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Understanding How HIV/AIDS, Agricultural Systems, and Food Security Are Linked

by Lori M. Hunter

(April 2007) Both hunger and HIV/AIDS receive places of prominence within the eight objectives of the United Nations Millennium Development Goals (MDGs). Goal 1 is to "Eradicate extreme poverty and hunger." Goal 6 is to "Combat HIV/AIDS, malaria and other diseases."¹ Although presented as distinct goals, these conditions are closely intertwined in the lives of millions of people, however, and advancement toward one goal requires consideration of the other.

Although significant progress has been made in reducing undernourishment globally, the pace must be accelerated to meet the MDG hunger goal by the target date of 2015. During the 1990s, developing countries reduced the number of undernourished people by only 1 percent, or approximately 9 million people. The Food and Agriculture Organization estimates that, in 2000-2002, 33 percent of the population in sub-Saharan Africa remained undernourished.² Although this represents an improvement from 36 percent a decade prior, it remains far from MDG goals. Unfortunately, undernutrition is actually increasing in some regions, including the Near East and North Africa.

Regarding MDG goals and HIV/AIDS, even with improved access to prevention and treatment such as antiretroviral medications, the number of people living with HIV/AIDS continues to grow. Indeed, nearly 40 million individuals are currently HIV-positive and, in 2006, 4.3 million people were newly infected with HIV.³

Although rarely linked in official documents and activities, HIV/AIDS likely exacerbates the struggle to reduce undernutrition due to the pandemic's impacts on agricultural systems.

The Links: HIV/AIDS and Rural Agricultural Systems

Although HIV/AIDS was considered primarily an urban issue in the early years of the pandemic, many rural regions of sub-Saharan Africa, as well as urban ones, now have high HIV prevalence. In South Africa, for example, surveillance data with pregnant women suggest similar high prevalence rates of between 23 percent and 26 percent both inside and outside of major urban areas.⁴ Although overall rates are lower in India, both urban and rural prevalence rates are approximately 3 percent.⁵ Since rural residents typically have less access to health care, testing, and counseling, the pandemic may be more difficult to combat in these regions.⁶

In addition, rural households experience HIV/AIDS in ways that are specific to their setting and distinct from their urban counterparts. These distinct impacts are often related to the high level of dependence on agricultural production as the primary food supply for rural households. Subsistence farming systems rely heavily on humans, most often women, for tilling and tending crops. Because of the extent to which HIV/AIDS makes people ill, disables them when very ill, and then causes deaths, it places considerable strain on rural agricultural production.

In fact, in sub-Saharan Africa, 65 percent of the power for land preparation is provided by people, with 25 percent by draft animals and only 10 percent from engines.⁷ Clearly, adequate agricultural production depends on available power, especially human labor in regions with fewer technological inputs.

In settings where this subsistence agriculture is the norm, HIV/AIDS retards agricultural production, and threatens food security, in several ways. HIV/AIDS scholars Alex de Waal and Alan Whiteside ascribed the term "new variant famine" to characterize the association between HIV/AIDS and food security.⁸ They argue that the HIV/AIDS pandemic is resulting in unique pressures on agriculture systems related to, for example, the loss of labor and the loss of other forms of household assets.

Characteristics of the 'New Variant Famine'

Reducing the labor available for agricultural production is the HIV/AIDS pandemic's most straightforward impact on food security and hunger. Clearly the disease affects the potential labor provided by infected individuals, yet it also influences the availability of other household members, because they must care for sick individuals. Culturally mandated mourning periods further reduce labor available for agricultural activities. As an example, in South Africa, Zulu widows must typically engage in a year-long *ukuzila*, a mourning period that requires special clothing and the restriction of work activities, including tending fields.⁹

Reductions in available human labor influence household agricultural production and related food security in several ways. Previously tilled land may be left fallow, resulting in less food production. In addition, important tasks such as weeding may be postponed, therefore reducing yields.¹⁰ Labor shortages can also change what crops are planted. In Kenya, for example, adult mortality influences cropping patterns although the impacts depend upon the role of the deceased in the household. In many cultures, men are

more likely to engage in market activities and the death of an adult male often lowers production of "cash crops" such as coffee, tea, and sugar. In contrast, grain crops suffer shortfalls following the death of an adult female. In both situations, HIV/AIDS mortality shapes food security and hunger through reduced income from the market in the case of foregone "cash crops," or through less direct consumption in the case of grain crops.¹¹

HIV/AIDS-related changes in crop production may also threaten access to agricultural land itself. In regions where land tenure is not secure, households may lose rights to land not regularly used. This is of particular concern for widows and child-headed households in cultural contexts with patriarchal land rights since widows may lose their assets to their deceased spouse's relatives. Such is the case in Lesotho, where households have adopted strategies such as renting land to others to ensure that agricultural land stays in their control.¹² These sharecropping strategies have also been identified in South Africa. In Uganda, however, widows are reluctant to rent out land for fear of losing their rights.¹³ In South Africa, households have used another coping strategy—hiring casual labor to assist in agricultural activities and ensure continued access to their land.¹⁴

Also characteristic of the "new variant famine," HIV/AIDS may exacerbate poverty, and therefore alter the use of other household assets that affect agricultural production and food security. This is true particularly if the infected individual had been a wage-earner. In addition to lost wages, HIV/AIDS-affected households incur new expenses related to health care and funerals. Indeed, research in Ethiopia found that the sale of animals resulted in lower household use of important animal byproducts such as milk and manure, and the sale of the last ox, in particular, reduced plowing potential.¹⁵ Fewer financial resources may also mean lower levels of such purchased agricultural inputs as fertilizers.

