

As indicated in Table 2, in all three countries, urban areas tended to have higher HIV prevalence rates (around 10–11 percent) compared to rural areas (around 5–6 percent), and women were more highly affected than men.

Demographic health surveys carried out in the three countries showed that age is a factor in HIV infection (GLIA 2008). HIV prevalence among women appears to peak at 25–29 years in Kenya and at 30–34 years in Tanzania and Uganda. Among men, the prevalence appears to peak at 40–44 years in all

three countries. In Kenya and Tanzania, women aged 15–24 years are three to four times more likely to be HIV-positive than men in the same age group.

Population Groups Vulnerable to HIV

From the above analysis, we see that AIDS epidemics are heterogeneous across the studied countries and within different populations in these countries. Furthermore, not all of the subpopulations have similar HIV epidemiological trends or face equal risks of HIV infection. A World Bank-funded literature review commissioned by the Great Lakes Initiative on HIV and AIDS (GLIA) identified more than 20 different population groups that were at increased vulnerability to HIV (Fraser, Gorgens-Albino, and Nkongolo 2008). From these findings, the study team members produced a short list of eight vulnerable populations that they recommended for more detailed analysis. For selection, the groups were ranked according to their associations with mobility, conflict, and violence, or based on their population size, HIV prevalence, vulnerability profile, and HIV risk factors, if these characteristics were known or could be estimated from the literature. The identified groups are detailed in Table 3.

Table 3. Eight most vulnerable groups in the Great Lakes Region

Population group	Estimated population size	Estimated HIV prevalence
Long-distance truck drivers	Estimated population size in GLR = 298,458	Estimated median HIV prevalence: 18%
Fishermen and fisherwomen	Estimated population size in GLR = 447,656	Estimated median HIV prevalence: 24.7%
Military personnel	Estimated population size in GLR = 401,020	Estimated median HIV prevalence: the only available recent data are from the Uganda Defense Force, which estimated prevalence at 20%. Due to claims that HIV prevalence may be lower than suspected, a prevalence range of 10–20% was used to estimate PLHIV numbers in the military.
Female sex workers	The study did not attempt to estimate population size due to challenges with defining this subpopulation.	The study did not attempt to estimate median HIV prevalence due to challenges with defining this subpopulation.
Refugees	Estimated population size in GLR = 1.2 million	Estimated median HIV prevalence: 1.65%
Internally displaced persons	Estimated population size in GLR = 2.9 million	Estimated national HIV prevalence for each country used for calculations (range 3.1% – 6.7%)
Prisoners	Estimated population size in GLR = 222,042	Estimated median HIV prevalence: 5.6%
Females affected by sexual violence	Estimated excess female PLHIV due to sexual violence in GLR = 157,777, based on the estimation that approximately 7.8 million females in the GLR have a history of sexual violence, and that females with a history of sexual violence are about 1.4-fold more likely to be HIV positive.	

Source: Fraser, Gorgens-Albino, and Nkongolo (2008).
Notes: GLR = Great Lakes Region; PLHIV = people living with HIV.

It is significant that mobile agricultural (or plantation) workers were not among the most vulnerable groups, even though their characteristics correspond with the listed vulnerability factors. This is believed to be largely due to a lack of data, which highlights the importance of examining this population in more detail.

3. THE COMMERCIAL AGRICULTURAL SECTOR IN THE LAKE VICTORIA BASIN REGION

Uganda, Tanzania, and Kenya are characterized by pervasive poverty, with low per capita incomes, low human development indexes, undiversified economic structures dominated by agriculture, and modest economic growth rates (EAC 2003). Some key socioeconomic indicators are summarized in Table 4 to enable a rapid appraisal and comparison of the three countries under consideration.

Table 4. Socioeconomic profile of the Lake Victoria Basin Region

Indicator	Kenya	Tanzania	Uganda
Population	32,420,000	37,671,000	26,699,000
Per capita GDP (in US$)	343	313	277
Income Inequality (Gini Coefficient)	0.43	0.38	0.43
Human Development Index (HDI)[a]	0.521 (rank 148)	0.467 (rank 159)	0.505 (rank 154)

Sources: FAO Statistical Yearbook (2008), figures from 2004 (www.fao.org; accessed February 2008). HDI: UNDP (2008) figures from 2005 (www.hdrstats.undp.org; accessed May 2008).

[a] The HDI provides a composite measure of three dimensions of human development: living a long and healthy life (measured by life expectancy), being educated (measured by adult literacy and enrolment at the primary, secondary, and tertiary levels), and having a decent standard of living (measured by purchasing power parity [PPP] and income); 1 = highest rank and 177 = lowest rank.

The following section gives an overview of the economic importance of the agricultural sector (specifically commercial agriculture) in the overall economy of the focus countries. The section provides a brief background on the historic developments in the sector, in an effort to assist readers in viewing the pilot plantation systems in their specific contexts. For information on the predominant agricultural commodities of the various agricultural plantation systems, please see the Appendix.

Economic Importance of Agriculture

In Kenya, Tanzania, and Uganda, 60 percent, more than 80 percent, and approximately 90 percent, respectively, of the total populations live in rural areas (FAO 2008). In all three countries, agriculture is the most important sector in terms of the number of people directly involved. Most of this agriculture is small-scale and largely subsistence in orientation. For example, in Uganda, 80 percent of smallholders have less than two hectares of land, with little mechanization[1] (Baffoe 2000; EAC 2003). Among the three studied countries, large-scale farming is most highly established in Kenya. Such farming is established to a lesser extent in parts of Tanzania, and it is relatively unestablished in Uganda (EAC 2003).

Table 5 gives an overview of the importance of the agricultural sectors in the economies of Kenya, Tanzania, and Uganda.

[1] Tractors per 1,000 hectares: Kenya = 3; Tanzania = 2; Uganda = 1 (figures are from 2003 from FAO 2008).

Table 5. Agricultural exports in Kenya, Tanzania, and Uganda, 2004

Item	Kenya	Tanzania	Uganda
Agricultural exports (in million US$)	1,296	481	359
Percent of four major exports in agricultural exports	71	47	66
Percent of agricultural exports in total exports	48	36	41
Agriculture contribution to GDP (percent)[a]	23.8	42.8	30.2
Percent of total labor force involved in agriculture[b]	75	80	82

Source: Agricultural export data (2004) from FAO 2008; GDP and labor force data are from CIA (2008).
[a] These are 1999 estimates; the other sectors are industry and service.
[b] These are 2007 estimates.

Kenya

Since gaining independence in 1964 (and in contrast to its two East African neighbors, Tanzania and Uganda), Kenya has remained a "mixed economy" characterized by the ownership of capital by diverse parties including the state, private local, and private international groups within a neoliberal or market-based economic system. Although the state has been strongly involved in the development planning and regulation of the private sector, conditions for private investments have remained relatively favorable. However, political alliances became increasingly important during the 1970s and 1980s, and politicians at the center came to rely on linkages and networks for support. Many supposedly apolitical bodies became politicized, including "trade unions, co-operative societies, and the army" (Tordoff 1997). When the country was hit by recession in the early 1990s, the state agreed to undertake reforms toward liberalism and privatization (Nohlen 2000). This ultimately had a positive impact on economic growth, particularly in the manufacturing and agricultural sectors. Indeed, in 2006, Kenya's agricultural sector grew by 5.6 percent more than it had the previous year.

Kenya's agricultural sector is characterized by a dualism between small-scale subsistence agriculture, on the one hand, and capital-intensive, export-oriented, large-scale agricultural plantations on the other (Nohlen 2000). Since the mid-1980s, Kenya has increasingly relied on food imports and food aid, as a result of population increases, droughts, and relatively low producer prices (Nohlen 2000).

Tanzania

The "Ujamaa-socialism" introduced in Tanzania in the late 1960s sought to make the country self-reliant through collective agricultural production, comprehensive services to the rural population, and their participation in decisionmaking processes (Nohlen 2000). In addition to a strong emphasis on improving peasant farming, the government supported large-scale plantations in selected areas. Beginning in 1967, as a result of the Arusha Declaration, most large plantations were nationalized and new state-owned "farming enterprises" were established (Nohlen 2000). However, during the 1970s and 1980s, Tanzania suffered from poor agricultural production and had to import food in order to meet its population's food needs. This was partly a result of farmers being unable to sell their own produce due to state price controls and a lack of goods in rural areas. In response to ecological challenges in some regions (primarily soil erosion), the state began resettling rural populations into more centralized villages. This, together with the increasing bureaucracy of agricultural cooperatives, caused agricultural production to decline beginning in the mid-1970s. In 1986, the state introduced economic and political reforms through Structural Adjustment Programs aimed at increasing production and improving the situation. These reforms included reversal of the resettlement programs and decreases of state intervention in production and trade. However, this served in part to increase the socioeconomic gap between rural and urban areas (Nohlen 2000).

Agriculture remains one of the key sectors in the Tanzanian economy today, providing livelihoods for about 80 percent of the population and contributing more than 40 percent of the gross

domestic product (GDP). During the 1990s, the average agricultural growth rates in the country were 3.6 percent per annum. Between 2003 and 2008, agriculture has grown an average of nearly 5 percent per annum while the population growth rate has been 2 percent (Denmark Ministry of Foreign Affairs 2008). In Tanzania, agricultural policy is a core element of the National Strategy for Growth and Reduction of Poverty (MKUKUTA), which was introduced in June 2005. MKUKUTA emphasizes private-sector growth, efficient government and decentralized planning, and highlights the critical role of agriculture in poverty reduction.

Uganda

The Ugandan economy registered a growth rate of 5 percent in 2006 (Hague and Harrop 2007). However, more than 75 percent of the country's total population relies on agriculture as a source of income (Baffoe 2000), and although agricultural output increased in 2003/04 compared to the previous year, the contribution of agricultural GDP has generally decreased in recent years (see Table 6). Overall cash crop production declined from 4.6 percent in 2002/03 to only 1.8 percent in 2003/04 (Uganda 2008).

Table 6. Uganda gross domestic product (GDP) contribution, by sector

Financial year	1999/00	2000/01	2001/02	2002/03	2003/04
			(percent)		
Agriculture	40.9	40.7	39.7	38.7	38.5
Industry	18.6	18.7	19.0	19.5	19.4
Services	40.5	40.6	41.2	41.8	42.0

Source: Uganda (2008).

Approximately 40 percent of agricultural products are produced in subsistence agriculture; this type of agriculture mainly focuses on plantain (*matoke*) and millet, which are Uganda's main food crops (Nohlen 2000; Byrnes 1990).

Historically (particularly during the 1970s), political insecurity, mismanagement, and the lack of adequate resources greatly affected agriculture. Idi Amin's policy of expelling the Asian population was concurrent with the nationalization of plantations and factories. The sudden withdrawal of the Indian population, which had dominated the tea sector in particular, led to the temporary collapse of tea production (Nohlen 2000). During the late 1970s and early 1980s, the production of cotton, tea, tobacco, and coffee (which is Uganda's major cash crop) collapsed (Byrnes 1990).

As part of the liberal economic reform process that began in the 1980s, many state-owned enterprises were once again privatized (Nohlen 2000). Agricultural reform, which was introduced in 1991, sought to intensify agricultural production and processing, increase agricultural producer prices, restructure the financing of production cooperatives, liberalize agricultural trade, reorganize the agricultural marketing institutions, and improve the agricultural research and advisory services. The key subsectors targeted by the reform were coffee, cotton, tea, tobacco, nontraditional exports, livestock, fisheries, and food crops (Baffoe 2000).

4. WORKING ARRANGEMENTS IN THE AGRICULTURAL SECTOR

The Food and Agriculture Organization of the United Nations (FAO) defines agricultural workers as "those that work on farms and plantations and in primary processing facilities for food and fibre production" (FAO 2006). The laborers work for "cash and/or kind payments and do not own or rent the land or equipment used in their work. They include permanent/full-time, seasonal, temporary/ casual, migrant, indigenous and piece-rate workers (paid per unit of work) and small farmers who often undertake paid agricultural employment to supplement their farm incomes" (FAO 2006). Agricultural laborers work within an employment relationship, be it with a farmer, farming or plantation company, or labor (sub-)contractor (Hurst 2005).

Deregulation, globalization, and competitive pressure have had an impact on agricultural employment around the globe. The International Labour Organization (ILO) reported that the major trends in agricultural labor markets in the 1980s and early 1990s (Hurst 2005) included

- an increase in the share of agricultural waged employment in total rural economic activity;
- an increase in the share of women in agricultural waged employment;
- growing casualization of agricultural waged labor (that is, away from permanent employment contracts), with workers increasingly being employed as temporary or casual labor on short-term, daily, or seasonal contracts with poorer pay and working conditions; and
- a growing trend toward outsourcing (particularly in developing countries), with the most serious challenge being that of casual and migrant labor hiring through or by contractors.

The effects of these types of changes include growing job insecurity, lower rates of pay, poorer working conditions (for instance, decreased health, safety, and environmental standards), lower social protection, increased food insecurity, and higher levels of poverty (IUF/ILC n.d.; Hurst 2005).

