

Advancing Human Development in Africa: Insights from AIDS-affected Communities

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Abstract

The HIV/AIDS epidemic is accepted as a larger “development” issue nowadays and AIDS mitigation projects are widely visible across rural Africa. This article shares insights from field and desk research on community-based technology changes to promote food and livelihood security, and draws out the implications of rural innovations in agriculture, communications and other sectors for the work of development agencies. Narrow “labor-saving” approaches are not sufficient: more knowledge-based and labor-intensive responses are more suitable to addressing the interconnected capability deprivations brought by the intersection of AIDS, drought, chronic poverty, and other aspects of human insecurity. Development work needs to be more flexible, long-lasting and geared to broad-based livelihood support to enhance human development in AIDS-affected rural Africa.

Introduction

HIV/AIDS is a major demographic, public health, and economic development challenge for sub-Saharan Africa, with 26 million current infections and about 3 million deaths in just the last year (Barnett and Whiteside 2003, White and Morton 2005, UNAIDS 2006). The disease brings cumulative and unprecedented losses of labor, capital, knowledge, and sources of care for a young generation. HIV/AIDS is a powerful actor shaping the donor and development landscape and a major force transforming the rural landscape. This transformation is literal –it is changing farming and land management practices; and it is metaphorical—altering power structures, discourses, and flows of material resources, possibly diverted from malaria and other rural concerns. The Kenyan president (for example) declared HIV/AIDS to be a national emergency in 1999, and government agencies and non-governmental organizations (NGOs) are incorporating awareness about the disease and its impacts into education, agriculture, finance, environment, and other sectors. From community-based organizations (CBOs) to ministries, institutions are adapting their policies and approaches to recognize HIV and AIDS and its impacts on livelihoods (White and Morton 2005); “mainstreaming” of HIV/AIDS has become standard rhetoric (Holden 2003).

While recent statistics show some progress (for example, national Kenyan rates of prevalence of HIV infection declined from 10% in the late 1990s to 7% by 2003), the epidemic is not under control. The ramifications of continuing new infections, untreated illness, premature adult death, infant mortality and the burdens of care will be felt for generations, but differentially across the continent. Each community faces a micro-epidemic reflecting local risk of exposure, access to information and health care, and depending on local assets, livelihoods, and capabilities. AIDS illness and death not only undermine living standards, food security, farming, livestock health, enterprise, and livelihood security; in turn, income poverty can force women and men into risky sexual encounters, increasing infections. ().

These implications of HIV/AIDS for development agencies are discussed at the level of national development (i.e., Barnett & Whiteside 2002), internal workplace policies (Holden 2003),

within narrow technical sectors such as agriculture (du Guerny 2002). Critical reflection of the implications for aid agencies, NGOs, and rural livelihoods is well underway (i.e., Harvey et al 2004, White and Morton, 2005). Discussion of the implications for larger concerns of human development and capabilities of the rural poor (UNDP 1990) is still needed. This article aims to address this gap. Specifically: How does the development policy framework of governmental and non-governmental actors facilitate (or hinder) local innovation for livelihood security in the age of HIV and AIDS? What types of policies and programs can help the adoption, adaptation or innovation of appropriate technologies to enhance livelihood security and promote human development?

Insights from technology changes for rural livelihood security in sub-Saharan Africa

This article draws on findings from a recent study of community-based technology change to promote livelihood and human security in the face of HIV and AIDS (1). By technologies we refer to both *technics* (devices, tools, etc.) as well as less tangible *systems of knowledge*, for food, health, manufacture or hygiene. Technology *change* refers to the adoption of a new device or system, its evolution or adaptation to local circumstances, or even the rejection of an introduced tool or knowledge system. Reflecting a focus on the *community*, we focus on the practical actions of self-help groups, rural enterprises, and other local organizations, and not the official statements of governments or development agencies. As labor, life expectancy, assets, and knowledge change in homes and villages, we expect that the technics and systems must adapt: What is in fact occurring? To this end, information was solicited and reviewed from a range of settings, sectors, and institutions through internet, email, and document review (2). This process, initiated in early 2005, yielded a 30 page inventory of specific instances of technology changes across the continent. These are represented generically in Table 1.