The loss of agricultural knowledge is another way HIV/AIDS threatens food security. Because AIDS mortality is highest among prime-age adults, important information on managing agricultural land is often lost when they die. Research in Mozambique, for example, illustrates the importance of the intergenerational transfer of knowledge about seeds for maintaining agricultural systems. Surveys and interviews with farmers in the Chókwe district of Mozambique revealed that HIV/AIDS-affected households had less access to seed and seed information.¹⁶ Respondents most often noted parents as a key source of information on seeds, illustrating the important impact of the loss of prime-age adults on transfer of local agricultural knowledge.

Food Security and Agriculture Through an HIV/AIDS Lens

In 2005, the Millennium Project issued several reports relating to the Millennium Development Goals. Among them was a report by the Task Force on Hunger, *Halving Hunger: It Can Be Done*.¹⁷ The highest priorities for reducing hunger included advocating political action, increasing agricultural productivity and improving nutrition, developing more effective safety nets, and increasing incomes through market enhancements. While logical priorities, each is further shaped by HIV/AIDS, especially in regions with high prevalence rates. In fact, programs and policies designed to work toward these priorities would likely be more effective by also considering HIV/AIDS.

Stuart Gillespie and Suneetha Kadiyala, food security experts with the International Food Policy Research Institute, outline several integrated agricultural policy considerations that have been informed by an "HIV/AIDS lens."¹⁸ In their work *Evidence to Action*, they suggest that policies designed to enhance agricultural and food security might include features that address the special challenges posed by HIV/AIDS in high-prevalence areas:

- Encouragement of labor exchanges between households to reduce labor shortages.
- Education of orphaned children in local farming techniques.
- Consideration of the gender dimensions of market access to ensure widows' access to this form of income generation.
- The review of land tenure arrangements to protect rights of widows and orphaned children.
- The integration of sexual health education with agricultural extension messages so that vulnerable individuals better understand the linkages between sexual activity and longer-term household well-being.¹⁹

An example of a multifaceted approach can be found in Tororo District, in eastern Uganda. The project's overall aim was to develop a multisectoral partnership approach to addressing the complexities of food insecurity and HIV/AIDS by forging partnerships across sectors—including institutions with expertise in agriculture, nutrition, gender, and HIV/AIDS—at the district, sub-county and local levels. The effort was funded by the Horizons Project and spearheaded in 2003 by the International Center for Research on Women (ICRW) partnering with the AIDS Support Organization of Uganda (TASO) and the National Agricultural Research Organization of Uganda (NARO). Participatory workshops were held with representatives from various institutions and multipronged interventions were developed and implemented. The interventions included discussions with groups of rural farmers on topics related to both HIV/AIDS and agriculture. These discussions included education on the importance of dietary

diversity and harvest planning to ensure a variety of foods including legumes, fruits, and vegetables. Results suggest that these discussions led to reduced stigma associated with HIV/AIDS, a better understanding of nutrition and the need for dietary diversity, and improved food management within the households.²⁰ In addition, follow-up research suggests that "high-status" foods traditionally set aside for men (such as meat and eggs) are now being allocated more equitably in households.

Severing Links Between HIV/AIDS and Hunger

While the links between HIV/AIDS, agricultural production, and food security are strong and complex, the evidence presented here offers a guide for ultimately severing the links between disease, poverty, and hunger. Key to success, as evidenced in the Uganda case study, is examining food security issues through an "HIV/AIDS lens." Given the variety of paths through which HIV/AIDS affects agricultural systems and food security, such multipronged and integrated approaches are essential as we work to meet the interconnected Millennium Development Goals.

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SOUTHERN AFRICA: Fishing for food in dry seasons

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JOHANNESBURG, 26 April 2007 (IRIN) - With food security often at the mercy of erratic weather patterns, Southern Africa could bank on its "tremendous" potential to farm fish to sustain its predominantly agrarian communities, according to aquaculture experts.

"Aquaculture in Southern Africa is unfortunately still underdeveloped but there is good potential, as there are adequate inland water resources in most parts of the region," said Erik Hempel, team leader of the regional office of INFOPECHE, an intergovernmental organisation providing marketing information and a cooperation service for fishery products in Africa, set up in 1985 as a United Nations (UN) Food and Agriculture Organisation (FAO) project.