The various categories of agricultural workforce and the organizations that represent them have distinguishing (and occasionally overlapping) features (Hurst 2005). The following sections outline the main characteristics of the existing worker-employer relationships in the commercial agricultural sector, with special reference to Kenya, Tanzania, and Uganda.[2]

Full-time (Permanent) Workers

- These individuals experience more job security and have relatively higher wages, better housing, and better health and work benefits compared to other waged agricultural workers.
- Many full-time workers in agriculture live on or below the poverty line.
- Permanent contracts are the least common form of contract and their share in total agricultural employment has been declining over the last two decades in most countries.
- The situation is trending away from full-time employment to more casual and seasonal employment; this is often referred to as the "casualization" or "flexibilization" of employment, and such employment offers little or no social protection.

Casual, Temporary, and Seasonal Workers

- These groups comprise the majority of waged agricultural workers in most developing countries. The trend toward casual and temporary labor has been encouraged by

[2] Unless otherwise stated, this part is drawn from Hurst (2005).

unpredictable weather conditions, unstable market demands for produce, and labor laws requiring that seasonal and permanent employees receive certain benefits, such as notice pay, leave allowances, and medical attention.

- These workers are employed and paid on a per-day or per-task basis. Payment is often made on a "piece-rate" basis, such as by the number of baskets picked (for instance, for coffee) or the number of kilos picked (for instance, for cherries). Hence, there is a strong financial incentive for workers to extend their working time to the maximum. For an average adult working a 10-hour day, the pay does often not meet the minimum wage of the local country (see box). Even when both parents are working, children are often employed to contribute to the family income (www.teaandcoffee.com; Hurst 2005).

> Casual workers in the Uganda sugar sector are
>
> - Contracted on a daily basis,
> - Paid on a piece-rate basis (minimum 1.5 tons of cut cane per day),
> - Paid about USh2,400 per day, which is equivalent to US$1.23,
> - Not provided meals,
> - Not provided social benefits, and
> - Not provided gratuities.

- Temporary work refers to those employed for a specific but limited period of time.
- Casual and seasonal migrant labor is often used in low-skill harvesting and processing operations.
- Most seasonal, casual. or temporary workers do not receive any social security, unemployment benefits, paid holidays, or sickness or maternity leave.
- An increasing number of women workers are employed as casual or temporary workers.
- Jobs are often classed as casual or temporary, even if the employment is truly continuous. The practice of rotating individual workers among similar positions is common, as it denies them the benefits that come with permanent employment.

Migrant Workers

- Labor migration is one of the major consequences of growing work flexibility, casual employment, low pay, bad working conditions, and poverty.
- Migrant workers are found in all types of employment relationships (casual, temporary, seasonal, and even full-time).
- Migrant workers may be from a different part of the country, or they may be foreign workers.
- They are heavily disadvantaged in terms of pay, social protection, housing, and medical protection.
- This worker group often truly consists of whole families, although only the head of the family is formally employed.
- In many countries, the children of migrant and seasonal workers may labor next to their parents without figuring on the payroll. The piece-rate basis of payment incentivizes child

labor, as workers feel they need their children to work in order to achieve a living wage, with the result that the child's output is included with the parent's output.

Contract Labor and Labor Contractors

- Contract labor involves the practice of utilizing workers that do not have a direct employment relationship with the person or enterprise for which they perform work. In the majority of cases, the contracted workers are employed by a labor contractor, or may be supplied to the workplace by the contractor without any recognized employment relationship.
- This is a long-standing practice on plantations, and is becoming increasingly common in other forms of commercial agriculture.
- Many plantations retain a relatively small permanent core workforce, and then rely on labor contractors to source additional labor during peak periods.
- Some labor contractors are well-known companies that specialize in the recruitment, transportation, and management of waged agricultural workers, while other contractors are much less formal.
- This practice undermines the entire employment relationship, creating a gray area around the employer's responsibilities and fostering a disregard for labor legislation.

The employment relationship described above creates insecure employment conditions that are prone to abuse, as the contractors may demand commissions, overcharge for transportation, housing, and food, and withhold wages, eventually putting the contract laborer into debt slavery. Kenya, Tanzania, and Uganda are experiencing similar trends in their agricultural sectors. In a study conducted by the FAO, the International Union of Food, Agricultural, Hotel, Restaurant, Catering, Tobacco, and Allied Workers Associations, and the International Land Coalition on the working conditions and employment relationships at Multinational Enterprises (MNEs) in the sugar industry in Uganda, a number of issues were raised, including the ongoing downsizing of the permanent waged workforce on the sugar companies' nucleus (that is, directly managed) plantations; an increase in the number of waged workers on short-term employment contracts on the nucleus plantations; the increased use of casual waged workers on nucleus plantations; the increased hiring of casual waged workers by self-employed farmers producing sugar for the plantation companies under contract as "out-growers"; out-growers' associations acting as labor contractors, hiring casual waged laborers to work on the farms of their out-grower farmer members; and the increasing casualization of employment (Hurst 2005).

An ILO report claimed that MNEs in Uganda were increasingly moving toward the "casualization of labor," with workers being fired without warning (Fashoyin, Herbert, and Pinoargote 2003). Furthermore, the authors found that trade union representatives were expecting "a heavy reliance on casual labor to be a means of denying workers the rights and benefits associated with permanent employment" (Fashoyin, Herbert, and Pinoargote 2003). Unions in the plantation sector in Kenya have, through collective bargaining agreements, managed to include provisions limiting the length of time during which employees may be engaged on a seasonal, casual, or temporary basis (Hurst 2005).

In the sugar sector in Uganda, workers are divided into "core" and "peripheral" segments; the former consists of a small and stable core of permanent, upper-level skilled workers at the nucleus plantations and factories, while the latter represents a much larger, more flexible, and lower-cost group of peripheral workers, such as casual sugarcane cutters and upkeep workers in the sugar fields (IUF/ILC n.d.). It was estimated that in 2002, 33 percent of agricultural workers on sugar plantations were permanent workers, 40 percent were contracted, and about 27 percent were casual workers (IUF/ILC n.d.). Short-term contracted laborers (32 percent of total labor) were hired for one to three years and usually came from other regions. They were recruited and transported to the plantation alone, without their families, and were usually brought home at the end of their contracts. Their housing conditions were

poor, and family visits were allowed on a three-month basis. Most of the contract workers were male, and could be considered internal migrant workers (IUF/ILC n.d.).

Casual workers on coffee plantations in Kenya are reported to earn approximately KSh1,000 a month (US$12 at the time of study). The minimum wage as required by law is three to four times that amount. Casual laborers in Kenya often fall outside of protection by labor laws, as there are currently no legislative frameworks or unions to protect the rights of temporary workers (www.teaandcoffee.com).

In Tanzania, the number of female plantation workers has historically been limited. More recently, however, the Tanzania Plantation and Agriculture Workers Union reported a rise in the number of women seeking employment on agricultural plantations (TPAWU 2005). The union linked this trend to the effects of HIV and AIDS, which force widows to take up such jobs, and further reported that the privatization and globalization of the tea sector has promoted the casualization of labor through subcontracting (TPAWU 2005). Finally, the general employment conditions on plantations, including those related to health and safety, child labor, and HIV/AIDS, were found to have deteriorated during the previous decade (TPAWU 2005).

As mentioned above, Kenya, Tanzania, and Uganda have also experienced a trend toward out-growing. For example, sugar plantations and processing facilities managed by one MNE in Kenya employs only 3 200 permanent employees on its own nucleus plantation, but then contracts, buys-in, and processes sugar from a network of 65 000 out-growers or small farmers grouped under their own company (Hurst 2005). The sugar company and the out-grower network are totally interdependent.

5. MIGRANT WORKERS AND MIGRATION PATTERNS IN EAST AFRICA

Migration is usually defined as the movement of people from one place to another, whether temporarily, seasonally, or permanently, for a host of voluntary or involuntary reasons (IOM 2001). To distinguish among the various categories, the word *migrant* is usually restricted to those who move for voluntary reasons (internally or internationally), while *refugees* and *internally displaced persons* (IDPs) are those who move involuntarily, usually because of wars, other violent conflicts, and/or human rights abuse (IOM 2001). In terms of the focus of this review, *mobile plantation workers* are migrants found in all types of employment relationships (that is, as casual, temporary, seasonal, and even full-time workers).

According to the United Nations 2002 revised edition of the *World Population Prospects*, the estimated African international migrant stock increased from 9.4 million in 1960 to 16.3 million in 2000, with the figures for Eastern Africa being 3.1 million and 4.5 million, respectively (Zlotnik 2004). In Eastern Africa, this stock peaked at 5.1 million in 1990, and has been on a decreasing trend since (Zlotnik 2004). A comparative analysis of migration in Western-Central (or Middle) Africa and Eastern-Southern Africa before the 1990s (Oucho 1996) suggested that there were significant differences in the determinants and consequences of international migratory movements between the two subregions. Oucho, in reviewing these determinants, concluded that Kenya, Tanzania, and Djibouti have been islands of peace in a war-torn region, where refugees dominate the scene and overshadow any voluntary migration.

The East African countries forged an "economic union" in 1948; this union collapsed in 1977[3] but was resuscitated in 1996 and became fully operational in 2000 through the East African Community (EAC). This regional association has successfully sustained migration among the three East African countries for many years (Oucho 1996). Migration among these countries has been largely based around economic determinants, although Uganda contributed significant numbers of refugees to Kenya and Tanzania as a result of the military dictatorship in 1971 to 1979 and the uneasy peace between 1980 and 1986.

Migrants and Migration Patterns in the Lake Victoria Basin Region

In 2004, researchers at the University of Sussex's Centre for Migration Research (CMR), located at the Development Research Centre on Migration, Globalisation and Poverty in the United Kingdom, published a working paper on East Africa that provides region-wide and country-specific analyses of migration and pro-poor issues (Black, Hilker, and Pooley 2004). This is a key document for the analysis of mobile populations in East Africa, and forms the basis for the following section.

Migration in Kenya

When looking specifically at Kenya, the CMR argued that there are few accurate statistics about internal migration (Black, Hilker, and Pooley 2004), largely because there is no true census material more current than the last published census in 1989. However, it seems likely that areas around Nairobi and Mombasa, the coast, and various areas of commercial farming are net areas of immigration, while there is net out-migration from much of Western and Northern Kenya (Black, Hilker, and Pooley 2004). Areas such as the Rift Valley, Western Kenya, and Nyanza, where a large number of agricultural plantations are located, receive migrants seeking opportunities for employment; furthermore, these regions also send migrants elsewhere, particularly to the Eastern cities, to seek livelihood opportunities.

[3] According to Oucho, the collapse of the first East African Community in 1977 left the citizens of the member states with one common option: to migrate to Southern African countries where employment opportunities existed, that is, in South Africa's *bantustans* during the apartheid regime, in Zimbabwe at independence in 1980, in Botswana since the 1980s, in Namibia since 1990, and in South Africa since 1994.

The extent to which rural households engage in short- and long-term migration to maintain and diversify household income and reduce risk in the face of agroclimatic constraints is well documented in Kenya (Black, Hilker, and Pooley 2004). Smallholder farmers, for example, often use circular migration to increase their livelihood security by splitting the family, most often with one family member migrating to an urban area (Bigsten 1996). This perspective was validated by another smaller study undertaken by the U.K. Department for International Development's (DfID) Natural Resources Policy Research Programme. This study found that over half of the surveyed households had access to migrant income; such income was larger and more secure than income from local wage labor; and migrant incomes contributed to farming investment (Nelson 2000). This study argued that notwithstanding macroeconomic stagnation, off-farm incomes from migrant remittances play a major role in household livelihoods, not just by supporting consumption, but also by financing a wide range of farm investments (Nelson 2000). This research was conducted using a small sample of households from the Makueni District in the Eastern Province of Kenya. In addition to rural-urban migration, seasonal and temporary migration for agricultural employment is common in rural areas, and is used to increase family income. Building on this, it is clear to see how mobile plantation workers and their remittances are crucial for smallholder agriculture off the estates. Such migrants may come from very distant places (for instance, neighboring districts or countries), but many come from villages within the same districts as the source of work.

An important example of this is provided by work in Western Kenya by Hoddinott (1994), who suggested that migration decisions and remittance behaviors are linked to a form of intergenerational "migration contract" between a migrant and his or her parents, in which the (usually male) migrant moves and sends remittances back home, in the expectation of a subsequent inheritance (Hoddinott 1994). In essence, Hoddinott questions the extent to which remittances are altruistic behavior versus payments in a contractual relationship between households and migrants. The research was conducted in Western Kenya and focused on smallholder farmers who received remittances from different places including, arguably, nearby estates. Hoddinott (1994) noted that the existing models treated migration as either an individual decision or a household decision. Instead, he modeled migration as the outcome of "joint utility maximization by the prospective migrant and other household members." As such, the paper provides a theoretical rationale for the inclusion of a richer set of explanatory variables in econometric models of migration.

In terms of the consequences of migration for the poor, Oucho (1996) discussed the problems of balancing the costs and returns (to rural areas) of rural-urban migration, in terms of the loss of labor; the cost of supporting the move and becoming established in the new town, returns in the forms of remittances (both economic and sociocultural), and the eventual return migration.

Migration in Tanzania

In Tanzania, there is a long history of rural-rural and rural-urban migration, including significant labor recruitment from neighboring countries to provide a workforce for plantation agriculture. In post-independence Tanzania, which was characterized by a Marxist development path (as described above), long-distance, rural-to-rural migration slowed due to a policy focus on community-level farming.