We find wide ranging innovations spanning “software”-based (social innovations) to “hardware”: physical tools, implements, artifacts, and products. We see a range of actions from HIV prevention, to AIDS care & treatment, to the mitigation of impacts of AIDS. Furthermore, actions represent sectors ranging from agriculture and domestic arena to health, ICT, transport and enterprise/manufacturing. Most of the changes concentrate around food and nutrition security, with a

scattering in transport and high-technology communications. Many hardware innovations are linked to less tangible social innovations, such as HIV positive support groups, microcredit schemes for AIDS affected, changes in mourning practices to reduce the burden of funeral attendance, and community-based programs to mentor AIDS orphans and vulnerable children (OVCs). Such innovations are reported from Lesotho and South Africa to the Lake Victoria Crescent to Ethiopia and Ghana and Senegal. Some highlights from the table are emphasized here:

- Peri-urban sex workers in Zimbabwe have found a cheap way to reuse the “female condom” to avoid HIV infection—they wash the female condom with a locally available, cheap “sterile solution”: beer. (WHO, 2002). Users can sometimes adapt an introduced technology to meet their specific concerns, appropriating it for their needs.
- Communication of financial data, schedules, and deliveries is facilitated by the mobile phone: both individual- and group-owned, part of the wildfire spread of mobile phones in Africa since the late 1990s. These are evidently diffusing and being adapted locally without any specific effort on the part of development NGOs.
- Conversely, computer-based libraries, internet cafes, and websites on HIV prevention and AIDS mitigation are scarce, constrained by lack of electricity, slow connection speeds, constraints on downloading, irrelevance of content for local users, and barriers of language. They do, however, help the shy teenager who can seek out information without fear of harassment.
- The rapid spread of bicycle taxis (“boda-boda” services) since 2000 from Uganda into Western Kenya and Tanzania interesting follows the rise of the AIDS epidemic in this Lake Victoria region. Bike taxis provide an important service for AIDS support groups, home-based care workers, and others. Like mobile phones, bicycles are spreading through normal commercial channels, with the exception of some HBC programs that have provided outreach workers with bikes.

- Along the shores of Lake Victoria, fishing cooperatives buy and process castoff carcasses from commercial Nile Perch fish filleting factories, which they fry up for sale as food to the poor. This activity provides an alternative income to deter young women from entering the fishing camps and engaging in high-risk transactional sex in exchange for rights to buy and trade fish. Competition from commercial, expatriate firms threatens this grass-roots, entrepreneurial venture; they lack economies of scale, spare parts, access to credit. Levels of morbidity alone reduce productivity, while deaths due to AIDS make it impossible to compete with larger firms.

Table 1 about here

These examples of innovative, diverse and exciting local responses reflect endogenous and introduced ideas brought by aid agencies and experts. While encouraging, many innovations are often not spreading beyond the specific population or the well-financed health project. While we accept that the findings from this type of study design are not comprehensive (since many truly local responses remain invisible to us and others), the findings hint at the diversity of efforts to adapt, as well as serious barriers to change. Diffusion of these and other ideas is constrained by multiple deprivations of knowledge and material resources.

Furthermore, these and many other findings challenge the conventional wisdom about what communities facing AIDS will need to survive. One argument has been that “labor-saving” devices to make up for an AIDS-depleted workforce, including animal traction, improved farm implements, and drip irrigation (i.e., Action Aid 2005, Du Guerny 2002, Steiner et al 2004). In one setting this solution has emerged autonomously: AIDS widows in Zimbabwe evidently have designed a lighter ox-drawn cotton planter. In fact, however, our inventory reveals that many “labor-saving” technologies are not being taken up by AIDS-affected. In the case of animal traction devices, people are hampered by cost, difficulty of repairs, and poor livestock health (see the case of Lambwe Valley below). More common are subtle changes in farming systems to ease seasonal labor crunches, reduce drudgery, and produce food with less cash, labor and with more mouths and caloric and micronutrient needs related to HIV/AIDS status. Long neglected but nutrient-rich indigenous “leafy greens” (amaranth, crotalaria,

spiderplant, sunhemp and cowpeas) are being recovered through improved home gardens, from Lesotho to Ghana to Ethiopia. Techniques and tools associated with “conservation agriculture” reflect this trend towards relatively labor-intensive activities. The mobile phone might be an exception to this trend: while relatively expensive, its use can save time and labor and it serves many functions. More research is needed to understand its uses and the opportunity costs in relation to other technologies.

