Impact of HIV/AIDS on African Agriculture and the role of the Consultative Group on Agricultural Research[1]

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Abstract

The HIV/AIDS pandemic has claimed the lives of over 20 million people in Sub-Saharan Africa (SSA), where the majority of the people live in rural areas and more than 80% are dependent on agriculture for their livelihood. . Also, most rural areas in SSA are typified by their poor access to health and education services, and limited use of agricultural inputs. HIV/AIDS represents a severe burden on SSA countries and it is compounding poverty in the continent. While by the end of 2004 over 2.3 million Africans had died of the disease, 25.4 million people were living with the HIV virus. Among those living with the virus, more than half (13.3 million) were women (UNAIDS, 2004). The socio-economic consequences of the disease are felt in health, agriculture, education, industry, and the macro-economy. Because agriculture is at the heart of Africa's development on account of the need for food, raw materials, export earnings, employment and household as well as national income, HIV/AIDS poses a huge setback for SSA's agricultural sector.

Agricultural labor had declined partly due to the HIV/AIDS pandemic. Most governments in the region have responded to the pandemic by improving access to anti-retroviral (ARV). But the success of these initiatives rests on the availability of food and the nutritional status of their beneficiaries. Research had proved that good nutrition backed with ARV; help prolong life of people living with AIDS, thus, food availability and nutrition are relevant to treatment. Therefore agricultural sector has a fundamental role to play in reducing people's vulnerability to the disease and its consequences and in mitigating the impact of HIV/AIDS on livelihood of people living in rural areas. For example, agricultural research institutions can provide labor saving technologies that can reduce or mitigate the effects of labor shortages that is brought about by HIV/AIDS, income generating activities for vulnerable families from unavoidable sale of asset, and some products which can help to maintain and improve the nutritional status of infected people and hence delay the progression from HIV to AIDS.

This review, based on presentations made at the recent SWIHA Workshop on HIV/AIDS and Agriculture in Cotonou, Benin (18-20/7/05) outlines the strategies, challenges and opportunities for agricultural research institutes in Africa in preventing the spread of HIV/AIDS and mitigating the effects of the disease on rural communities. It also highlights some of the research activities being carried out by CGIAR centers based in SSA and reports on the formation of a new network *"Africa Network on HIV/AIDS and Agriculture (ANEHA)"*.

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Introduction

Agriculture is the single most important sector in Africa, providing livelihood for at least 53% of the economically active population. In particular, about 84% of economically active women are engaged by the agricultural sector, while the remaining 16% is shared by all other sectors (FAO Statistics, 2000). A significant part of the agricultural population in Africa dwells in rural communities, which are among the least privileged and bear the greatest burden of AIDS impact. The impact of HIV/AIDS on food security includes loss of labor (e.g. rural men, women and children), the inability to cultivate traditional crops due to illness, lack of access to land, loss of farming skills, more households headed by children and consequential adoption of less-productive farming strategies.

Since its discovery over two decades ago, HIV/AIDS has become a pandemic on a global scale. The pandemic has assumed an ominous place as the primary infectious cause of mortality in the developing world (Semba & Bloem, 2001). Of the 2.9 million HIV-related deaths in 2003, 2.2 million were from sub-Saharan Africa (UNAIDS, 2004). Alarmingly, the sub-Saharan African region contains only 10 percent of the world's population, but accounts for 60 percent of the worldwide HIV/AIDS cases (25 million HIV/AIDS cases out of a worldwide total of 39 million) (UNAIDS Africa Fact Sheet, 2004). Several countries in sub-Saharan Africa report an HIV/AIDS infection prevalence rate among the adult population to be 30 percent or greater and there are over twelve million children in this region that have suffered the loss of at least one parent due to HIV/AIDS. While the HIV/AIDS pandemic is a global concern, there is ample evidence for heightened alarm and extraordinary efforts to be directed at the African continent, especially in the West Africa where the pandemic is beginning to take hold.

For example, Nigeria is reported to have the third highest prevalence rate of any country in the world with a five percent population prevalence rate (over 3.3 million people living with HIV/AIDS). Also, while Nigeria's national prevalence rate may not seem particularly alarming when compared to some other African countries, regional prevalence rates of pregnant women in the North-central area of the country average 7 percent, with Benue and Cross River reporting rates of 9.3 and 12 percent respectively. This highlights the fact that low national prevalence rates can obscure a more desperate reality.

Poverty and food insecurity among in most African countries, particularly those in conflicts areas encourages sexual practices that fuel the spread of HIV/AIDS. This paper examines the impact of HIV/AIDS in Africa from the perspective of the agricultural economy. The review concentrates on both the actual and potential impact of the disease on agricultural production and highlights the role and comparative advantage of the Consultative Group on International Agricultural Research Centres (CGIAR) to mitigate the impacts of HIV/AIDS on agriculture.