In recent years, researchers have had relatively good access to information about the links between internal migration and poverty in Tanzania, thanks to an International Institute for Environment and Development (IIED) study examining movement out of rural areas in both the north and south of the country (Tacoli 2002, cited in Black, Hilker, and Pooley 2004). The findings of this study were consistent with those of a Kenyan study (DfID 2004) in that that occupational diversification in rural areas was found to be inextricably linked to mobility, while migration was identified as a key factor in shaping settlement patterns and livelihoods. The IIED study found that 50–80 percent of rural households had at least one migrant member, across all wealth categories and with increasing involvement of women as independent migrants (Tacoli 2002). However, the study also found that remittances had declined over a 15-year period, largely as a result of employment insecurity in destination areas, while rural households had simultaneously become more dependent on these remittances.

There is a strong gender dynamic to these relationships. For example, in Northern Tanzania, around Mt. Kilimanjaro, the migration of young people (both male and female) is a very common means to increase opportunities, especially for marginalized women (Lerise 2001). Lerise showed that, at the intrahousehold level, gender and generational relationships were likely to have a significant impact on the ways in which different groups engage in diversification. In Tanzania, domestic trade liberalization opened up opportunities in local small-scale trade; these opportunities were particularly seized by young women, who were otherwise expected to work as unpaid labor on a family farm that they would not expect to inherit. Notably, young men were also moving out of farming during the 1990s, as petty trade came to replace agriculture as their main activity. This was due not only to the decline in farming incomes, but also rested in the young men's frustrations over the almost absolute control the older men held over land and farming decisions (Lerise 2001).

In summary, the IIED working papers on "Rural-Urban Interactions and Livelihood Strategies" confirmed that the rural-urban interactions include spatial linkages (flows of people, goods, money, and other social transactions between towns and the countryside) and sectoral interactions (for instance, the development of "urban" sectors in rural areas, for example, through rural nonfarm employment, and "rural" sectors in urban areas through urban agriculture) (Tacoli 2002; Lerise et al. 2001). However, it is equally important to pay attention to those in rural areas who are *not* receiving remittances, since they are likely to be the most vulnerable of all. For example, one study of rural-urban migration focused on the extreme poverty of women who are on their own (for instance, divorced or widowed), as these individuals may be cut off from remittances previously provided by a partner, while being equally unable to return to their natal homes (Black, Hilker, and Pooley 2004).

Migration in Uganda

Since the colonial era, the plantation system in Uganda has been a major attraction for labor migration from neighboring countries. As discussed above, the economic and political declines seen in Uganda in the 1970s and 1980s severely affected economic activity, particularly that of foreign- and locally-owned plantations, leading to severe decreases in migration. Since the mid-1990s, however, the country's active focus on facilitating investment has led to an increase in migration, including that of mobile workers moving toward the plantations surrounding Lake Victoria.

Despite widespread recognition of this trend, a study by the United Nations Department of Economic and Social Affairs found no recent figures on internal labor migration in Uganda, although provisional data from the 2002 census seemed to suggest that urbanization had slowed considerably from 1991–2002 (Black, Hilker, and Pooley 2004). This slowdown of urbanization may reflect that people were returning from urban areas back to their rural homes during this period. For example, a study by the Overseas Development Institute found that urban-rural movement occurred when people returned to their villages or, as in Sub-Saharan Africa in the 1980s and 1990s, upon retrenchment under the Structural Adjustment Programs of Uganda and Zambia (Deshingkar and Grimm 2004). A crucial factor for this movement seems to have been access to land in both the city and rural areas (Potts 1995; Tacoli 2001).

Despite a lack of data on the movement of Ugandans either internally or abroad, the University of Sussex found "it striking that the most recent International Monetary Fund figures for official remittances put the country in the top 20 countries worldwide in terms of the size of remittances proportional to GDP" (Ratha 2003, cited in Black, Hilker, and Pooley 2004). This clearly shows the importance of remittances from family members working in distant places. Weeks (1995) found that, in Uganda, elderly-, disabled- and female-headed households commonly relied on cash remittances from children employed in the city. Temporary migration was part of the overall survival strategy of a household faced with declining real incomes in both rural and urban areas. However, although remittances from migrants were clearly important for the poor, such inputs did not necessarily reach these households. A recent study of livelihood strategies in the Mbale, Kamuli, and Mubende Districts of Uganda compared female- and male-headed households and found that a greater number of economically active adults migrated from the former than the latter (Dolan 2002). Although remittances were found to play an essential role in female-

headed households, this did not translate into enhanced income diversification, since off-farm opportunities were more limited for women than men.

Uganda's latest Participatory Poverty Assessment, published in 2000, included a short discussion on migration as an economic or coping strategy (Black, Hilker, and Pooley 2004). This report noted that people migrate because of insecurity, to search for livelihood opportunities, to obtain seasonal water for animals, or to seek better services, and suggested that migrants find life hard but may succeed. Migrant men are described as often living in substandard accommodations and eating modestly, but being respected in their communities of origin, where they are seen as being better-off than those remaining behind in the natal village. In addition to migration from all districts to Kampala, rural-rural migration was also noted from Kalangala, Kapchorwa, Kisoro, Kabarole, and Bushenyi Districts (Black, Hilker, and Pooley 2004).

Notably, there is some evidence of the association between HIV and migration in Uganda. A longitudinal cohort study in a rural county of Masaka District found that the age and sex-standardized sero-prevalence rate was 7.9 percent overall, but that this rate was only 5.5 percent for adults who had not moved home, while it was 8.2 percent for adults who had moved within the village, 12.4 percent for those who had moved to a neighboring village, 11.5 percent for those who had left the area, and 16.3 percent for those who had joined the study area from outside (Nunn et al. 1995). Notably, the reported number of lifetime sexual partners was higher for individuals who had changed residency compared to those who had remained in their natal villages.

Some of the issues that are believed to increase the vulnerability of mobile populations to HIV and AIDS are explored in the following section.

6. FACTORS INCREASING VULNERABILITY OF MOBILE POPULATIONS TO HIV

Fishing communities around Lake Victoria have long been identified as "high-risk populations" having a significantly higher HIV prevalence compared to other population groups (GLIA 2008). Through extensive research, the high mobility of this population has been identified as a key factor contributing to risky sexual behavior and vulnerability to HIV.[4]

Some of the studies on the fishing communities around Lake Victoria have noted that it is difficult to clearly define the fishing communities and their boundaries. Although the majority of these communities are in some way involved in fishing and the fish trade, some individuals engage in other income-generating activities to supplement their fishing income. Thus, it can possibly be assumed that some of the (migrant) contract and casual laborers may be drawn from nearby fishing communities.

A study of two districts bordering Lake Victoria conducted by the FAO together with the Ugandan Ministry of Agriculture, Animal Industry, and Fisheries showed that the region suffered from a high prevalence of HIV and a high rate of illiteracy (impacting on the use of written HIV prevention material) (FAO/MAAIF 2002). Of the study respondents, 23 percent had never attended school. In addition, focus group discussions revealed that, due to poverty, "[o]rphaned girls without care were reportedly lured into sexual relationships with older and married men for material benefits. Similarly, cases of married women having sexual relationships with men were reported to be common" (FAO/MAAIF 2002).

Many of the labor migrants in Uganda's Lake Victoria shore regions reportedly originate from the northern regions, which were conflict-torn until recently. Conflicts are known to provide fertile grounds for the outbreak and spread of diseases, due to refugee movement and the collapse of healthcare systems (Collier 2008). The spread of HIV has also been linked to conflict, in that mass rapes and large refugee movements provide an ideal environment for the spread of sexually transmitted diseases (Collier 2008).

Poverty has forced many women and girls to engage in unsafe sexual practices and commercial sex as a way of earning a living. Furthermore, migration, urbanization, and social dislocation have given the virus an easy transmission route, and have increased men's vulnerability to the HIV virus (Adari 2004).

There is good empirical evidence of the linkages between HIV and migration. Throughout Sub-Saharan Africa, the incidence of HIV is higher near roads and among people who either have personal migration experience or have sexual partners who are migrants (UNDP 2002; Brockerhoff and Biddlecom 1999; Lurie et al. 2003[a]). Population mobility supports the spread of HIV in a number of ways (Crush et al. 2005). One key factor seems to be the largely seasonal or temporary character of migration in many contexts, with migrants returning home to their families on a regular basis. Another related factor is that migrants may be less inhibited by familial or social mores while residing at their migration destinations, and are therefore more likely to engage in high-risk behaviors, such as having multiple (often concurrent) sexual partners. Furthermore, migrants are transient and difficult to reach with health services, information, and prophylaxis (for instance, condoms).

It should be emphasized that migration is not a vector of disease per se. As noted above, migration is also a marker of vulnerability, and migrant communities are often marginalized in economic, social, and political terms (Zuma et al. 2003).

Decosas and Adrien (1997) noted that "from a public health perspective . . . the key link between human mobility and the epidemic profile of HIV is not the origin of the migrant, but the conditions of life during the journey and at the site of destination" (Decosas and Adrien 1997). According to Decosas and Adrien, "the long absence from the social control of the home environment, housing in single-sex hostels, lack of access to medical care for sexually transmitted diseases, alcohol and other substance abuse is related to loneliness and boredom, and a dysfunctional symbiosis between sex work and migrant labour"

[4] This section draws on Haour-Knipe (2008) and the RENEWAL/SAMP study (Crush, Frayne, and Grant 2006).

(Decosas and Adrien 1997). This is supported by the findings of Rugalema, Weigang, and Mbwika (1999), who studied agri-estate workers in Tanzania and found that "separation of spouses (fragmented families) was mentioned as one of the factors which drive agriagri-estate workers into casual sex. It has to be understood that the majority of those who work in the agri-estates are migrants from various districts of the country" (Rugalema, Weigang, and Mbwika 1999). Rugalema, Weigang, and Mbwika also refer to the "lack of satisfactory recreational facilities (and even electricity that could be used for music or video) as contributing to widespread boredom and the "very common" alcohol abuse viewed by the workers interviewed as encouraging risky sexual behavior, both "casual sex" and visits to commercial sex workers" (Rugalema, Weigang, and Mbwika 1999).

Anthropologist Brooke Schoepf explains that "a biological event (such as the presence, introduction, or evolution of a pathological agent) triggers disease which is amplified and given direction by the social forces set in motion by economic change" (Collins and Rau 2000). As an example of a "socially produced disease," Schoepf describes the spread of influenza in Zaire in the early 20th century, where Congolese men fighting German armies on the Eastern border of the Belgian Congo became infected and spread the disease first to the mines, and later to their home villages (Collins and Rau 2000).

Collins and Rau (2000) examined different contextual factors favoring the spread of HIV, and identified inequality as a contributing key factor. "It is now clear that the scale of income differences in a society is one of the most powerful determinants of health standards in different countries, and that it influences health through its impact on social cohesion" (Collins and Rau 2000). Wilkinson basically equated "social cohesion" with "community strength," stating that "in strong communities, people are more likely to be involved in social and voluntary activities, and individualism and the values of the market are restrained by social morality" (Collins and Rau 2000). One can possibly assume that the "social cohesion" or "community strength" is comparatively low in plantation labor camps or villages near the plantation, which are host to (and sometimes even founded by) large numbers of migrant workers who stay several months before moving on.

Decosas and Adrien (1997) found that most labor migration is "circular," with workers eventually returning to their villages of origin. Collins and Rau (2000) refer to numerous studies showing that male migrants returning to their home villages have money to spend and are "entering a local society where there is a relative scarcity of young men." The returning male migrants are often looking for a wife, and are sexually active "in a context characterized by unequal relations with women" (Collins and Rau 2000). Decosas describes this as an "asymmetry of networking" in which a small number of men with a high probability of being HIV-infected have many female partners, and a large number of women have occasional intercourse with one (or more) of these men, in a pattern that increases the home village's vulnerability to HIV infection (Collins and Rau 2000). A study of rural Tanzanian women interviewed a few weeks before Christmas reported that the women said they "lived in fear of their husbands coming home for Christmas, as they thought they would be 'bringing AIDS'" (Collins and Rau 2000).

Efforts to reduce the spread of HIV and the impact of AIDS should be geared toward changing high-risk sexual behavior and the conditions that lead to such behavior. These efforts must be supported by a contextual analysis and an understanding of the environments that are conducive to such sexual behavior. The following material therefore attempts to provide some insights into these issues, particularly in East Africa, with a focus on how mobility and migration increase the vulnerability to HIV transmission and the resultant AIDS impacts.

According to Crush, Frayne, and Grant (2006), migration is tied to the rapid spread and high prevalence of HIV in the following four key ways:

- There is a higher rate of infection in "migrant communities," which are often socially, economically, and politically marginalized.
- Migrants' multi-local social networks create opportunities for mobile sexual networking.
- Migration per se can encourage or make people vulnerable to high-risk sexual behavior.

- It is difficult to reach migrants for the delivery of interventions, such as preventive education, condom provision, HIV testing, and post-infection treatment and care.

The recent RENEWAL/SAMP study argued that in linking human mobility and the epidemiology of HIV and AIDS, it is important to note that different forms of migration lead to different social and geographical forms of migrant "community," and thus to different causes and cultures of risk (Crush, Frayne, and Grant 2006). This is a fundamental issue when looking at the different migrant groups in the plantation system. Based on the analysis of migration in the three focus countries and drawing more generally upon the migration literature, at least four broad categories of mobile population may be identified, as follows:

- migrant or immigrant communities of people who have left one place to settle in another, either long-term or permanently;
- trans-migrants who have homes in more than one location;
- itinerant or mobile populations of people who either have no home or who spend most of their time away from home (truckers, seafarers, commercial sex workers, construction workers); and
- temporarily displaced communities, such as those comprised of refugees and IDPs.