Secondly, household innovations—water supply, housing, fuelwood collection and other reproductive and family concerns—are rare, despite their potential relevance to women, elderly, child-headed households. (An exception is CARE’s Safewater System of hypochlorite disinfectant plus good hygiene and storage: somewhat costly, it also conflicts with messages to “avoid chemicals” reaching many HIV positive people so has been slow to spread). Adaptation in the household domain is evidently hampered by the increasing burden of care on women and lack of cash to invest in water pots, gutters for rainwater catchment, improved stoves.

Third: Little evidence emerged of substantial, significant, viable and sustained changes in livelihoods and underlying technologies for non-farm enterprises, handicrafts, or manufacturing. The Malawi nutritional supplements case (below) and Kenyan case studies (below, plus the fish frame cooperative) suggest that the reasons lie in the many transaction costs that prevent new start-ups. Most of these pre-date HIV/AIDS and are only aggravated by death, asset depletion, and the loss of knowledge. The fish frame cooperative illustrates the barriers facing micro-enterprises in an era of AIDS, liberalization, cut-backs in social services. According to available evidence, communities and self-help organizations are scaling back, minimizing risk, and not undertaking radically new activities.

Insights from detailed case studies of rural technology change in AIDS-affected areas

In addition to the larger inventory from across the continent, several field sites were chosen for more detailed study of barriers to, and opportunities for technology change. Three technology clusters were identified: (1) nutrition supplements & therapeutic foods for AIDS-afflicted, (2) home gardens and indigenous plants; and (3) “labor saving” animal traction & improved farm implements. These reflect a common concern for food and nutritional security visible in Table 1. Community level

cases were investigated through mixed-method field research, using a range of individual and group interview methods and mapping. These cases reveal the interplay of the epidemic with confusing and contradictory national policies, poor communications, cutbacks in services, and deepening rural poverty. These shape the ability of communities to respond to the epidemic. The case studies also reveal the ingenuity, persistence, and resourcefulness of rural individuals, and the importance of strengthening networks to promote and diffuse new ideas for local concerns.

(1) *Deep Poverty inhibits effective nutritional responses to HIV/AIDS in Rural Malawi*

A case study of nutrition and food security interventions in rural Malawi reveals increasing livelihood insecurity and failure to cope with the triple challenge of poverty, food insecurity and HIV/AIDS, which has hit rural Malawi hard in recent years (Harvey and Marongwe 2005). In Salima (a cotton growing area, reliant on *ganyu* labor exchanges), researchers examined NGO interventions in the field of food security; in Nkhotakota (a cassava growing, cash-poor region), a pilot intervention was testing to treat HIV+ adults with severe malnutrition using ready to eat therapeutic food (RUTF), using a community based approach. RUTF is an oil based paste with low water activity, thus it is microbiologically safe and will keep for several months in simple packaging and can be made simply. Community based therapeutic care for severe acute malnutrition is a methodology originally developed to treat children with severe malnutrition in emergency settings (Valid 2006). Since 2002, Malawi has seen the growing use of ready to eat therapeutic foods (RUTF) in the treatment of severe acute malnutrition in children (Collins 2006). Until 2002, RUTF came only from Nutriset in France, which produced Plumpynut from peanuts, milk powder, sugar, oil and a mineral/vitamin mix for \$3,500 a ton plus transport. Malawi has since been developing local production capacity for RUTF, through the work of Valid International and researchers at the University of Blantyre.

The community focus of CTC contains many features that are appropriate for the care and support of HIV affected people (Collins 2006). The essential elements of CTC have much in common with home based care approaches; CTC provides a way to engage with communities that initially avoids issues of stigma relating to HIV/AIDS. The results from the pilot projects using RUTF to treat

HIV positive adults with malnutrition have been promising. Participants noted the positive impact of RUTF on their body weight and ability to re-engage in economic activity. One interviewee noted that after a few weeks of RUTF, she gained weight and strength; after a year of being unable to do any household chores she could sweep and visit other sick people.