Hempel pointed out that aquaculture could complement existing sources of income and food as well as provide alternatives to impoverished communities of subsistence farmers in the region. "We know of a subsistence farmer at the foot of the Hardap Dam in southern Namibia who uses the water not only for his fish farm, but recycles it for his crops - he grows vegetables and farms fish in combination."

According to the FAO, southern Africa has an estimated 20,000 small bodies of water, mostly reservoirs built to provide water for domestic use, watering cattle and irrigating crops. Some of these were stocked with fish, but, lacking adequate management, production remained low.

Besides inland water resources, countries along the east coast of Africa, like Mozambique and South Africa, have the potential to develop shrimp farming, but Hempel said aquaculture along the west coast, which is "exposed to the elements, would require a great deal of investment".

He pointed out that "there is good potential to develop oyster and mussel farming, which is already happening in South Africa", but said subsistence aquaculture could be developed mainly in inland freshwater bodies.

An illiquid potential resource

Alec Forbes, a marine biologist and aquaculture consultant, said aquaculture was prevalent in Namibia, South Africa, Zambia, Mozambique, Zimbabwe and Malawi, "all with some degree of success, but falling short of the real potential". Most efforts to kick-start fish farming for subsistence farmers have been stumped by lack of resources, skills and funding.

The FAO has developed a strategy to promote subsistence aquaculture in Africa, according to Lahsen Ababouch, Chief of the Fish Utilisation and Marketing Service at the FAO. "We are trying to replicate [in Africa] the success of aquaculture in Southeast Asia and Asia," he added. Fish as a source of protein is critical for improving food security, "which is our mandate" in least-developed countries.

Investment in aquaculture is critical, as the FAO's annual report on fish farming last year found that nearly half the fish consumed worldwide were raised on fish farms rather than caught in the wild. Dwindling fish stocks and rising demand have increased the pressure on aquaculture. The FAO was still in talks with donors on its plans for Africa, he added.

Despite its natural potential, Africa is a minor player in fish farming, according to the FAO's 'State of World Fisheries and Aquaculture 2006' (SOFIA) report. "Even aquaculture of tilapia, which is native to the continent, has not developed significantly." Nigeria is the continental leader, with reported production of

44,000 tonnes of catfish, tilapia and other freshwater fish.

Ababouch said there was a growing global demand for fish like tilapia and catfish, which are cost-effective species and suitable for subsistence aquaculture.

"The tilapia in all its different forms lends itself to aquaculture, being a hardy and forgiving creature, able to survive in the harshest of conditions and being the foundation pillar of the aquaculture diet," said Forbes. "Catfish and bass are also excellent aquaculture candidates, as well as carp and some invertebrates, but tilapia spp. remain the cornerstone of the poverty-alleviation and food-security programmes."

The SOFIA report noted that there "are some encouraging signs in the continent: black tiger shrimp (*Penaeus monodon*) in Madagascar, and *Eucheuma* seaweed in the United Republic of Tanzania, are thriving, and production of niche species such as abalone (*Haliotis* spp.) in South Africa is increasing. In the Near East and North Africa, Egypt is by far the dominant country in terms of production (providing 92 percent of the regional total) and is now the second biggest tilapia producer after China, and the world's top producer of mullets".

Unlike Southeast Asia, where aquacultural integration with poultry and animal husbandry dates bank thousands of years, Ababouch said Africa lacked the technology and investment.

Getting in the swim of things

However, there were countries in the region, like Zambia, Mozambique and Zimbabwe, which have been experimenting with aquaculture since the 1950s, when the first attempts were made to raise indigenous species of the Cichlidae family, mainly tilapias, in dams and earthen fish ponds, according to an FAO profile.

A number of donors have taken an active part in assisting the Zambian government to encourage farmers to adopt aquaculture by introducing pond culture in rural areas as a way of enhancing nutrition. The government has provided extension services, which have made a marked improvement: Zambia has more than 6,000 small-scale fish farmers with over 13,000 fishponds.

Many countries in the region have been experimenting with fish farming. The Mozambican government built hatcheries and demonstration farms in the early 1960s, and renewed its interest in freshwater fish farming in the late 1970s, particularly as a means of supplying fish to the rural population, which was deficient in animal protein and beyond the reach of existing marine and freshwater fish distribution networks.

But INFOPECHE's Hempel noted that most government-driven projects have foundered. "Aquaculture needs 24-hour surveillance, while governments function nine [a.m.] to five [p.m.]. We are dealing with living organisms; it needs a lot of commitment." He suggested that governments rather help out with funds and training; small-scale farmers could be assisted with supplies of fingerlings to kick-start their farms.

"An enthusiastic government approach is vital to the success of all aquaculture ventures in southern Africa, without which efforts will come to naught," said marine biologist Forbes. "Incentive packages must be put into effect to attract foreign currency investors and, indeed, local investors."