In terms of the plantation system surrounding Lake Victoria, the groups under focus include the long-term "settlers" who eventually return to their original homes, trans-migrants who return seasonally for extended periods of time, and mobile individuals who move from plantation to plantation (for instance, commercial sex workers and laborers). The trans-migrants and mobile population are particularly important in the plantation system under investigation, although there are also long-term settlers within the system.

Coulibaly (2005) looked at the impacts of HIV and AIDS on the labor force in Sub-Saharan Africa and found that the type of contract or employment was linked to HIV prevalence. Based on literature research, he suggested that contract and casual workers, who work on a short-term and insecure basis, have among the highest HIV prevalence rates. A study by Evian et al. (2001, cited in Coulibaly 2005) compared permanent workers of all skills levels with contract workers and found that the HIV prevalence among contract workers was highest. This was ascribed to a number of "high risk factors," including "low skills levels, age, gender, and the seasonal or "unstable" nature of contract employment, which entails high levels of mobility" (Coulibaly 2005).

A study conducted by Decosas and Adrien (1997) found that "labour migrants have higher infection rates than those who do not migrate, independent from the HIV prevalence at the site of departure or the site of destination" (Decosas and Adrien 1997, page 3, in Collins and Rau 2000). Decosas has argued that the epidemiological relationship between migration and HIV infection rates have been two to three times the national rates in parts of Africa (Decosas 1999, 3). Brockerhoff and Biddlecom (1999) studied migrant laborers in Kenya and found that

> independent of marital and cohabitation status, social milieu, awareness of AIDS, and other crucial influences on sexual behaviour, male migrants between urban areas and female migrants within rural areas are much more likely than nonmigrant counterparts to engage in sexual practices conducive to HIV infection. In rural areas, migrants (returning) from urban places are more likely than nonmigrants to practice high-risk sex (Brockerhoff and Biddlecom 1999, page 833, in Collins and Rau 2000).

When considering how these different groups might be vulnerable to HIV and AIDS, it is important to distinguish among individual-, social-, and program-based sources of vulnerability, as this helps us move the discussion beyond the potentially stigmatizing practice of focusing on individual risk alone (Smith-Estelle and Gruskin 2003). The following sections discuss these three types of vulnerability.

Individual Vulnerability of Plantation Workers

In contexts where single-sex labor migration is regulated and formalized, such as in the South African mines, migrant communities and associated migrant cultures have developed (Campbell 2003). In contrast, other forms of mobility typically disrupt or prevent the formation of a stable, place-based community. This is largely the case on the Lake Victoria plantations, where laborers may have multiple homes, spend much of their time away from home or between homes, and lead lives full of transient encounters and short-term relationships, whether economic, social, or sexual. According to Crush, Frayne, and Grant (2006), this (may) encourage high-risk sexual behavior, including the procurement of commercial sex. This is based upon the argument that migrants located at their migration destination are less inhibited by familial or social mores, and are therefore more likely to engage in high-risk behaviors such as having multiple or concurrent sexual partners. This kind of vulnerability may be termed "individual vulnerability" to HIV.

In essence, individual vulnerability is partly driven by the fact that peoples' behavior often changes when they are away from home, separated from the social norms that guide and control the way they act in stable communities (Haour-Knipe 2008). This situation is seen among the plantation workers described above, as well as among transportation workers (for instance, truck drivers) and mine workers in Southern Africa, all of whom share separation from their families as a risk factor for HIV (UNAIDS/IOM 2003). Clearly, certain professions may facilitate risk behaviors (Haour-Knipe 2008). For example, long-haul truck drivers spend long periods of time on the road, live in an environment in which macho behavior and risk-taking are not only accepted but often encouraged, and also typically have more disposable income than the residents of the communities through which they pass. They thus attract a number of services at the places where they stop, including those of sex workers (Haour-Knipe 2008).

HIV infection rates are high among truck drivers, with an infection rate of over 90 percent reported in one South African study (Ramjee and Gouws 2002). High rates of HIV prevalence have also been found in border towns (Todd-Ritter 2000); these are places where transients such as truck drivers encounter a more stable local population, and which are by definition remote from nationally centralized HIV and AIDS intervention programs (Laukamm-Josten et al. 2000; Wilson 2000, 2001).

Another profession that may facilitate risky behavior is that of female itinerant traders, who are often separated from their partners and may be more willing than others to undertake risks (Haour-Knipe 2008). Some may exchange sex with drivers for transportation, or enter into relationships with local men in exchange for protection and security in marketplaces (Anarfi 2004, cited in Haour-Knipe 2008). While "on the road," women are especially vulnerable to exploitation and harassment, which can include sexual assault. A RENEWAL study conducted in Malawi found that among women and girls who undertake cash-earning piecemeal work (*ganyu*) beyond the confines of their home villages, poor women are at particular risk because transactional sex is increasingly incorporated into *ganyu* contracts (Bryceson and Fonseca 2005). The gender dynamics of migration, therefore, lead to differences between men and women in terms of their risk of exposure to HIV (MacPhail, Williams, and Campbell 2002).

In a study among Tanzanian couples, long-term mobile women with mobile partners reported more risky sexual behavior and had a higher HIV prevalence (Kishamawe et al. 2006). The study investigated how mobility related to sexual risk behavior and HIV infection, with special reference to the partners who stayed behind in mobile couples. This longitudinal study design revealed that long-term mobile men did not report more risk behaviors than resident men, but significantly more short-term mobile men reported having multiple sex partners in the prior year (Kishamawe et al. 2006). In contrast, long-term mobile women reported having multiple sex partners more often than resident women, and also had a higher HIV prevalence. In couples, resident men and women who had a long-term mobile partner reported more sexual risk behavior and also showed a higher HIV prevalence than people with resident/short-term mobile partners. The study concluded that more sexual risk behavior and an increased risk of HIV infection were seen not only in mobile persons, but also in their resident partners.

Individual vulnerability to HIV may also be driven by alienation and a sense of despair, sometimes precipitated by doubts about the wisdom and success of the migration strategy (Haour-Knipe

2008). Some research has suggested that a marginal social status, relative poverty, and feelings of alienation may make young migrant workers, as well as the children of migrants who have grown up on the margins of the societies to which they have moved, more attractive to drug suppliers and vulnerable to drug use (Rachlis 2007).

Social Vulnerability of Plantation Workers

A second kind of vulnerability to HIV is "social vulnerability." Factors related to social vulnerability increase the likelihood that risk behaviors will take place. Poverty, the lack of legal protection, exploitation, discrimination, xenophobia, and the lack of power can all reduce the ability of migrants to make choices. In the context of plantation workers, deregulation, globalization, and competitive pressure have had an impact on agricultural employment, and these workers have become increasingly vulnerable due to their inability to ensure that plantations abide to internationally recognized conditions of service. This has implications for vulnerability to HIV and AIDS. Migrant workers, especially those with low levels of education and skill, are easily replaced. In this context, AIDS has had little effect on the private sector, where the work is often not specialized and workers are easy to replace and train (IOM 2004).

Gender issues are significant when considering social vulnerability. For example, a study carried out on sugar estates in the Dominican Republic showed higher rates of HIV among female migrant workers compared to the general population (Brewer et al. 1998). The study set out to determine risk factors for HIV infection among women living in the sugarcane plantation communities of a large private company. The cross-sectional study of sexually active female volunteers living in the plantation communities, which included a sero-reactivity test, found that one of the major risk factors was for a woman to have migrated without a male partner. The authors observed that women who crossed the border without a husband, and who could not immediately establish contact with friends or family to help them settle, had little choice but to exchange sex for money or goods. The study concluded that women in the plantation communities have a much higher rate of HIV infection than that estimated for women in the general population of the Dominican Republic, and noted that this rate was comparable to that of female sex workers in the country (Brewer et al. 1998).

A similar study was done on migrant farmworkers located at the South African Mozambican border (IOM 2004). This study examined the living conditions of female workers hired for temporary work, and found that they lived in overcrowded rooms with inadequate nutrition and poor pay. Permanent male farmworkers were known to scout through the overcrowded dormitories to select women to stay with them in their own houses. Becoming the girlfriends of men having higher-paying jobs on the farm guaranteed that the women would receive food, money, and "nice things" in exchange for sex. Those who became pregnant or had small children were often abandoned by their husbands or boyfriends and were forced to look for new relationships with men as a means of providing for their children (IOM 2004).

The National Organization of Plantation and Agricultural Workers of Uganda (NOTU) noted that

> . . . formally, very few women were employed in the plantation and agriculture by the virtue of the types of jobs available in this sector. Currently, as a result of HIV/ADS pandemic, many women, majority being illiterate and after losing their husbands, have now come to take up such jobs in order to earn a living for the orphans. These women have not only accelerated the spread of HIV/AIDS as a result of poor accommodation but also through being sexually harassed by their supervisors, managers, and co-workers, as a way of getting light and other job opportunities and also to increase on their income (NOTU 2002).

These examples clearly show that gender plays a significant role in determining the social vulnerability to HIV and AIDS, as gender discrimination and lack of protection reduce the choices available to women. Although it should be noted that there was some agency in the situations described above, the women's actual choices reflected a lack of power. In terms of social vulnerability, the issue of poverty can be identified as influencing HIV transmission and AIDS impacts in the above cases. However, at the household level, the evidence for the association between HIV transmission and household socioeconomic status is mixed (Gillespie, Kadiyala, and Greener 2007). It should, for example,

be recognized that economic resources allow people to travel, including to areas where HIV prevalence is higher and where the risk of HIV transmission is greater. In most countries, relatively rich and better-educated men and women have greater personal autonomy and spatial mobility, and therefore have higher rates of partner change.

Recent work facilitated by RENEWAL raised the importance of inequality (economic, gender, age) as a driver of HIV, particularly in Southern Africa (Gillespie, Kadiyala, and Greener 2007). When examining the interplay between poverty and HIV transmission, this study found that although poor individuals and households are likely to be hit harder by the downstream impacts of AIDS, their chances of being exposed to HIV in the first place are not necessarily greater than those of wealthier individuals or households. Approaches to HIV prevention, therefore, need to cut across all socioeconomic strata of society and should be tailored to the specific drivers of transmission within the different groups. Particular attention should be paid to the vulnerabilities faced by youths and women, and to the dynamic and contextual nature of the relationship between socioeconomic status and HIV.

Along similar lines, Haour-Knipe (2008) argued that migration may allow some households in a community to climb out of poverty, while households that are unable to send out a labor migrant may be unable to escape poverty. Indeed, a study in a region of South Africa where temporary circular migration is extremely frequent found that households with circular migrants had higher levels of human and social capital (Collinson et al. 2006). The study observed that minimum levels of social networking and/or of financial resources were needed to start circular migration; households with migrant members were better off even before the migrants departed, and the more circular migrants in a household, the greater its assets. Circular migration is thus strongly related to the socioeconomic status of the household, both before and after migration. The authors argued that, in regions such as the one studied, rural communities may in fact become stratified according to whether or not families are able to have members migrate (Collinson et al. 2006).

A study commissioned by the Ugandan Ministry of Finance, Planning, and Economic Development (Ssekiboobo 2002) on poverty among casual and contract workers of one commercial sugar plantation in a district bordering Lake Victoria revealed that the villages near the plantation hosted large numbers of migrant and casual laborers. Some of these villages were "founded" and inhabited almost entirely by former (retired and rejected) and present contract[5] and casual laborers of the estate. In focusing on one such village, the study found that it was the "poorest and most disadvantaged village in . . . the sub-county, . . . it is connected to virtually no social service and it is the home of all manner of evil and injustice" (Ssekiboobo 2002). This village was far away from clinics, schools, markets, and police units, and there were reportedly high incidences of domestic and other violence, associated with the misuse of locally brewed alcohol.

While casual laborers have to find their own accommodation outside the plantation, contract workers are provided with single accommodations in camps on the plantation. The Ssekiboobo (2002) study reported that the camps were "congested [and had] dilapidated housing," with four to six people sharing a 4x6-foot room. Furthermore, it was reported that the "incidence of disease is very high" due to the poor hygienic situation, and that the "majority of residents are young male migrants who are very sexually active and most times violent to each other." Women living in such camps were also interviewed; they reported high incidences of rape and sexually transmitted diseases. The study further found that almost 70 percent of the staff members at the plantation were casual and contract labor, and that they were reportedly "overworked and underpaid." The majority of the casual and contract workers were migrant laborers originating from the Arua, Mbale, Kabale, Gulu, and Kamuli districts, which until recently had been impacted by conflict.

[5] Contract workers are usually provided with single accommodations on the plantation. Those who prefer to stay with their spouses and children may opt to stay in villages surrounding the plantation, even though they are not provided with a housing allowance and therefore must self-finance their accommodation. They also miss out on the available plantation-based education, healthcare, and other social support services.