2 Impact of HIV/AIDS on agriculture

2.1 Impact on agricultural labor supply

HIV/AIDS affects the most active and productive segment of the rural society, thereby threatening agricultural productivity and food security. Many children and elderly people now head rural households. In addition, family members spend time, which could otherwise be invested in agriculture to care for the sick and to attend funerals and mourn the dead. This diminishes the family's food availability, nutrition and well-being. Given their traditional responsibilities for agriculture and caring for the sick and dying, women and girls face the greatest burden of work. In many hard-hit communities, girls are being withdrawn from school to help lighten the family load (FAO, 2002).

Both the quantity and quality of farm household labor are reduced through incapacitation or death. It is known that the infection rates are higher among women. And, since women account for 70% of the agricultural labor supply and as much as 80% of food production, HIV/AIDS prevalence among womenfolk registers negatively on the quantity and quality of labor and on farm output (Baier, 1997). In addition the care time devoted to the AIDS patient by the seemingly healthy members of the household robs agriculture of labor. While this applies with most diseases, e.g. malaria, from which African smallholder farmers suffer, the effects of HIV/AIDS are more telling because of the long-term impact. Malaria may be treated and overcome within days of effective treatment so that the patient returns to his work, this is not the case with HIV/AIDS, which may linger for several years with or without treatment, and during which time the victim is perennially incapacitated.

2.2 Impact on farm size

Agriculture in most communities in Africa is dependent on human labor rather than machines. With less labor available, the areas cultivated in the predominantly peasant production system throughout most of Africa is greatly reduced to more manageable sizes. Remote fields may be left to fallow or abandoned altogether. Cultivated areas may receive less timely attention either for tillage, planting or weeding (UNAIDS, 2000; Guerny, 2000; and Over, 1998). It has also been observed that as a result of AIDS diversity of crops grown is declining, changes in cropping patterns are occurring and cash crops are being abandoned for less labor-intensive subsistence crops (Guerny, 2000 and Topouzis, 1998). In another report from Rwanda, 60-80 percent reported of reduced farm labor due to illness and death of infected households (Gillespie & Kadiyala, 2005). With the death of a male, households cultivated less land. As such, crops with less labor intensive are cultivated.

2.3 Impact on crops and farming systems

The FAO research findings in East Africa indicate that farm families affected by HIV/AIDS substituted cash crops for crops which require less labor and for which little fertilizer or herbicides are required (FAO, 1995). Households in Gwanda and Nakyerira regions of Uganda were observed to have abandoned coffee in favour of cultivated cassava and banana, which require less attention and care. Widows of AIDS victims also stopped cultivating rice and millet in favor of maize and cassava (Topouzis, 1994). AIDS-affected families in Zimbabwe replaced cotton and groundnut with maize **(**Kwaramba, 1997).

2.4 Impact on farm technology adoption

HIV/AIDS-infected farmers face possible isolation and lack of interaction with non-infected farmers. Stigmatization may be very traumatic for AIDS sufferers, especially among a population that is still very much fatalistic and ignorant of the AIDS disease. In such circumstances, HIV/AIDS-infected farmers may not make themselves available for training or exchange of extension information.

2.5 Impact on knowledge and indigenous management skill

Age and experience are synonymous with knowledge and skill in the African production environment. In Africa the indigenous knowledge system finds expression in addressing many agricultural production problem – weeding, pest control and storage practices. The

illiteracy of the African peasant farmer ensures that the most potent practices are hardly ever recorded. HIV/AIDS may amplify loss of such skills and knowledge if the elderly succumb to the disease.

The intergenerational transfer of knowledge is being disrupted because parents die before passing on their knowledge to their children. The infection rates being higher among women, who perform most of the agricultural labor in sub-Saharan Africa, agricultural knowledge is strongly affected.

2.6 Impact on household nutrition and food security

Reduced capacity for farming translates to reduced subsistence ability of the infected household. This may be further complicated by lack of income to purchase food, which the AIDS sufferers cannot produce on their own land. Access to quality food such as meat, fish and vegetables may be obstructed, while there is an inevitable shift to low quality foods. In addition, frequency of eating may be reduced and limited to the few items that the available budget can accommodate.

The incidence of stunting increases among orphans and the food consumption of all surviving households often decline when an adult dies. Further strains can be placed on household food security through more mouths to feed because of fostering of children or through hosting and caring for sick relatives. Nutritional levels then decrease, making people even more vulnerable to HIV infection and the diseases that follow.

2.7 Economic losses

The care required for HIV/AIDS patient's costs much more than the ordinary ailments from which farm families suffer. Farm income of smallholder farmers is grossly inadequate to meet daily needs let alone the burden of securing treatment for the diseases from which they commonly suffer. Treatment of AIDS requires an even higher outlay. Consequently, farm assets such as land, livestock, inventory stock and produce-awaiting harvest may be disposed off to meet treatment costs.