If these pilot projects are successful the Government of Malawi plans to scale-up the use of RUTF for treating adult malnutrition relating to HIV/AIDS to a national level and to use RUTF as a nutritional supplement for the beneficiaries of its ARV program. Yet, challenges abound. Participants reveal a desperate food and livelihood insecurity, and most were unable to maintain a good balanced diet to go with the RUTF and were struggling to make ends meet. For some, rather than being a supplement, RUTF had become the major source of food. With the hungry season approaching there was real concern with what would happen when the project finished. For those badly affected by poverty and HIV/AIDS, an external safety net is needed, yet they cannot rely on the community, since local social structures are weakened. “The committee exists by word of mouth but does not provide any support; they have never visited me, even when I was sick” noted one informant. Even the vibrant Salima AIDS Support Organization face shortages: volunteers have not been trained in HBC, lack bicycles to reach patients in distant places, and cannot cultivate the garden due to a shortage of volunteer labor.

This case leads to pessimism about the prospects for community-based innovation for livelihoods. Malawian communities still struggling to recover from the 2001/2 food crisis were in the midst of another humanitarian crisis in 2005. Numerous promising initiatives exist, but evidence of uptake and impact is sparse. The policy implications are clear: invest more in monitoring, evaluating and documenting the impact of livelihood security programs. With success demonstrated, then we can think about how to scale up interventions halt the spiraling cycle of destitution facing AIDS-affected Malawians.

(2) *Positive Innovations in Home Gardens in Bungoma District, Kenya*

AIDS-affected communities across Africa are adapting traditional, but neglected, home gardens to meet the challenges posed by HIV and AIDS. A case study of gardens in a village in

Bungoma District, Western Kenya sheds light on subtle processes of changes in knowledge systems and technics in the era of HIV/AIDS. In the study site is serious: “There is not one person in the community that has remained unaffected”. In a village of about 2,800 persons, informants identified dozens of known cases of confirmed infection, bedridden status, orphans needing care, and deaths in households. These and other trends were identified through village mapping, focus group discussions and in-depth interviews to shed light on innovations in gardens.

Home gardens were once widespread and used to cultivate local plant varieties (millet, sorghum, leafy greens). These plants gave way in the 1950s to “exotic” (introduced) plants and modern hybrids (particularly maize and *sukuma*, or kale). Now, however, over 20 households were identified in the village who cultivate “improved” gardens. These contain a variety of native and exotic plants, including bananas, cassava; new vitamin A enriched sweet potatoes (KARI SPK004), local beans, ground nuts, Soya, cowpeas. Greens include black nightshade, spider plant, amaranthus, pumpkin, sun hemp, and crotalaria. Fruits include avocado, guava, papaya, passion fruit, local berries, aloe, and neem.

Groups are also involved in nutrition and food security innovations. The local Orphan and Widow Support Group established a group garden in early 2005 to cultivate food for orphans and to sell for cash, although they were forced to abandon the garden a year later, facing insufficient resources and loss due to rains. Another group manufactures an enriched flour used to prepare a wholesome cooked porridge for AIDS patients and children. Instead of importing an expensive store-bought nutritional supplement, they prepare their own from locally grown maize, millet, sorghum, soybean, and greengram (ingredients recipes vary, but are becoming standardized and certified), which they package and sell locally. Schoolchildren, mobilized through child-to-child (C2C) clubs, manage their own fields and gardens, further reinforcing what adults learn at formal NGO workshops. The new technologies are taking hold first among the HIV/AIDS-affected (since they are targeted for training).

Problems abound: seasonal droughts and the drudgery of carrying water uphill pose huge problems for elderly, overworked women and youth. Seeds for indigenous greens are hard to find. Lack of containers hampers seed storage and protection from pests. Some leafy greens need special

processing and cooking techniques to be palatable. The hoes are often too heavy for the young, old, and/or ill; or too light for serious land preparation. Or they are non-existent: reflecting their reduced circumstances with AIDS, some households do not even own a hand hoe. Still, the efforts to improve gardens reveal that HIV/AIDS is not just about disease, death, and distress, but also about positive forces for change, including new motivations, and new actors and actions (in food security, nutrition, home-based care, alternatives to anti-retroviral therapy and more).