Finally, the Ugandan Ministry of Finance, Planning, and Economic Development (Ssekiboobo 2002) study assessed the link between poverty among casual/contract workers and their living far away from their homes of origin. The workers reported that when they work far away from home, they cannot subsidize their income by growing crops or keeping livestock. At the same time, they are unable to save enough money (from plantation work) to invest in a meaningful enterprise.[6]

NOTU (2002) reported that out of the agricultural and plantation workforce of almost 1 million, about 70 percent were illiterate and engaged in non-skilled jobs such as weeding, tea plucking, cane and flower harvesting, planting, pruning processing, chemical application, and other manual jobs. The study found that "[t]hese workers are employed on casual and/or on contract of one year under bachelors' status, i.e., they are not allowed to come along with their wives," and that "[w]orkers on contract/seasonal basis are not allowed to join the union and therefore deprived to enjoy most of the benefits" (NOTU 2002).

Program-related Vulnerability of Plantation Workers

The final form of vulnerability to HIV in the context of mobile plantation workers is that of "program-related vulnerability," which reflects the migrants' lack of access to programs for HIV prevention, voluntary counseling, testing, treatment, care, support, and mitigation. There may be several reasons for a lack of program support, including a general lack of (or weakness in) such services in the first place, or a lack of access to existing services. The latter case often pertains to issues with the cost of the actual services, the cost of transportation to the services, a lack of knowledge regarding the services, and/or formal barriers such as legal restrictions barring outsiders. Other barriers may be that services are inappropriate, or not perceived to be trustworthy. Casual laborers are nonunionized and do not qualify for any social or healthcare services provided by the plantations. A study commissioned by the Ugandan Ministry of Finance, Planning, and Economic Development (Ssekiboobo 2002) examined villages that were located near a sugar plantation in Jinja District, and had been founded/inhabited by former and present casual and contract laborers. These villages were not served by the plantation and were far away from any government-provided facilities for education, healthcare, safe water, or electricity (Ssekiboobo 2002). NOTU acknowledged the usefulness of AIDS-related services provided by nongovernmental organizations (NGOs), but noted that since most NGOs are community-based, they have "not done much on the side of the workers who stay in the labour camps" (NOTU 2002).

In particular, migrant workers in the agricultural sector have received minimal attention with regard to AIDS mitigation interventions, which are not sufficiently addressed by as current policies in agriculture (FAO 2006).

Table 7 distils the key individual, social, and program vulnerabilities discussed above.

Table 7. HIV vulnerability factors for mobile populations

Individual vulnerability	Social vulnerability	Program vulnerability
Separation from families and partners	Inequality	Lack of access to:
Separation from communities, norms and networks	Poverty	Prevention
Loneliness	Lack of legal protection	Voluntary counseling and testing
Powerlessness	Exploitation	Treatment and care
Alienation	Discrimination against migrants, xenophobia	Mitigation
Willingness to take risks	Gender discrimination	
	Powerlessness	

Source: Adapted from Haour-Knipe (2008).

[6] One man in a focus group discussion reported that, "When I am far from home I consume every money I get. I live from hand to mouth without saving. Whan the contract comes to an end I will have saved nothing, nothing to take home, no way forward" (Ssekibooko 2002, 25).

The Vulnerability of Mobile Agricultural Workers to HIV

Focusing more closely on mobile agricultural workers, it is clear that many of the forms of vulnerability discussed above are significant. Globalization and increased competition both at the farm level and along the value chain have resulted in higher rates of casual employment in agriculture, often under circumstances that threaten the livelihood of agricultural workers (FAO 2006). Coulibaly (2005) researched the impact of HIV and AIDS on the labor force in Sub-Saharan Africa and found that "low income and unskilled employees would have a higher risk of exposure to HIV transmission than high income and skilled employees for socioeconomic reasons, because of their lower level of education, and their generally greater mobility for work" (Coulibaly 2005). Migrant workers in the agricultural sector face numerous challenges that can increase their susceptibility and vulnerability to HIV and AIDS (IOM/UNAIDS/SIDA 2003). The particular vulnerabilities of agricultural workers are related to the following (IOM/UNAIDS/SIDA 2003; Hurst 2005; FAO 2006) circumstances.

Individual Vulnerability

- Mobility and social norms come into play. Work involving mobility, in particular an obligation to travel regularly and live away from spouses, leads to a separation from the sociocultural norms that regulate behavior in stable communities. This can result in increased risks for transactional sex, sexual abuse, sexual violence, and a sense of anonymity that allows for more sexual freedom, especially in a workplace dominated by men.

Social Vulnerability

- There is high poverty and food insecurity because of low wages, weak labor markets, and high unemployment in rural areas; this, in turn, makes an impact on the workers' well-being and capacity to work.
- Poor health and unsafe conditions come from high levels of workplace risk, long working hours, and limited safety measures.
- Poor living environment arises from single-sex accommodations, overcrowded quarters, poor hygiene, isolated work spaces, limited recreation, and easy access to commercial sex workers, drugs, and alcohol.
- Basic human rights are denied. There is limited organization into trade unions because of political opposition, a dispersed workforce, and the high rates of informal and casual/temporary employment. There is discrimination against women, migrants, and indigenous people through lower wages and poorer employment conditions, leading to higher rates of poverty and HIV infection.
- Poor employment conditions are rampant. These include low wages that usually do not rise with increasing productivity, poor social security that worsens even further with the increasingly casual nature of employment, and issues with the weak legal frameworks governing the employer-employee relationship.
- Employment problems increase as globalization decreases the permanent labor force and encourages a more casual and marginalized workforce that is often hired through labor contractors or subcontractors. Migrant workers face particular difficulties.
- The rates of child labor increase due to poverty, the seasonality of agricultural production (sharp peaks in labor demand), the lack of schools, the prevalence of piece-rate payments, and the weakness of the relevant labor laws.

- Workers are excluded from decisionmaking processes, as they are not recognized as a distinct group and are not organized.
- Waged workers engaged by labor contractors or subcontractors often face difficulties in registering as union members. This causes growing concern, due to the increasing numbers of workers hired by these labor-supplying intermediaries.

Program Vulnerability

- Poor public health services, limited access to health facilities (including treatment for sexually transmitted diseases and programs for HIV and AIDS prevention and care), and limited health and safety training, all contribute to the high rate of HIV among migrant workers.

7. THE IMPACT OF HIV AND AIDS ON COMMERCIAL AGRICULTURE

HIV and AIDS have an impact on the agricultural workforce and the commercial agricultural sector on different "levels." These include the impact on the individual worker and his or her extended family, the impact on the commercial plantation as a business, and the impact on the agricultural sector as a whole (especially given the importance of the agricultural sector in the overall economies of Kenya, Tanzania, and Uganda). This section, therefore, explores how HIV and AIDS have an impact on the business of agriculture, with particular reference to East Africa.

In many countries, more than 60 percent of agricultural workers live in poverty. At the same time, agriculture is among the most dangerous industries. In 1997, approximately 170,000 people died in agricultural workplace accidents. Moreover, about 7 million agricultural workers died as a result of AIDS between 1985 and 2001 (FAO 2006). Commercial agriculture is labor-intensive and relies on large numbers of relatively unskilled workers who are often employed on seasonal or casual contracts. Pay is usually related to individual or team output. Absence from work due to sickness thus automatically leads to loss of salary, which has an impact on the household income.

A study carried out by the World Economic Forum's Health Initiative revealed that 89 percent of the private sector firms included in the study believed that HIV would have some impact on their business (Ramachandran, Shah, and Turner 2007).[7] The study also reported a large discrepancy between firm perception and actual data related to HIV prevalence among their workforce. Although 45 percent of firms reported a HIV prevalence of less than 1 percent, only 10 percent of respondent firms were actually located in low-prevalence countries for which this estimate would be more or less accurate (Ramachandran, Shah, and Turner 2007).

The Federation of Kenyan Employers, in their policy on HIV and AIDS (2000), noted that "there is fear and stigma surrounding HIV infections/AIDS, especially in the workplace where workers are in constant contact with one another and have to live with fear of getting infected at any time. Such stigma and fear do not augur well for industrial relations in the workplace, and tend to impede efficiency by souring interpersonal relations thus hindering productivity" (FKE 2000).

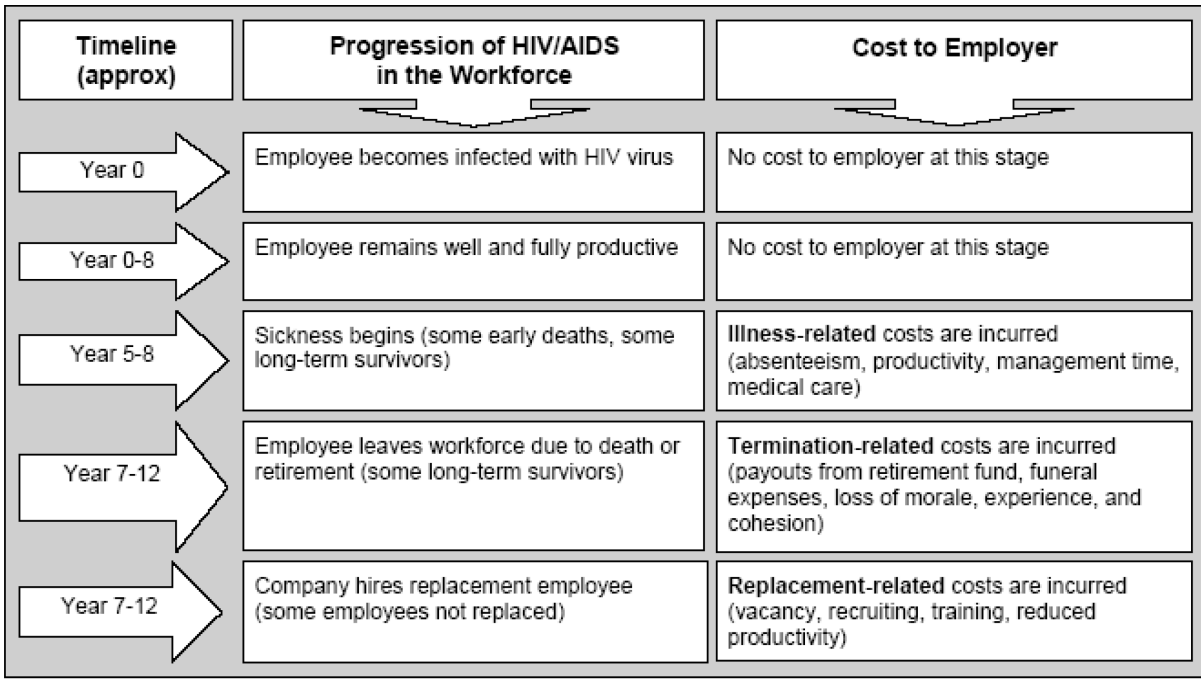
Fox et al. (2004), in a groundbreaking study on Kenya performed by Boston University, estimated the impact of HIV and AIDS on individual labor productivity during disease progression. The study used a retrospective cohort design to study the productivity and attendance of tea estate workers in Western Kenya who died or were medically retired due to AIDS-related causes between 1997 and 2002. The results showed that HIV-positive workers plucked less tea in the 18 months preceding AIDS-related termination and used more leave time in the three years before termination. After adjusting for age and environmental factors, cases plucked between 4.11 and 7.93 kilograms per day less in the last one-and-one-half years prior to termination. In addition, HIV-positive workers used more sick leave days, spent more days doing less strenuous tasks in the two years prior to termination and earned less in the years before termination of their contracts, compared to noninfected pluckers. The study provided empirical estimates of the impact of HIV and AIDS on labor productivity. As workers often bring unrecorded "helpers," the actual differences may be greater. Decreased attendance and output imposes financial burdens on employers and may put sick workers in jeopardy of losing their jobs.

In a second study undertaken by Boston University for the Commission on HIV/AIDS and Governance for Africa, Rosen et al. (2005) differentiated between the economic impact an individual HIV-positive worker has on the business versus the cumulative impact of many HIV-positive workers on the business. The authors looked at the business's costs due to workers' HIV and AIDS along a line of progression, starting with HIV infection, moving to increased absenteeism and increased use of medical and social benefits, and finally to the worker's loss and the subsequent recruitment, selection, and training of a new employee. Their findings are further illustrated in Figure 1. The team collected detailed human

[7] The study included 8,000 businesses in 103 countries.

resources, medical, and financial data from one very large commercial agriculture firm in the Kericho District of Kenya's Rift Valley Province (Rosen et al. 2005), and surveyed a sample of small and medium-sized agricultural companies in the same district. The large company and almost all of the small companies in the study were primarily producers and processors of tea, which is Kenya's most important export crop. For the large company, which has 12,000 permanent employees and nearly 10,000 casual workers, available data were used to estimate the costs incurred each time an employee died in service or was given medical retirement due to HIV or AIDS. This estimated cost-per-death or -retirement was multiplied by the number of AIDS-related deaths and medical retirements the company was estimated to have suffered in 2004.