3 The challenge for agricultural research & development (R & D)[2]

Most agricultural operations in Africa are driven by human labor. HIV/AIDS strikes hardest at those (age 15 to 49 years) who belong to the most active segment of these societies—including farmers and farming families, skilled and trained agricultural labor force. The resulting serious multiple effects on agricultural production are reversing decades of gains in food security, environmental protection and human development. Studies by FAO in East and Southern Africa in villages that have a long history of HIV/AIDS incidence revealed significant reductions in land use, declining crop yields, change in cropping patterns and a reduction in the range of crops grown by households with AIDS-affected members. Some consequences are delays or inadequate conduct of routine farming operations such as tilling, planting, weeding, mulching and harvesting, leading to poorer harvests, perpetuation of crop pests and diseases, secondary food options for the family, poorer nutrition and further worsening of poverty and food insecurity. Farmers cope by means of a range of strategies. In other cases, gender roles have to be adjusted; girls are taken out of school, women and orphaned children take charge of cultivating farms to sustain household food sources. Families are forced to asset strip to raise cash for medical expense, or for hiring farm labor. In addition to these, years and perhaps century's worth of farmers' agricultural knowledge are lost with death due to HIV/AIDS Mutangadura et al., (1999) and Topouzis and Du-Guerny (1999).

3.1 HIV/AIDS and Nutrition

Understanding the interrelationship between food and nutrition security and the HIV/AIDS pandemic is vital. Gillespie & Kadiyala (2005) have defined food security as the “physical and economic access to food of sufficient quality and quantity” and nutrition security as a condition “when secure access to food is coupled with a sanitary environment, adequate health services, and adequate care to ensure a healthy life for all household members”). Individuals who are food insecure have elevated susceptibility to HIV infection while, reciprocally, HIV elevates vulnerability to food insecurity (Loevinsohn & Gillespie, 2003). Moreover, individuals who are food or nutrition insecure tend to engage in coping behaviour that increases the risk for infection and transmission of HIV. Therefore, efforts

[2] "R&D Institutions here encompass institutions that formulate or implement agricultural policies and programs or that conduct research related to them. This includes agricultural ministries and agencies, agricultural research organizations, and relevant university faculties, research institutions and NGOs.

made to increase food and nutrition security can have positive, direct effects on both the incidence and prevalence of HIV/AIDS.

Good nutrition helps keep the immune system to be strong, enabling you to better fights the disease. A healthy diet improves quality of life. According to Tufts, 2003, Weight loss, wasting and malnutrition continue to be common problems in HIV; despite more effective antiretroviral medications and can contribute to HIV disease progression. Good nutrition helps the body process the many medications taken by people with HIV.

Most of the rural households in Africa depend largely on what they cultivate for their nutrition. Thus, efforts to promote diversified food production and nutrition education at the household level provides the foundation upon which one promising possibility for future efforts at mitigating the negative effects of HIV/AIDS in Africa can be built.

3.2 Gender and poverty dimensions of HIV/AIDS in African agriculture

In most of the rural communities in SSA, women are often disadvantaged with respect to access to cash, land, other resources and related decision-making although they play a crucial role in agriculture and natural resource management. Official statistics show that women are disproportionately affected by AIDS compared to men (SAfAIDS 2000). The African social expectation is that women are the caregivers for the sick, be it their husbands, relatives or children. A study from Tanzania reported that 60% less time was spent on agricultural activities when a woman is taking care of a sick husband (UNAIDS 1999).

In parts of West Africa, women have no rights to the land of a deceased spouse, which must pass to a male relative, and they commonly lose other possessions as well. These various problems have contributed to the feminization of rural poverty (TAIARD.2003). Furthermore, the AIDS stigma can serve the access widows would other wise have to assistance from the extended family and the community. Often the widow is blamed for transmitting the disease and is accused of promiscuity and immorality. Some widows are harassed and forced to leave their village. They migrate to towns where they can escape from stigma, earn their living as petty traders, engage in transactional sex, or remarry in

anonymity (TAIARD 2003). Because of these deepening differences, it is important to bring to attention the gendered dimension of the HIV/AIDS epidemic.

Impact mitigation strategies need to be carefully targeted and differentiated by gender, income and wealth levels. The risk of HIV infection in women cannot be separated from poverty and unequal status of women in society. Strategically, women must be at the center of the response to HIV/AIDS.