(3) *Can Animal Traction help Mitigate AIDS? Insights from Lambwe Valley, Kenya*

The “Rumpstad Multipurpose Lightweight Implement”, manufactured in Nairobi since 1986, can be used to plough, weed, ridge, and cultivate and can be drawn by donkey or oxen. Being both lighter and stronger than the conventional, common Victory Plough (in use since the 1940s), it can perform multiple functions, and reduce women’s work in weeding. This type of device is often postulated to be relevant for AIDS-affected communities, but are these a feasible solution to labor shortages brought by AIDS? This question was explored through a case study of a village in severely AIDS-affected Suba District, located in Nyanza Province, western Kenya. District adult HIV prevalence has been over 30% for years, and remains among the highest in the nation. In the village, about 30% of 105 households are directly infected or affected through death, care or orphan support. Through the decades, development agencies have brought improved toilets, fruit trees, hybrid dairy cows, witchweed (*striga*) control techniques, and other innovations. Recently, agencies started working in the area on HIV/AIDS education, organic farming, conservation agriculture, and orphan support. These activities reflect large trends and fads in technical and donor assistance (i.e., US PEPFAR).

While AIDS and NGOs have brought many changes that the community has appreciated, we found that animal traction is, however, not spreading. Only one household in the village owns an improved Rumpstad plough and only 30% own any oxen. AIDS has aggravated deprivations and living standards have declined since 2001, when a participatory study identified the presence of several “wealthy” households (with “a plough, 6-8 oxen, and 15-30 cows, and more than 10 acres and a family well cared for” according to a wealth ranking exercise: Freeman, 2001). By mid-2005,

however, no household were wealthy. Many are “old and aged or young” and those “living from making sisal rope”. Livestock disease has made it harder to handle the costs of AIDS: “we used to plough their lands using oxen and donkeys. But they were all killed by tsetse fly. ..[we] use hoes and jembes.” The nearby Ruma National Park provides habitat for tsetse fly, which thrives in the brush, leading to periodic outbreaks of trypanosomiasis. Evidently, the benefits of national conservation and tourism policies do not reach these local communities, and in fact make them more vulnerable. Feasible income generating activities are needed to replace foregone remittances, pensions, and wages; making charcoal is no longer viable, since the large trees are gone, and access to woodlots in the hills is restricted. Rather than “labor-saving” animal traction (which demands scarce financial and natural capital instead), a range of more prosaic “drudgery-reducing” technologies are needed to reduce the burden, borne most heavily by women, of unremunerated care and social support.

Discussion

This section returns to the larger questions posed at the offset: How does the development policy framework of governmental and non-governmental actors facilitate (or hinder) innovation for livelihood security in the age of HIV and AIDS? What can these agencies do better to help communities accommodate to the challenges? This section specifically tackles the idea of AIDS as a development issue, the sustainable livelihoods framework, and action at different levels of institutional action to accommodate the development response to the rural realities of AIDS.

AIDS and Development

First, these community-level actions enhance our appreciation for how **HIV/AIDS is a development issue**, rather than a narrow technical concern best left to public health professionals. AIDS as a development issue is a well-established area of academic and policy discussion, especially in relation to economic growth, business development, education, civil service, and other concerns of governments; this study provides additional nuance into the implications for rural development.

We need to balance the negative impacts of AIDS exceptionalism—i.e., over-stating its role as a force for rural underdevelopment—with the need to continue to explore and accommodate to

AIDS. Exceptionalizing the disease could force us to ignore other serious problems, such as livestock health, water supply, and lack of tools (as examples of chronic cash poverty). These case studies reveal that AIDS is not always paramount among rural concerns, and that rural innovations target food and livelihood security more than HIV prevention. AIDS exceptionalism, the attitude that views the epidemic as the most important issue for development actors, will inhibit action on a wide range of interventions needed following decades of structural adjustment, the failure of the sugar industry (or of cotton, tobacco, or other cash crop), and recurring drought (especially in Malawi and other areas of southern Africa). Everywhere, better irrigation is needed to water the gardens they would like to cultivate for food, medicine and cash income. From the point of view of villagers in the case study sites: rather than the HIV virus, they fear the tsetse fly and malaria. Rather than anti-retroviral therapy, they would like a reasonable means to control *striga* (witchweed) which undermines maize yields.