Figure 1. Progression of cases and costs due to HIV and AIDS among the workforce



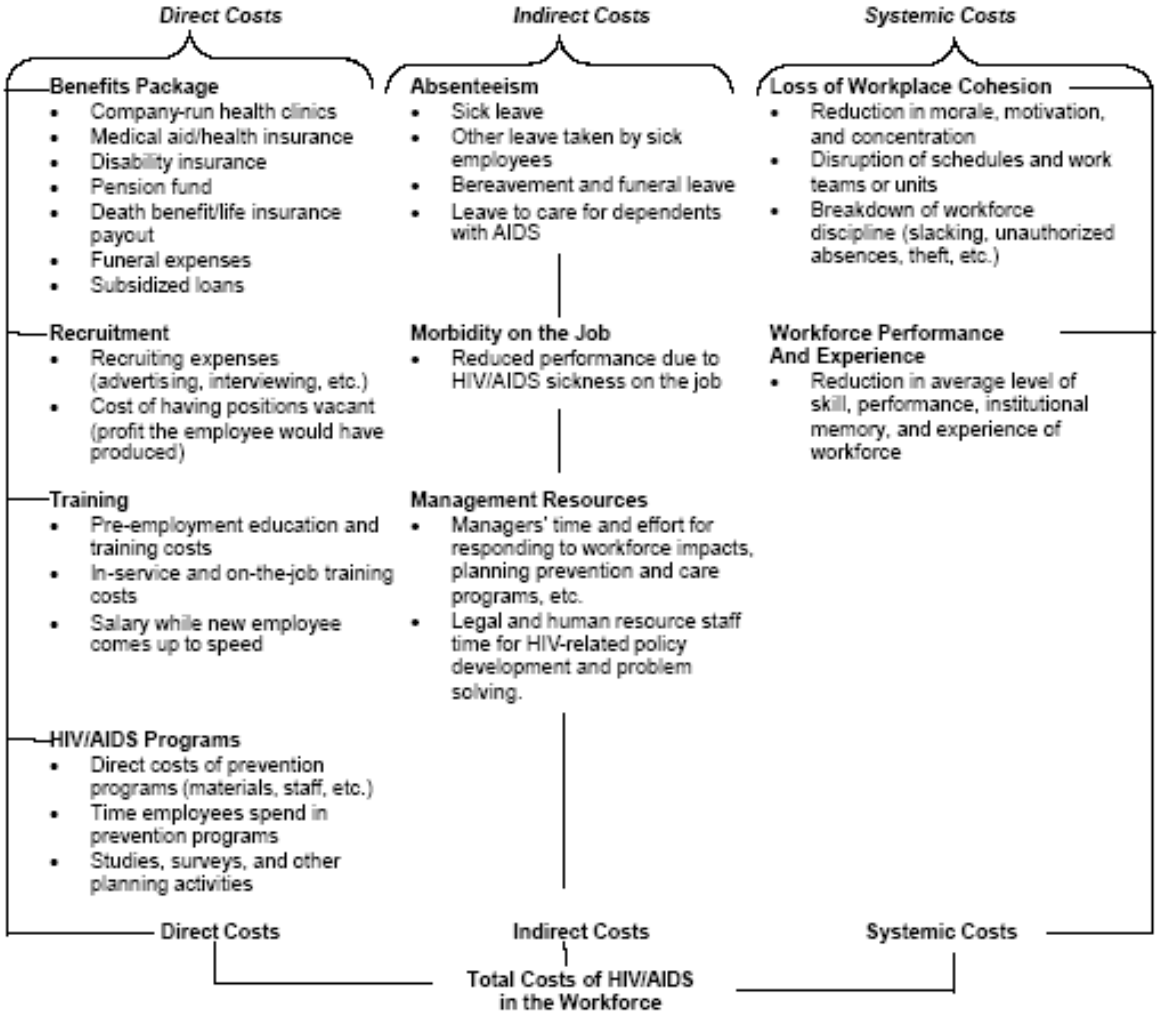
Source: Rosen et al. (2005).

The cost to the large company per employee lost to AIDS was estimated for skilled workers as approximately US$3,200, which was roughly three times the annual salary of a skilled worker. Estimating that the aggregate HIV prevalence in the workforce was about 10 percent, and that 10 percent of HIV-positive people would die of AIDS in any given year, the total cost of those deaths as a proportion of the company's base labor costs worked out to be roughly 1.4 percent of the company's salary and wage bill that year. For large companies, the average cost-per-employee lost to AIDS was between one and three times the average employee's annual salary. These results are consistent with findings from large companies in other sectors and in other countries of Sub-Saharan Africa (Rosen et al. 2005). In small companies, employee losses due to morbidity and mortality—most of it presumably AIDS-related—were relatively high, but the impact of HIV and AIDS on the companies was modest. These companies spent little or nothing on employee benefits and training, and therefore had very low costs associated with HIV and AIDS. There was little concern among small company managers about the impact of HIV and AIDS on their businesses, although they expressed a high level of general concern about the epidemic for the future.

In a related study of six large South African firms, Rosen et al. (2004) found that the cost of AIDS was 0.4 to 5.9 percent of the total wage and salary bill, which meant that each infected employee cost the company an average of 0.5 to 3.6 times his or her annual salary.

Simon et al. (2000) classified the economic impact of HIV and AIDS into various cost-clusters, including internal direct costs (benefits packages, training, recruitment, and HIV and AIDS programs), internal indirect costs (absenteeism; morbidity on the job, and increased use of management resources); and internal systemic costs (loss of workplace cohesion, workforce performance and experience). These are laid out in Figure 2. The direct costs for a company are relatively easy to calculate. In contrast, it may be difficult to attribute a monetary value to the indirect and systematic costs; hence, these are usually not included in cost-benefit analyses of HIV and AIDS interventions in the workplace.

Figure 2. Internal economic impact of HIV and AIDS on the workforce



Source: Simon et al. (2000).

In terms of specific studies focused on the impact of HIV on agriculture in East Africa, there are only a limited number of publications to draw upon. The most widely cited (albeit somewhat dated) study is that of Rugalema, Weigang, and Mbwika (1999) on the impact of HIV and AIDS in commercial agri-estates of Nyanza Province, Kenya. The authors found that the cumulative cases of AIDS accounted for as high as 30 percent of the workforce in Nyanza Province, and HIV and AIDS were found to directly have an impact on human resources and indirectly have an impact on the operations of commercial agriculture. More specifically, Rugalema, Weigang, and Mbwika found that HIV/AIDS had several key impacts on agricultural plantations. First, there were significant increases in the medical and funeral expenses

incurred by the agri-estates. Although medical and funeral expenses varied significantly across the surveyed estates, the difference between those expenses for HIV-positive and HIV-negative patients was substantial for all estates. Companies spent significantly more money on medical care and funerals than they had previously budgeted for, increasing their direct operational costs. External medical costs (that is, those incurred by the employer) in the surveyed agri-estates rose from a modest KSh300,000 in the 1980s to KSh8.1 million in 1997[8] (Rugalema and Weigang 1998). Rugalema and Weigang further found that in Kenya, the medical expenditures incurred by agricultural industries due to HIV and AIDS increased by US$1.15 million between 1989 and 1995 (1998). Although dated, these statistics are important in highlighting the general vulnerability of agricultural workers.

In a study conducted by Bollinger, Stover, and Nalo (1999), records of labor time lost due to morbidity kept by one company in Kenya showed that between 1995 and 1997, the company lost a total of 8,007 labor days due to illnesses among its employees, of which a significant portion was attributed to AIDS. Another company reported having lost a total of 660 labor days between 1995 and 1997 due to sick leave among employees affected by HIV and AIDS. In a similar period, Rugelema, Weigang, and Mbwika (1999) found that agricultural companies that relied on hired labor were suffering from rising costs and falling profits due to the disease. Another study by the Boston University team among agricultural workers in Kenya (Fox et al. 2004) compared the labor productivity of healthy workers with that of workers who later left the company due to HIV. The results revealed that workers who had left their jobs due to AIDS-related causes had earned 16-18 percent less than comparable healthy workers in the last two years prior to employment termination. They also chose less strenuous tasks and used more sick leave days. These findings were supported (with slightly higher percentages) by a later study conducted by the same team at two commercial tea-growing and -processing companies in Kenya, involving more than 20,000 tea pluckers over a multi-year period (Rosen et al. 2007). These results are shown in Table 8 and Table 9.

It is clear from all these studies that the accumulated impacts of HIV and AIDS on agricultural workers (including temporary or informal mobile workers) is substantial, and a concerted response to the epidemic will be required to mitigate its impacts. The following section provides a review of some proposed mitigation.

Table 8. Indirect costs of AIDS at two commercial tea-growing and –processing companies, Kenya

	Company 1		Company 2	
Parameter	Last year	Second-to-last year	Last year	Second-to-last year
Diminished productivity when at work (percent decrease in individual output)	22.6%	17.5%	17.4%	8.0%
Absenteeism (additional days absent or on leave)	17.0	4.7	31.0	35.5
Transfer to less strenuous duties (additional days assigned to "light duty")	n.a.	n.a.	21.8	19.1
Overall reduction in quantity of tea plucked per year	27.2%	18.9%	35.5%	28.6%

Source: Rosen et al. (2007).

[8] Equivalent to approximately US$1,160,050 in February 1997.

Table 9. Estimated cost of HIV and AIDS to large commercial agricultural companies in the base year, in the absence of effective treatment

Country (year of study in brackets)	Approximate workforce size	Estimated workforce HIV prevalence in year of study[a]	Average cost per AIDS-related worker termination (multiple of average annual compensation)[b]	"AIDS tax": aggregate costs in base year (% of total annual compensation)
Uganda (2003)	500	5.6%	1.9	1.2%
Kenya (2004)	22,000	10.0%	1.1	1.0%[c]

Source: Rosen et al. (2007).

[a] The prevalence estimates were based on anonymous workplace HIV sero-prevalence surveys, modeling from population data, modeling from observed mortality, or a combination of these methods, depending on the available data.

[b] Compensation includes base salary or wages plus benefits.

[c] Includes nonpermanent workers, such as casual and seasonal workers.

8. PROGRAMMATIC RESPONSES TO HIV AMONG MOBILE AGRICULTURAL WORKERS

As emphasized throughout this paper in drawing attention to the two-way connections between HIV/AIDS and human mobility, it is essential not to "stigmatize" migrants as bearers of disease, or to imply that these people should be "kept out" by implementing stricter migration controls. This kind of approach can easily translate into a form of xenophobia that further marginalizes already-vulnerable migrant communities and exacerbates the socioeconomic conditions that contribute to the spread of HIV. Likewise, legal restrictions that attempt to prevent migration create clandestine flows of people, excluding them from access to social and medical services (Crush, Frayne, and Grant 2006). Instead of futile attempts to prevent people from moving, efforts should be made to operationalize numerous HIV interventions, including education and prevention through testing and counseling, as well as treatment and care strategies designed for and targeted toward particular migrant populations. Infusing migrant communities with education, prevention, testing, treatment, and care is the only realistic means of dealing with the current AIDS epidemic and containing its further spread.

In terms of the plantation system around Lake Victoria in the context of HIV and AIDS, as well as other services, analyses and services should be aimed at the following groups:

- migrant or immigrant communities that will require focused interventions in their new location until such time as they become fully integrated into their new societies;
- trans-migrants, who will require interventions at both of their "homes" as well as in-transit; and
- itinerant or mobile populations who may be the most difficult to reach (as they do not constitute a spatially fixed community) and will require interventions that mirror their movements (examples of useful interventions here could be making condoms available at truck stops, putting educational material on buses, offering mobile clinics, and so on).

Based on specific analyses of these groups, different programs can be designed to address the varying aspects and impacts of the HIV time line, as detailed in Figure 3. The provision of a comprehensive HIV response will entail engaging with each segment of the HIV time line, from prevention of infection, to attempts to mitigate the impact of the disease on both agricultural workers and their employers. To date, however, agribusinesses tend not to engage with this full spectrum, instead limiting their programmatic responses to prevention and possibly treatment.

Figure 3. Examples of programs aimed at the various stages of the HIV timeline

Objective	Prevent new infections	Positive living	Treatment support	Mitigation: protect assets	Prevention, care and support
Targeting	Children at risk	People with HIV, all groups, carers	People with HIV, TB patients, carers	Widow/ers, orphans	Widow/ers, orphans
Interventions	Safe livelihood apprenticeships	Info, nutrition gardens, income	Targeted food aid	Support inheritance	Income, food production
Methodology	Orphan care and youth groups	Build into all food security work	Self-selection, clinics	Information, mediation	Home outreach
Potential partners	Artisan clinics	Support groups, treatment literacy	Clinics, home-based care	Traditional leaders, paralegals	Childcare, schools

Source: Drimie and Mullins (2006).

HIV Responses: Lessons Learned

In a study carried out by Price Waterhouse Coopers in 2003, on the impact of HIV and AIDS among 216 businesses in Kenya, Uganda, Tanzania, and Zambia, 94 percent of the surveyed businesses recognized that HIV and AIDS were making an impact on their workplaces (BUDS-HIV/AIDS 2004). However, the study showed that there was "widespread ignorance and a lack of action in fighting the epidemic." Although many businesses had not yet calculated the costs of HIV and AIDS, the study reported that there was general awareness of increasing costs, and businesses understood that they needed help dealing with the disease impacts.

Most workplace responses to HIV focus on prevention activities.[9] Some also offer treatment and/or have a funeral fund, but very few have interventions focusing on the survivors (for example, the children or spouse of the deceased employee) (see Table 10). It is also evident that most workplace responses focus on the medical aspects of HIV, with very few taking the socioeconomic dimensions into account. Even though Corporate Social Responsibility is a growing concern for many (especially multinational) enterprises, and many are indeed supporting income-, school-, water system- and sanitation infrastructure-building projects in poor communities, this is often done in a relatively nonprogrammatic way (*The Economist* 2008) and these efforts are not linked to the HIV and AIDS programs or integrated into the companies' AIDS (health)-related interventions.