4 CGIAR response to AIDS pandemic

The Consultative Group on International Agricultural Research (CGIAR) launched the Systemwide Initiative on HIV/AIDS and Agriculture (SWIHA) to help in mitigating the negative impacts of HIV/AIDS on food security, nutrition and economic development through agricultural research and development. The overall role of SWIHA is to conduct research to identify and explain linkages between HIV/AIDS and agriculture and disseminate this research to stakeholders. WARDA is designated as a convening institution for SWIHA, giving it the responsibility for organizing and coordinating this research effort among the institutions that comprise the CG System and its partners.

Under the SWIHA banner, interested CGIAR centers and their partners develop and implement projects that are complementary and that make the most effective use of center resources. In West and Central Africa, WARDA collaborates with governmental and non-governmental organizations and other partners. One main challenge is in creating awareness not just on HIV/AIDS itself but on the fact that those institutions involved in the areas of agriculture and rural development, among others, must play an important role in the collective effort to mitigate the further spread of the disease.

4.1 SWIHA and CG advantages

SWIHA being a program of the CGIAR brings important advantages to the challenge against HIV/AIDS

- CG Centers have substantial involvement in participatory research approach in sub-Saharan Africa *and worldwide*, and have developed partnership & networks, with a

range of government institutions, regional bodies, R&D organizations, public & private, and community based organizations.

- There is no equivalent to the CGIAR that covers the agriculture professions, and thus the CGIAR can be uniquely useful in extending a global reach on the HIV-agricultural research, and livelihood questions.
- Through their work, they have gained a good understanding of global agricultural systems and livelihood support that depend on them.
- For mitigating the immediate effects of HIV/AIDS, the CG Centers are already in the field for - labor saving, food producing, income generating, assets saving technologies.
- CG Centers could offer technical interventions and policy recommendations focused on the needs of the rural and urban farmers and agricultural systems that are now being most affected by HIV/AIDS.
- The CG already has talented people on the ground for rapid collaboration on agriculture, food and nutrition intervention against HIV/AIDS in rural and urban areas that are deeply affected by HIV/AIDS. In these areas, valuable baseline information on agricultural systems is available.

4.2 Regional workshop identified priority research and action areas

Recently, SWIHA organized a SSA regional workshop that brought together over 77 experts represented by nationals, international, regional, governmental and non-governmental organizations, donor organizations. Participants included health workers, NGOs involved with HIV prevention, UNAIDS, ECOWAS, and NARES, etc. The workshop reviewed agricultural activities in the sub region and their mitigation effects on HIV/AIDS. The workshop also identified three priority themes. These are as follows:

1. Diversification of the livelihood systems of farming communities
2. Nutrition and dietary diversification
3. Policy advocacy and awareness about HIV/AIDS.

An Africa Network on HIV/AIDS and Agriculture (ANEHA) was unanimously demanded by the participants, to create an effective collaborative mechanism for implementing the impact–oriented activities within the identified research themes.

5 Conclusion

HIV/AIDS is a challenge to Africa, where the disease tends to compound poverty. Since agriculture is the mainstay of the African economy, the sector must be insulated from HIV/AIDS. Sustainable agriculture production in Africa will still depend on the labor force for some time to come; such labour must not be allowed to be decimated by HIV/AIDS. It is therefore vital that African governments take necessary measures to control the spread of the disease. Any negligence on the part of these governments will be costly to growth and development.

Technologies that require less labor could mitigate the impacts of HIV/AIDS on food security. This would include (but not be limited to) high yielding and weed competitive crop varieties (e.g. the NERICA rice varieties), small machinery and equipment (e.g. the ASI thresher and ISA harvester in Senegal), faster cooking and more nutritious varieties, fertilizer- and nutrient-efficient plant types (the NERICAs again), direct seeding methods and leguminous fallow species. The fact that these technologies were developed without HIV/AIDS featuring in research objectives still leaves scope for further research consideration.

Technologies that do increase crop yields can help farmers reduce labor in several ways. For example, NERICA (New Rice for Africa) matures early, and influences weeding requirement because of its short growing period and plant spacing. With increased yields, farmers can decide not to plant large plots of rice every season. This saving of labor and land might allow the farmer to plant a vegetable garden to provide foods to offset micronutrients deficiency in an HIV/AIDS affected person. In short, NERICA has less susceptibility to disease, greater resistance to drought, higher productivity and the most important ability to adapt to weather conditions. Future research with NERICAs is looking at augmenting the iron content and other forms of nutritional supplementation.

The role of the CGIAR is crucial in mitigating the effect of HIV/AIDS on agriculture and rural communities and people. The CGIAR centers are represented either through national partners or projects and activities in almost all countries in Africa. This advantage should be taken into consideration in planning programs both for preventive and mitigation. This will be particularly useful and effective, if HIV/AIDS prevention, mitigation and agriculture projects are mainstreamed.

In sum, a multi and transectoral approach involving agriculture, health, education, public and private sectors are required to combat HIV/AIDS successfully in Africa.

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