Ironically, stated “HIV/AIDS emergency” frameworks (i.e., the existing national policy framework for many African countries) imply that attention to the disease and its impacts should receive exceptional attention and should supersede other concerns, such as environmental conservation, tourism revenues (that were perceived to be threatened by the aura of AIDS). In practice, national AIDS policies have had modest impact in reorienting national development policies towards more open and multisectoral attention to prevention, care, treatment, and mitigation.

On the other hand, the severity of AIDS for rural lives is probably understated, especially if we count the cost of the stigma that shapes local realities in subtle, often invisible but always harmful ways. AIDS is evidently having profound effects on rural knowledge systems and assets, effects that might be hidden to locals. If the goals of promoting human security and sustainable human development are to be taken seriously, then governments and other development actors have failed to properly acknowledge the profound, insidious and cumulative effects of AIDS. Rural communities are responding in a vacuum, in which “HIV/AIDS mainstreaming” or “multisectoral” projects exist in name only, and HIV prevention programs are still recent arrivals even in 2005. In high prevalence western Kenya, many extension workers had not yet received special training on HIV/AIDS; they also lacked fuel to visit the communities, effectively shutting out the poorest from their ‘demand-driven’

extension efforts which arose in an earlier climate of neoliberalism. The resulting failure to make development policies more effectively HIV/AIDS-aware (rather than simply more visible in billboards) means they are not useful to the poorest and most severely affected, who are often in remote rural locations.

Often, awareness of AIDS as a development issue is reduced to the mention of “poverty”. The form of “poverty” which so often intersects with AIDS, however, is not a unidimensional, single force which is easily tackled—i.e., lack of employment, or lack of cash. It is a multifaceted, specific, contingent and hard physical reality that specific people face: they lack a hoe to till and weed, their livestock are short of grazing land, and they simply cannot get their produce to market. To overcome deprivations, people share tools, cutback on meals, and reorganize their labor for more intensive gardens and small livestock. These are specific deprivations observed in all the study sites, although the reality varies across places, household lifecycles, and the seasons. Development efforts will need to be finely tailored, flexible and sustained if we are to overcome the pernicious and distinctive reality of this diverse manifestation of “poverty” as it is distinctively felt at the frontlines of the battle against HIV and AIDS, from South Africa and Malawi to Uganda and Ethiopia.

Finally, there are positive, as well as negative, aspects of HIV/AIDS which touches on the disease as an aspect of development. This epidemic is a dynamic social phenomenon, not just a disease, bringing illness, death, orphanhood, widowhood, and asset depletion. It is a wide-ranging social process which brings with it new resources. It sets in motion social innovations, catapults new organizations into leadership, and catalyzes individual creativity. This effort draws on a deep well of resourcefulness and ingenuity, is shaped by decades of external intervention and local response, and fuels networks of innovation and change.

AIDS and Livelihoods

Unfortunately, the potential for rural community survival strategies to accommodate to the disease can be overstated, and may well have been surpassed in some places, since many households have not coped well (Rugalema 1999). HIV prevention efforts are needed to combat the spread of the epidemic, but are not enough; truly multisectoral AIDS mitigation programs are needed, but rarely

exist. Large agencies and programs have often been donor-driven, narrow, hierarchical, and single purpose (i.e., emphasizing abstinence for HIV prevention, without pursuing economic and social alternatives for women). These narrow, technical interventions, while vital, also miss the point: HIV/AIDS represents an integrated, cross-cutting challenge for human development. Smaller NGOs and international agencies with a “human rights” or sustainable livelihoods approach seem to be better suited to accommodating to the complex reality of AIDS and poverty in rural Africa. A sustainable livelihoods approach, if properly used, can capture the diverse concerns and claims of the rural poor as they adapt to HIV/AIDS, and can help them successfully adopt and adapt to challenges. It respects the ability of rural and urban poor to be creative in resourceful in their livelihood strategies. A broader application of the livelihoods approach can shed more light on the process of rural technology change for livelihood security, and how agencies might intervene.