Table 10. Percentage of firms engaging in HIV prevention in 2006 (weighted)

Country/prevalence	No prevention	Posters and condoms	VCT	Both types
Uganda	70.7	14.3	3.0	12.0
Tanzania	71.0	12.3	1.0	15.6
Kenya	62.0	10.9	3.2	23.9
Low prevalence (< 5% of population infected)	80.0	6.7	2.2	1.1
Medium prevalence (5-10% of population infected)	68.1	11.9	1.6	18.4
High prevalence (> 10% of population infected)	63.3	12.3	2.7	21.7

Source: Ramachandran, Shah, and Turner (2007).

A study by Ramachandran, Shah, and Turner (2007) on private-sector responses to HIV in East Africa revealed that approximately 35 percent of firms reported engaging in prevention activities, but less than 50 percent of the large firms offered Voluntary Counseling and Testing (VCT). Out of the 860 firms (4,955 workers) included in the study, many conducted preemployment health checks (20 percent in Uganda and 50 percent in Tanzania).[10] Companies in the agri-processing and food sectors had the highest shares of prevention activities compared to the other examined sectors.[11] The study revealed the following correlations:

[9] Prevention activities typically include prevention messages, distribution of condoms on the premises, provision of HIV/AIDS counseling, and offering of voluntary counseling and testing.

[10] These data came from the World Bank's Enterprise Survey of 2002-2003 and are available at www.enterprisesurvey.org. (Ramachandran, Shah, and Turner 2007).

[11] The study was not limited to commercial agriculture, although a large sample was drawn from the sector. In the Kenyan subsample, 24.4 percent of the firms were from the agro-industrial sector (the largest sample), 31.1 percent of the companies were considered large (100–499 employees), and 13.3 percent were considered very large (500+ employees). Most of the firms were located around Nairobi (62.8 percent) and 4.3 percent were from Kisumu. In the Ugandan subsample, 40.7 percent of the firms were from the agro-industrial sector; 88 percent had more than 100 employees, and 68 percent were located in the Central region. In the Tanzanian subsample, 29.4 percent of the firms were from the agro-industrial sector (largest sample), 25.7 percent had more than 100 employees, 40.6 percent were located around Dar es Salaam, and 5.4 percent were from the Kagera region.

- The larger the company, the more likely it was to offer prevention activities and VCT services. This is probably because such companies had better-quality managers, greater resources, preestablished facilities that could be adapted to the tasks, and the financial basis to offer these interventions.
- The larger the company, the more likely it was to conduct preemployment health checks.
- The more skilled and trained the laborers, the more the company tend to do with regard to HIV prevention and services.
- The more skilled and trained the laborers, the more likely the company was to conduct preemployment health checks.
- Firms that provide training to their workers are more likely to engage in HIV-prevention activities.
- Firms in which a majority of staff members are unionized are more likely to carry out HIV-prevention activities.
- Firms in which a majority of staff members are unionized are more likely to conduct preemployment health checks.
- The more managers are concerned about absenteeism, the more likely the company is to carry out HIV-prevention activities (43 percent of firms that reported absenteeism as a problem engaged in HIV-prevention activities, while only 29 percent of firms that did not report absenteeism as a problem engaged in prevention activities).
- Firms will invest more in HIV prevention for sectors in which workers are less mobile.
- Sectors in which employees are not easily replaceable will be characterized by more HIV prevention, due to difficulties in hiring new workers and losing workers during peak seasons.

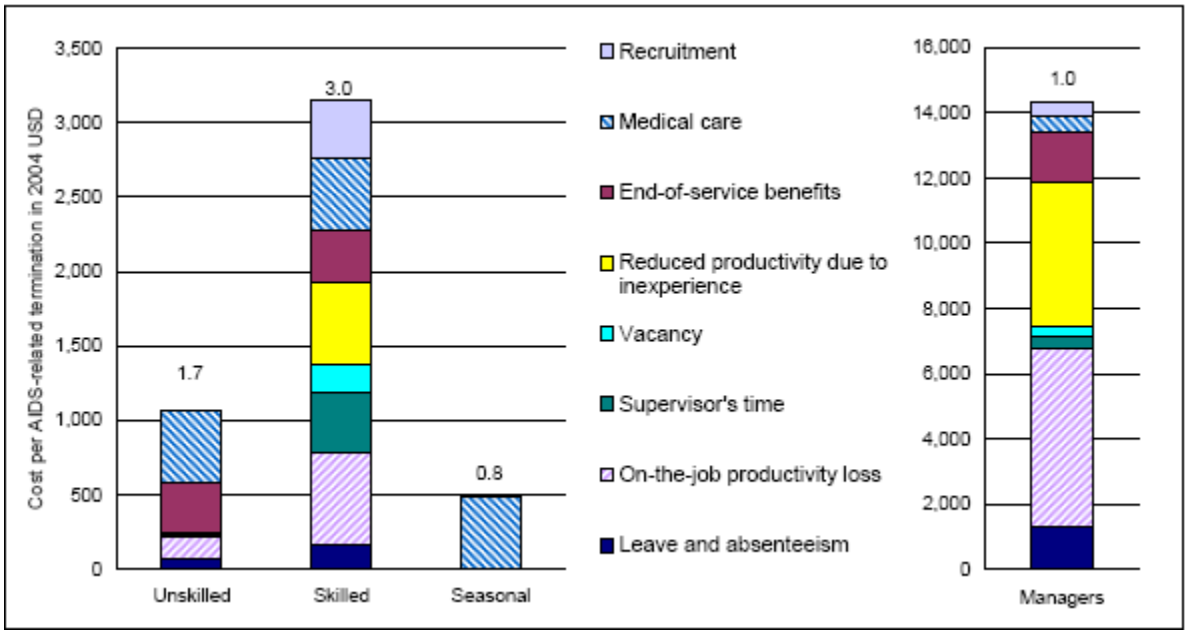
Ramachandran, Shah, and Turner (2007) offered a number of explanations for why firms may invest in HIV-prevention activities. A central argument is that a company may wish to retain at least some groups of workers, particularly the more skilled and trained laborers. Since these workers are difficult to target, the company invests in prevention campaigns for the entire workforce. In addition, prevention activities may be considered as extra benefit to workers, and thus may help the company attract and retain better and more skilled workers. As such, an HIV response may become part of a company's human resources recruitment and retention strategy. There are also reasonable expectations associated with higher productivity as a result of prevention campaigns. Furthermore, prevention campaigns are not very costly to implement, and managers might expect relatively high returns from the rather small investment.

The common argument against companies investing in prevention cites issues of high staff turnover rates and short tenures relative to the long progression to AIDS. However, this becomes invalid when one considers that the average length of employment of a full-time employee are nine, seven, and five years in Kenya, Tanzania, and Uganda, respectively, while the progression from HIV infection to full-blown AIDS can occur over eight to nine years (Rosen et al. 2007), or even as short a period as two to three years (Ramachandran, Shah, and Turner 2007).

Aside from moral and ethical considerations, the main reason for an employer to invest in the prevention of HIV infection is the issue of cost, that is, the infection cost that is avoided minus the cost of the prevention program (Rosen et al. 2007). Figure 4 shows the cost per AIDS-related work termination calculated for a large agricultural enterprise in Kenya across four categories of staff members (unskilled, skilled, seasonal, and managers). Although the calculation excludes the cost of prevention activities, as well as most of what Simon et al. (2000) called indirect and systemic costs, it shows quite clearly that the costs incurred due to the AIDS-related loss of unskilled and seasonal workers is relatively low, although the cost for the loss of unskilled (permanent) workers is more than double that for the loss of unskilled

seasonal workers. This might influence the company's decision with regards to their involvement in an HIV/AIDS response, as well as the decision to further shift from unskilled permanent workers to unskilled casual/seasonal workers.

Figure 4. Cost per AIDS-related employment termination



Source: Rosen et al. (2005).

Prevention programs are usually quite inexpensive. However, the avoided costs will only come into play some years after infection (when the employee develops AIDS and then leaves the company due to AIDS), and at that, only if the employee has remained with the company. This time gap between investment and avoided costs makes it difficult for employers to capture the financial benefits of their investment in prevention (Rosen et al. 2007).

The benefits of treatment provision are easier to calculate. Rosen et al. (2007) calculated the "returns to investment" in AIDS treatment for three different groups of employees in the agricultural sector of Kenya. They found that the specific scenario of treating skilled and unskilled workers did not result in immediate financial gain. However, this calculation considered only direct ("hard") costs, such as the cost of treatment, funeral costs, and the costs of recruiting and training a new employee. The authors did not include indirect and systemic costs, such as reductions in productivity, morale, and workplace cohesion, which are more difficult to express in monetary terms. Many labor-intensive, low-technology industries will come to a similar result in their cost calculations, and will therefore refrain from investing in anti-retroviral therapy (ART). This is likely to be especially true for companies that are locally owned, lack resources, and do not experience pressure from international head offices. The employees of these companies will most likely rely on the public or nongovernmental sector for the provision of treatment (Rosen et al. 2007).

As shown in Table 11, at the time the studies were conducted, none of the agricultural companies included in the study in Kenya offered ART to their employees, while 27 percent of the surveyed companies in Uganda[12] offered such programs. It can be expected that this number has increased in both countries, due to the increasing availability of public-sector provision of ART. Rosen et al. (2007) posit

[12] It is not clear from the study how many of the Ugandan firms were agriculture-related.

that the broad availability of public-sector ART may have "deterred some private companies from spending their own funds on the provision of treatment."

Table 11. Provision of HIV-related services, by companies

		Proportion of companies that had ever undertaken HIV/AIDS-related activities			
Country and year	Sector	Educational activities, provision of information to employees	Any other workplace prevention activity[a]	Anti-retroviral therapy for HIV-positive employees	Activities in the community
Kenya, 2005	Agriculture	32%	21%	0%	11%
Uganda, 2004	Multiple, national[b]	54%	35%	27%	n.a.[c]

Source: Rosen et al. (2007).
[a] For example, the distribution of condoms or the facilitation of VCT.
[b] The sample consisted of 37 companies with 25 to 500+ employees, including multinationals (13), parastatals (2), and locally owned companies (22).
[c] This survey did not ask about activities in the community.

Finally, the provision of ART is related to the size of the company. Rosen et al. (2007) showed that larger companies were more likely to make ART available to their employees, either through direct provision, through an independent disease-management program (governmental or nongovernmental), or through inclusion in the benefits provided by the company's medical aid (health insurance). Companies whose employees relied on "external" ART provision (that is, those not embedded in a structured program such as through an agreement between company and an ART provider) face several challenges. For example, the company has no means to evaluate or encourage adherence to ART, and the employees lose a full day of work while visiting the treatment clinic (Rosen et al. 2007).

Above, we discussed what companies are doing to reduce the impact of HIV and AIDS on their businesses. Another so-called strategy that many companies are pursuing includes reducing workers' benefits, requiring preemployment health checks, out-sourcing production activities (for instance, to contract and casual laborers), and shifting from labor-intensive production to greater mechanization. In this way, the companies are basically shifting the burden of HIV and AIDS in the workforce to the public and nongovernmental sectors—and to the individual households (Simon et al. 2000).

9. CONCLUSION

As exemplified by the AMREF-facilitated study on mobile agricultural workers in the Lake Victoria Basin, it is important to pay attention to specific groups, communities, and locations when considering HIV/AIDS vulnerabilities and responses. Clearly, the mobile agricultural workers in Kenya, Tanzania, and Uganda comprise a high-risk group. Building on current debates and discussions surrounding the vulnerability of migrants to HIV in the context of the agricultural sector in East Africa, this paper clearly presents some of the risk and vulnerability factors facing this group and the plantations in which they work. The factors or processes that contribute to this vulnerability are diverse, complex, and not fully understood at this time. As such, interventions aimed at mobile plantation workers must consider the unique pressures, constraints, and living environments faced by this population, in order to effectively address their vulnerability. Rather than condemning the behavior of individuals, these interventions must situate sexual behavior in its social context (IOM 2001) while still maintaining some focus on the "traditional interventions" of encouraging safe sex through education and the distribution of condoms.

In terms of responding to the groups located in the plantation system around Lake Victoria, it is important to focus on the following subgroups:

- migrant or immigrant communities whose members will require focused interventions in their new locations until such time as they become fully integrated into their new societies;
- trans-migrants, who will require interventions at both of their "homes" as well as in transit between them; and
- itinerant or mobile populations, who may be the most difficult to reach (as they do not constitute a spatially fixed community) and will require interventions that mirror their movements (for instance, making condoms available at truck stops, providing education material on buses, offering mobile clinics, and so on).

Based on analyses of these groups, different programs can be designed to specifically respond to the varying aspects and impacts of the HIV time line. A comprehensive response to HIV would entail companies engaging with each segment of the HIV time line, from prevention of infection to attempts to mitigate its full impact on both agricultural workers and their employers. It is clear from the review that, on the whole, agribusinesses do not engage with this full spectrum at present, instead limiting their programmatic response to prevention and possibly treatment.

However, we would argue that it is not sufficient to invest only in prevention programs. Instead, such programs must be combined into a comprehensive response to HIV and AIDS within the plantation system, and we must place the relevant social, political, and economic factors at the core of such responses. The underlying issues of inequality, poverty, the social status of women, and even the migrant labor system itself clearly contribute to the vulnerability of mobile agricultural workers to HIV. Despite the logic of this argument, however, it is difficult to provide strong financial evidence as to why companies should invest in full and comprehensive strategy, simply because this information does not yet exist. This critical gap should be highlighted and addressed through, for example, pilot programs on select plantations, which could show the cost-benefit of addressing HIV/AIDS through a well-designed set of interventions aimed at the different target groups. If the cost-effectiveness of such interventions could be demonstrated, this work would help convince plantation owners of the value of addressing HIV/AIDS with a well-designed and effective intervention package.

