HIV/AIDS and the Natural Environment
by Lori M. Hunter

The global HIV/AIDS pandemic poses challenges in multiple arenas, as evidenced by the wide-ranging topics covered at the 2006 HIV/AIDS conference held in Toronto. The Toronto meeting, with over 26,000 participants, provided an international forum to share information to help strengthen the worldwide response to HIV/AIDS. Extensive attention was paid to the challenges of developing and delivering effective treatment, including the need for rapid development and dissemination of vaccines. In addition, difficulties in mounting prevention efforts were explored, including evidence suggesting that prevention is often stymied by knowledge gaps especially in hard-hit regions.

Still, at least one research and policy dimension remains little explored: The relationship between HIV/AIDS and the natural environment. HIV/AIDS is shaping society's impact on the natural environment in myriad ways and at many levels. This intersection of HIV/AIDS and the environment will affect millions of people, particularly in rural areas of developing countries.

Shaping Individual Vulnerability

Local natural resources are an important means of sustenance and income-generation in many rural areas of developing countries. The health of the local environment can also shape individual vulnerability to HIV/AIDS in at least two ways. First, resource scarcity often deepens poverty in natural resource-dependent regions, as in much of rural sub-Saharan Africa. Research has demonstrated that desperate economic circumstances can heighten the risk of HIV infection by leading individuals, particularly women and girls, to engage in "transactional sex" for material goods, sometimes to meet daily sustenance needs. Studies in Africa reveal that when such "Sugar Daddy" relationships involve large age differences or a substantial amount of assistance, women are more likely to engage in unsafe sex. Although transactional sex has not yet been linked to environmental context directly, local resource scarcity and risky sex are both clearly associated with a strong intermediary: poverty.

Second, natural resource scarcity may lead to food insecurity and inadequate diet, which can further undermine the immune system of HIV-infected people. Malnutrition increases the susceptibility of HIV-infected persons to opportunistic infections, while also increasing the risk of HIV transmission from mother to baby. Research in Singapore suggests that malnutrition may also reduce the effectiveness of HIV/AIDS treatments.

Undercutting Household Resilience

The age profile of people dying from AIDS shapes the pandemic's effects at the household level. In developing countries, AIDS deaths are concentrated in prime working ages—particularly the 25-to-45 age group—and the loss of a productive household member can be especially devastating to households already living in poverty.

Natural resources available through the local environment can act as a buffer against these losses. In rural South Africa, for example, households in which family members have died are more likely to gather wild foods from the bush than households without recent deaths. The specific household-level impacts often vary with the role of the deceased in the household, particularly whether the individual brought in income or gathered resources from the countryside. If the deceased collected resources, for example, but did not work for wages, other household members typically take on their resource-harvesting duties. In rural South Africa, children often take on these collector duties after school. In Kenya, such a reallocation of labor often means that children must drop out of school entirely, especially in poor households. If the deceased had contributed wages to the household, harvesting natural resources may substitute for previously purchased goods. For example, rural households suffering the loss of income because of an AIDS death might collect wild protein-rich foods to substitute for the meat they had previously been able to purchase. As a recently widowed woman in rural South Africa noted: "Locusts are now our beef," when describing how her household's diet had changed since the loss of her husband's income.
HIV/AIDS also shapes household use of the local environment when it deprives families of the labor performed by household members who are disabled or die from the disease. Labor shortages are also exacerbated as caregivers are drawn away from typical household duties. These various constraints may shape decisions about the use of land resources, a key component of rural livelihoods in many developing regions. Evidence of these associations was demonstrated in a three-country study by the Food and Agriculture Organization (FAO), which found that agricultural productivity declined in AIDS-affected households. In Kenya, for example, AIDS-affected households cultivated less area because less labor was available. In South Africa, AIDS-affected households failed to weed their cultivated plots, which also reduced agricultural productivity.9

Even basic access to land may be lost because of HIV/AIDS illness and death, particularly in regions where women and children have access to land only through their husbands and fathers. In Kenya, the death of a male household head may cause women and children to lose possession of land rights because inheritance is patriarchal. Land is inherited or held in trust by male relatives, threatening access of female relatives to this essential component of rural livelihoods.10

Local natural resources not only serve dietary needs, but are often used for energy as well. Additional evidence from South Africa suggests that impoverished households affected by adult mortality are more likely than other households to use fuelwood rather than electricity or paraffin for cooking. Such intensified resource dependence can increase local environmental degradation, particularly in areas already overharvested.11

**HIV/AIDS, Communities, and Natural Resource Management**

The age profile and the sheer magnitude of the HIV/AIDS pandemic suggest that the pandemic exerts environmental impacts at the community level also. There are many possible pathways for the HIV and environment interaction, although little empirical evidence of this exists so far. One way HIV/AIDS affects the community is through the loss of crucial human capital. Resource management institutions and organizations suffer as knowledge and labor are lost with the death of prime-age adults. A second avenue for community impact is through the loss of traditional knowledge regarding cropping and other resource use when experienced farmers die. Still, as argued by Thomas Jayne, Professor of International Development at Michigan State University, "the longer-term effects, particularly the community-level effects, have yet to be measured" because of a lack of longitudinal data and other methodological limitations.12

**Links Between Public Health and Environmental Policy**

Although operating at multiple levels and in many ways, the environmental dimensions of HIV/AIDS have received little attention in the policy arena. Few bridges exist between public health and environmental dialogue and policymaking, as evidenced by the lack of discussion of this intersection at the 2006 HIV/AIDS conference in Toronto. At the conference, the natural environment found a place on the program primarily within the context of food security. Although clearly a critical topic, food security is but one of many dimensions of the pandemic's effect on the natural environment.

Recognizing the associations between HIV/AIDS and the natural environment can contribute to the well-being of both human populations and local environments, particularly in regions characterized by high prevalence of HIV/AIDS and natural resource dependence and scarcity.

Because environmental scarcity can heighten HIV/AIDS vulnerability, environmental policy encouraging sustainable use of local environments can also benefit public health. This is especially true in regions where resource scarcity deepens poverty and robs households of viable livelihood options. In addition, health interventions to reduce HIV/AIDS vulnerability can produce environmental gains, particularly in areas characterized by high levels of resource dependence and where pressure on local resources is intensified by adult mortality. In this region, reduced mortality may lessen environmental pressure by reducing dependence on local natural resources such as fuelwood for cooking.
Because poverty is a driving force in the vulnerability to both HIV/AIDS and unsustainable resource use, poverty reduction efforts could yield substantial gains in both public health and environmental protection. One program recognizing these critical links is the Umzi Wethu Training Academy for Displaced Youth in Eastern Cape, South Africa. A project of the Wilderness Foundation South Africa, the program offers certified vocational training and internships to AIDS orphans and vulnerable youth, helping them qualify for well-paid local conservation jobs. Although the tourism industry has been hard-hit by the loss of employees to AIDS, ecotourism has been increasing 10 percent annually in the region, expanding opportunities for game rangers, hospitality hosts, and other tourism service providers. Enhancing opportunities for local at-risk youth not only helps the local economy, but reduces the likelihood they will engage in risky sexual behavior. These poverty reduction efforts therefore lessen the spread of HIV/AIDS as well as protect natural resources.

Although research on the HIV/AIDS and environment intersection is in its infancy, the early evidence suggests that the public health, HIV/AIDS, and environmental policy and advocacy communities would gain strength by recognizing the overlaps in their agendas. The Umzi Wethu Training Academy has been designed with such overlaps in mind and represents the type of integrated approach to program and policy development that warrants serious consideration.

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References

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