For example, it is recognized that the poor possess assets, rather than being a bundle of needs to be diagnosed and fixed; but we must properly consider all assets, not just human capital, but financial, social, physical and natural capital. The slow diffusion of (labor-saving) animal traction systems in relation to the spread of labor-intensive gardens can be understood by reference to different capitals: gardens make the best use of scarce financial, natural, physical capital, and allow flexible use of social and human capital (i.e., labor and voluntary organizations). These require “labor-management” solutions which spread out demands over the year. We also need to better address the underlying “vulnerability context”, such as historical inequities in land distribution, legal rights, vulnerability to drought, and cutbacks in government services. If these are neglected, short-term projects will have minimal long-run impact, as seems to be the case for many NGO interventions, particularly for Malawi. We need to capture the fuller range of livelihood strategies, spanning farm and non-farm work. Projects reflect the sectoral or technical biases of an agency, but households combine activities to make up a livelihood. Finally, the livelihoods approach is amenable to participatory research, such as mapping, and these case studies show how such techniques reveal the interconnections and historic depth to local experiences of the epidemic, and how it intersects with specific, contingent rural deprivations (livestock health in Suba, water in Bungoma, income in

Malawi). Mapping and tapping into local networks involving opinion leaders, household clusters and self-help groups, can help in diffuse ideas further with limited resources.

Another insight from the case studies is that (in the case of a generalized rural epidemic) virtually everyone is affected, and everyone has the potential to contribute to community resilience and renewal. Our measures of “AIDS-affectedness” should be broader, more flexible, and reflect local perceptions and not attempt to force rural communities into formalized “household” survey indicators. This leads to specific implications for how we capture HIV and AIDS in social science and applied research. Rather than relying solely on proxy measures that are easier to quantify (biomarkers for “HIV positive” status, households where someone has died or have a chronically ill member), studies should integrate participatory, subjective measures can help capture the extent, depth and meaning of the local epidemic for livelihoods and human development.

AIDS and levels of development action

Internal and workplace policies shape the relevance of programs and staffing to the concerns of AIDS affected poor. Agencies need to remain flexible, responsive, and adaptive; but implementing agencies are unable to act independently of the requirements of donors. The funding cycle is too short, often only a year or two before requiring evaluations and new proposals. Thematic areas are narrow and inhibit many potentially relevant uses of funds, if the proposed use is not in line with the current policy (i.e., OVCs, ART, labor-saving technologies, or the ABC model of prevention, to mention several recent trends). Specific restrictions (no construction, no salaries, and no condoms) hamper adaptability to local conditions. In the past, misguided development efforts have led to graveyards of bulldozers, grain mills, and sewing machines: integrated HIV/AIDS mitigation programs might be no different, if the projects are not suited to local realities. In another decade we might see overgrown OVC community gardens, failed energy-saving stove projects of widow support groups, and abandoned income-generating schemes for child-headed households.

At the level of national governments, the case study examples illuminate the rural manifestations of national HIV/AIDS and development policies, which are often incoherent and inconsistent within the HIV/AIDS control programs as well as across sectoral departments or

ministries. This inconsistent and discordant policy framework—aggravated by corruption at all levels—leads to conflicts between education, environment, tourism, commerce, agriculture, youth, health, gender, etc. These undermine the legitimacy of rhetoric around HIV/AIDS as a cross-cutting “emergency.” These reduce impact and visibility of HIV/AIDS programs and responses on the ground—in the Suba district site, HIV arrived in the 1990s, but a VCT clinic only in 2005. This gap in coordinated action is aggravated by the deafening silence caused by the stigma and shame around HIV/AIDS, which has been worsened in many countries by lack of outspoken national leadership and discussion about the disease.

International agencies, especially UN institutions, have the power to catalyze and share ideas across the globe. Research laboratories have studying and improving “neglected” and “orphan” crops, such as cassava, sweet potato variety KARI SPK004, and indigenous greens. These meet the needs of the poor, rural women, orphan care-takers, the HIV positive, and the elderly and not the commercial farmers in high potential areas which have often been a priority in agriculture research and development. The FAO has provided a model of how to mobilize energy around AIDS as a cross-cutting issue linking sectors such as agriculture, forestry, fisheries, and household food security (5). The agency communicates these through internet, paper document, radio, and farmer field schools. As yet no parallel effort is visible for water, transport, communication, manufacture, social support, childcare, and housing/shelter. More effort is needed to research local impacts, document local responses, and examine changing needs—especially of women, the primary caregivers for young, old and sick.