The review demonstrates that it is possible to show the investment returns to prevention and (to some extent) treatment and care. A central argument as to why companies should invest in HIV prevention strategies is the benefit of retaining at least some groups of workers, particularly the more skilled and trained laborers. This can only realistically be achieved by targeting the entire workforce. In addition, prevention activities may be considered as extra benefit to workers, thereby possibly allowing the companies to attract and retain better and more skilled workers. There are also reasonable

expectations associated with higher productivity as a result of prevention campaigns. Such prevention campaigns are not very costly to implement, and managers might expect relatively high returns from the rather small investments. Thus, in addition to moral and ethical considerations, there are cost-related reasons for an employer to invest in the prevention of HIV infection.

When we consider the other dimensions of a comprehensive response, namely treatment and care, companies stand to benefit in the longer term. The benefits of treatment provision are often unclear to companies. Although treatment of skilled and unskilled workers does not appear to yield immediate financial gains, companies that provide ART may experience significant benefits in terms of indirect and systemic costs, such as the avoidance of the reduced productivity, decreased morale, and reduced workplace cohesion, which are more difficult to express in monetary terms. The longer-term financial gain clearly must be commensurate with these benefits. Thus, companies should be aware that when they seek to rely on ART provision by "external" service providers, rather than embedding them in a structured program, they will be unable to evaluate or encourage adherence to ART, and thus may not see the relevant benefits.

It is recommended that this review be used to strengthen existing HIV responses within the Lake Victoria Basin plantations. In essence, this means that the review should be used explicitly to strengthen the plantations' own understanding and response to the epidemic in the context of mobile plantation workers, and (where appropriate) to help design pilot programs that will support a more comprehensive response to HIV.

APPENDIX

Predominant Commodities of the Plantation Systems

As mentioned in the text, most of the agricultural commodities produced in Kenya, Tanzania, and Uganda are produced by smallholder farmers. Large-scale farms are mostly found in Kenya, with some in Tanzania and relatively few in Uganda. Following the market liberalization reforms introduced from the 1980s, which included restructuring and privatization, most large-scale agricultural production and agri-processing operations became privately owned (EAC 2003).

The major agricultural export crops for Kenya are tea, coffee (green), and green beans; those for Tanzania are cashew nuts, tobacco, and cotton; and those for Uganda are coffee (green), tobacco, and tea (FAOStats 2008). Table A1 gives an overview of the quantities of selected crops produced for each country (figures are from 2006).

Table A1. Quantities of selected crops in Kenya, Tanzania, and Uganda

Crop production	Kenya	Tanzania	Uganda
		(tons)	
Sugarcane	4,932,839	2,750,000	1,950,000
Rice	64,840	784,000	154,000
Coffee, green	48,000	34,000	133,310
Tea	310,580	30,300	34,334
Oil crops, primary[a] (2004)	39,262	155,920	139,270

Source: FAOStats (2008) (www.fao.org; accessed February 2008).
[a] Data disaggregated by crop type are not available.

Coffee

Kenya produces approximately 2.5 percent of the world's total coffee production and commands a market share of over 3 percent of the global coffee trade. Although the contribution of coffee to the Kenyan economy in terms of foreign exchange earnings and employment has steadily declined in recent years, coffee production recorded an increase of 6.9 percent in 2005/06 (to 48,300 tons) as compared to the previous year (Kenya 2007).

In Tanzania, coffee is a traditional export crop that is grown in various parts of the country. Over the past 20 years, the area under coffee production more than doubled, although total production has essentially remained stagnant. The Ministry of Agriculture and Cooperatives (Tanzania 2008) reported that the production decline in traditional coffee growing areas has been due to reduced production in public estates, the aging of trees, low input use, increased incidence of diseases, and low returns to producers in the face of escalating production costs. In order to compensate for this decline, production has been expanded to new areas (Tanzania 2008).

In Uganda, coffee is predominantly grown in the southeast (Robusta coffee) and in the southeastern and southwestern high altitudes (Arabica) of the country (Byrnes 1990). Production by smallholders, as introduced during British colonial rule, was historically among the most important subsectors in Uganda's economy, even during the political uncertainty of the 1970s and 1980s (Byrnes 1990). The importance of coffee as the main agricultural export has declined since the beginning of the 1990s (Nohlen 2000) due to "drought, management problems, low prices, and a shift from coffee production to crops for local consumption" (Byrnes 1990). As part of the agricultural reform introduced in the early 1990s, the coffee market was liberalized through the abolition of the Coffee Marketing Board's monopoly on the marketing and export of coffee, and the removal of producer price controls, processing fees, and export margins. Export taxes for coffee were removed in 1992, but reimposed during the coffee boom in 1994 (Baffoe 2000).

In 2001, it was estimated that 500,000 households, distributed over two-thirds of the country, depended on coffee as an important source of income, with the majority of them deriving their only cash income from coffee (Fashoyin, Herbert, and Pinoargote 2003). The bulk of coffee is produced on small-scale farms and sold to larger companies for processing and export. The first coffee plantation owned by a multinational company started operations in 2001 (Fashoyin, Herbert, and Pinoargote 2003).

Tea

Kenya's tea is grown in the highlands to the west and east of the Rift Valley. The cool temperatures, abundant rain, and rich fertile soils guarantee high-quality tea. Kenya is one of the largest producers of black tea in the world; the commodity accounts for almost 20 percent of the country's total export earnings. Tea production in Kenya dropped from 328,500 tons in 2005 to 310,600 tons in 2006, mainly due to the drought in early 2006 (Kenya 2007). Table A2 provides more detail about the production levels between 1995 and 2003 (GAIN 2004).

Table A2. Tea production in Kenya

	Estates		Smallholders (KTDA)	
Year	Area	Production	Area	Production
	(hectare)	(metric ton)	(hectare)	(metric ton)
1995	32,201	105,580	80,355	138,946
1997	32,694	91,014	84,657	129,708
1999	33,884	94,853	90,317	153,855
2001	38,781	112,906	92,800	181,726
2003	44,400	112,882	95,577	180,789

Source: Tea Board of Kenya (GAIN 2004).
Note: KTDA = Kenya Tea Development Agency.

The tea policy and legislation was completed in 2000, through the Tea (Amendment) Act of 1999, which fully liberalized the production, processing, and marketing of tea. About 26 percent of the total tea production area is owned by the plantation estates, and the rest is owned by over 300,000–400,000 smallholder farmers (GAIN 2004). The plantation estates account for about 38 percent of total production and the smallholder farms, which are managed under the Kenya Tea Development Agency (KTDA) Limited, account for 62 percent of national production. The major commercial plantation owners include major transnational companies, such as Brooke Bond, Unilever, and James Finlay, as well as locally owned farms (GAIN 2004).

The tea industry is a major source of employment, with over 2 million people directly involved in tea farming, manufacturing, marketing, and indirectly in retail outlets and transportation. Small-scale tea growers process and market their tea through 45 tea factories under the KTDA, while the large-scale tea growers (tea estates) process and market their tea through 38 privately operated tea factories.

Tea and other cash crops were introduced to Tanzania in the 1920, during the colonial administration. Waged agricultural labor (and, consequently, organized labor) was also introduced around this time. One of the first unions established in Tanzania was in the agricultural sector, as a response to the poor working conditions, the use of migrant labor and the struggle for independence. Following the nationalization of the tea sector, all employees in commercial tea plantations became state employees. With the economic and social reforms introduced in the 1980s, the state firms were privatized. Most of the tea-sector firms were sold to foreign investors, while others were given back to former owners, such as the Brooke Bond Tea Company.

In Tanzania, tea is among the cash crops whose productions have maintained upward trends for several years (see Table A3). Tea is produced on both large-scale and small-scale farms; the bulk is

produced by large-scale estates, which are increasing in number as a result of the general policy of opening up the agricultural sector to private investment. Tea production is labor-intensive, meaning that many people, particularly women and youths, can find employment on tea farms and processing plants located in rural areas. The major tea growing areas are the Mbeya, Iringa, Tanga, and Kagera regions (Tanzania 2008).

Table A3. Tea production trends in Tanzania

Year	1990/ 91	1991/ 92	1992/ 93	1993/ 94	1994/ 95	2006
			(tons)			
Production	18,000	19,500	21,000	22,200	23,000	30,300

Source: Tanzania (2008); 2006 data from FAOStats (2008).

In Uganda, the majority of the tea estates were owned by Asian Ugandans until their expulsion in the 1970s under Idi Amin's rule; at this point, the tea subsector virtually collapsed. Many tea farmers were forced to reduce their production as a result of the violent conflict and economic uncertainty. Since the 1980s, however, the government has introduced initiatives aimed at reviving tea production, partly in an effort to reduce the country's dependency on coffee exports (Byrnes 1990). By the late 1980s, two companies, Tamteco and the Uganda Tea Corporation, both joint ventures between the government and a private owner,[13] were responsible for managing most of the country's tea production (Byrnes 1990). A third important player was the state-owned Agricultural Enterprises Limited, which produced tea on its own land and also used some 11,000 smallholder out-growers. At this point, several thousand hectares of tea estates remained "disputed" because their owners had been forced to abandon them in the 1970s (Byrnes 1990). The agricultural reforms implemented since 1991 have included the rehabilitation and privatization of most of the state-owned and expropriated tea estates, with some of the estates being returned to their previous owners. The Uganda Tea Growers' Corporation has maintained its tea factories and has been restructured to become more efficient in providing services to its out-grower owners (Baffoe 2000). Most of Uganda's tea is produced by large companies for the export market. The tea subsector employs about 30,000 people, with approximately 40 percent of the product provided by out-growers (Fashoyin, Herbert, and Pinoargote 2003).

Sugar

Sugarcane production in Kenya rose by 2.8 percent between 2005 and 2006 (Kenya 2007). Kenya exports most of its sugar to the Common Market for Eastern and Southern Africa member states while simultaneously protecting its sugar industry by imposing a quota for imported sugar (Kenya 2007). Kenya's sugar subsector is dominated by small-scale producers; at the beginning of 2000, smallholders controlled 88 percent of the total area of 108,793 hectares under sugarcane production. This subsector provides direct and regular employment for 35,000 workers, and thousands more are employed as casual workers on farms.

Tanzania's annual sugar production is about 115,000 tons, while the country's estimated sugar demand is 300,000 tons, meaning that Tanzania must import about 200,000 tons per annum. "Sugar cane in Tanzania is primarily grown in four estates, namely Kilombero Sugar Company, Mtibwa Sugar Estate, Tanganyika Planting Company, and Kagera Sugar Limited. The contribution of sugar cane grown by out growers at Kilombero and Mtibwa estates has gradually increased in recent years" (Tanzania 2008).

Sugar was introduced into Uganda in 1924 by Indians who came to work on the East African railway line from Mombassa to Kampala. The first sugar factory was established by the Mehta family in

[13] Tamteco (Toro and Mityana Tea Company) is owned by the government together with Mitchell Cotts (U.K.), and the Uganda Tea Corporation is owned by the government together with the Mehta family.

1924 in Lugazi (Central Province). In 1926, a second factory was established in Kakira (Eastern Province) by the Madhivan family. In 1965, a third factory was established in Sango by the Masaba family, but this factory collapsed in 1973. In the 1970s, the government started its own sugar factory in the Northwest region (Kinyara) (IUF/ ILC n.d.).

Similar to the tea and coffee sectors, the sugar industry of Uganda suffered during the political instability of the 1970s and 1980s. The sector, "which had produced 152,000 tons of sugar in 1968, almost collapsed in the early 1980s" (Byrnes 1990). As a result, Uganda was forced to import most of its sugar by the late 1980s (Byrnes 1990). Sugar continued to be one of Uganda's major agricultural import products until 2004 (FAOStats 2008).

During the 1980s, the Ugandan government began programs aimed at rehabilitating national sugar production, in part by inviting some of the expelled Asian Ugandans to repossess and rehabilitate their sugar estates (IUF/ ILC n.d.; Byrnes 1990). Some of the largest estates resumed work in the late 1980s in their nucleus plantations; Lugazi[14] was reopened in 1988; the Kinyara Sugar Works and Masindi estate, in 1989; and Kakira,[15] in 1990 (IUF/ ILC n.d.; Byrnes 1990).

In Uganda today, sugar is produced by three major companies, exclusively for Ugandan consumption. In 2002, the sugar industry engaged approximately 40,000 workers, including both direct and indirect employment (Fashoyin, Herbert, and Pinoargote 2003). Since 1997, the introduction of out-grower schemes has become the main strategy that Ugandan plantation sugar companies have used to boost production (IUF/ ILC n.d.). As a result, in 2002, around 40 percent of the country's sugar production was provided by approximately 4,694 out-growers (Fashoyin, Herbert, and Pinoargote 2003; IUF/ ILC n.d.).

[14] By the late 1980s, Lugazi had become a joint venture between the government and the Madhvani family.

[15] By the late 1980s, Kakira had become a joint venture between the government and the Mehta family. Rehabilitation of the estate was delayed by ownership disputes.

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