Conclusions

The HIV/AIDS epidemic and its impacts are expanding and cumulative, and will continue to demand concerted action by development, public health, medical and humanitarian relief professionals. Meanwhile, often in a vacuum of official assistance at the grassroots, people are innovating and adapting ideas to improve systems of farming, livestock, food processing, income-generation, family and child care, household maintenance, and transport. They attempt to meet the new demands posed by HIV and AIDS on their social, economic, and physical infrastructure. This

article has documented evidence of such resilience and ingenuity; it has also shed light on severe and widespread barriers in the dynamics of local community groups and individuals as they engage with specific technologies. As they attempt to make a living while accommodating to the reality of HIV and AIDS, people face muddy roads, tsetse fly outbreaks, worn out tools, lack of irrigation hoses, and most fundamentally, deep levels of poverty.

Development policies and programs at all levels, from the village to international agencies, need to be more flexible, responsive, and longer-lasting to enhance livelihood security and promote human development. Agencies and their projects need to become more open-minded about the nature of appropriate technologies for rural AIDS-afflicted communities, which might not be labor-saving at all. They need to take a much longer term approach, lengthen the project lifecycle, and reduce administration load. They must truly mainstream HIV/AIDS into their technical work and become more multisectoral within the organization and/or by collaborating with others. Particular focus should be placed on intersection of poverty and vulnerability to HIV/AIDS in rural areas, where the suffering is severe.

These insights have implications for different levels of policy and action: they lead to redirecting agency work around a sustainable livelihoods approach and human development (the expansion of freedoms “to do more and be more” in ways that people have reason to value: UNDP, 1990). They lead to the need to reshape donor priorities, criteria, and funding limits. They call for better government coordination, training, sensitization, and staffing and support in the field.

These necessary changes reflect the impacts of HIV/AIDS as well as the problems intrinsic to the fragmented development enterprise inherited from earlier decades. Myriad constraints inhibit local actors facing the epidemic, some of which have little to do with the disease and much to do with other technologies and problems (livestock, communication, weather). These should not be sidelined by undue attention to battling HIV through prevention campaigns rather than continuing to focus on sustainable human development and livelihood security more broadly. Promoting human security in the age of AIDS does not mean that HIV and AIDS should precede or replace other development efforts; it does mean that a deeper understanding of the epidemic, its consequences and its

implications for people should be integrated into creative and long-lasting actions to overcome persistent restrictions on human capabilities.

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Endnotes

1. The goal of the research project was to elicit, document, and learn from the actual technology responses of AIDS-affected communities across Sub-Saharan Africa (from farming to information and communication technologies), and to identify the implications of these local changes for the policies and plans of development agencies and governments. Methodologies included document and desk review (for Sub-Saharan Africa generally) and in-depth examination of field sites in Kenya and Malawi. These were selected based on communication with local agencies and reflect dominant themes: gardens, nutrition, agriculture and other food security technologies; which emerged as dominant grass-roots responses. Field methodologies included participatory village mapping, sketches of farms and gardens, inventories of HIV/AIDS-affected households, focus

group discussions around HIV and AIDS in the village and local innovations and responses, and individual in-depth interviews with local residents and technical experts.

2. The desk review component solicited, reviewed and summarized contributions from a wide range of community-based, national and international organizations engaged in development, environment, public health and related fields of action in sub-Saharan Africa.
3. The keywords, and topics used to solicit and organize the inventory of community-based appropriate technology change were quite detailed (available upon request to the author). General categories (sectors) were: Agriculture, Livestock, Fisheries, Forestry & Natural Resources Management, Water , Energy, Health care, Relief, Non farm activities, Transport, and Information and communications technologies (ICTs).
4. See the FAO website on HIV/AIDS, at www.fao.org/hiv aids. The publications and other resources have been useful in this study, and many of their conclusions echo findings and interpretations presented in this article.

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