

POVNET Agriculture Task Team
Revised Issues Paper

HIV/AIDS AND ENABLING PRO-POOR AGRICULTURAL GROWTH

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Executive Summary

1. The purpose of this note is to provide background information to stimulate a discussion on the implications that the HIV/AIDS epidemic holds for agriculture-led pro-poor growth. A second aspect is to outline the contributions from agriculture to tackling the epidemic.

2. The HIV/AIDS-agriculture interface has many dimensions. Some of the key ones for *Enabling Pro Poor Growth through Agriculture* include:

- **GDP growth** – Little is known on how HIV/AIDS affects GDP growth in the long term. Estimates suggest, however, that HIV/AIDS reduces annual GDP growth in Sub-Saharan Africa by about 1%; and by up to 3% in the countries where it is most prevalent. A recent IMF report projects that once intergenerational human capital implications are taken into account in such predictions, a growing economy that is severely affected by HIV/AIDS could contract to about one-third its size (or subsistence levels).
- **Labour availability and productivity:** HIV/AIDS particularly affects the economically active and thus those most important for sustainable growth strategies. Disease and death result in a loss of productive adults, leaving behind an increasingly dependent population. This is worsened by women being more at risk to HIV/AIDS while providing a large share of the labour for food production in African economies. Substitute labour is generally less knowledgeable and productive. Agricultural output and productivity declines.
- **Human Capital and Agricultural Knowledge:** HIV/AIDS has severe implications for the generation of human capital “*AIDS does much more than destroy the existing ability and capabilities- the human capital- embodied in its victims; it also weakens the mechanism through which human capital is formed in the next generation and beyond*” (IMF, 2004). HIV/AIDS affects not only the victims but also their children, by reducing schooling (in particular for girls). In addition, orphans miss out on the “life skills” that parents transmit to their children, such as knowledge of agriculture.
- **Household incomes and assets:** Labour shortages and subsequent output reductions result in reduced lifetime family income. Access to credit becomes more difficult. Household debt increases due to reduced income and increased expenditure. Planning horizons shorten and investments in farming decline. Asset reduction and heightened vulnerability push the affected into chronic poverty, from which recovery is increasingly difficult.
- **Gender dimensions:** Children, particularly girls, are often taken out of school to care for the sick and/or to replace them in the fields. Women are more vulnerable to infection and AIDS impact. Since women’s asset base is generally weaker than men’s, there is often loss of assets and collateral following male deaths. Women are thus more severely impacted by the repercussions of the disease.
- **Livelihood and farming strategies:** Illness and death result in sub-optimal changes in livelihood strategies to deal with increased vulnerability, including changes in production decisions concerning crops and farming techniques. There is often a move to less labour intensive crops and techniques and a decline in the area devoted to cash crops. Overall, agriculture becomes less remunerative.
- **Food security and food aid:** Malnutrition contributes to higher HIV infection and faster AIDS development. People living with the disease have higher nutritional requirements, but families’

and societies' abilities to meet them are under pressure when nutritional gaps are growing. Food security becomes more important than income maximisation.

3. Given this impact of HIV/AIDS for agricultural-led pro poor growth, it is paramount to understand ways by which agriculture and rural development may contribute to tackling HIV/AIDS. What can agriculture do to reduce vulnerability to the epidemic and to meet higher nutritional requirements associated with prevention and treatment?

- How do different agriculture/livelihood systems and strategies impact vulnerability and resistance to HIV?
- What are effective responses to the needs for higher nutrition and food aid?
- What are the main transmission mechanisms between agriculture and HIV/AIDS?

4. Obviously, the scale and severity of the problem, and the multiplicity of its impacts, seriously undermines efforts to strengthen the role of agriculture in contributing to pro-poor growth. Yet it is claimed that the sector has the capacity to mitigate/reduce the vulnerability of acquiring the disease as well as to ensure availability and access to food. This highlights the need to consider the impacts of the disease when formulating a strategy for pro poor agricultural growth.

5. The POVNET Agriculture publication on “Enabling Pro Poor Growth through Agriculture”¹ will need to explicitly consider the implications of HIV/AIDS for facilitating pro poor agricultural growth. HIV/AIDS is particularly relevant for the chapters of the publication that address risk and vulnerability, human capital, land and science and technologies as well as typologies or classification of countries and rural space.

¹ *Enabling Pro Poor Growth through Agriculture* will be the main output of the POVNET Agriculture Task Team (POVNET). The publication outline is available online at: <http://webdomino1.oecd.org/COMNET/DCD/PovNetsecure>

I. What is the issue and why is it important for Pro Poor Agricultural Growth

6. The AIDS epidemic has now existed for 20 years. Globally, 40 million people are living with HIV/AIDS, 5 million became newly infected and 3 million died in 2003 (UNAIDS/WHO, 2003). 70% of those infected or living with the disease are in Sub-Saharan Africa, where AIDS it is the leading cause of death (FAO, 2003). Without progress in prevention and treatment² and assuming constant risks, the lifetime likelihood of AIDS death for a 15-year old boy is 70% in South Africa and 90% in Botswana (UNDP, 2002). However, it is noteworthy that the fastest increases in HIV infection are occurring in Asia and Eastern Europe and the former CIS (UNDP, 2002).

7. The debate on HIV/AIDS has been dominated by health issues. Only recently has the epidemic become recognized as a major development issue that is rapidly eroding the agriculture and rural development progress of the past 40 years. Increasingly the concrete threat to achieving the MDGs is acknowledged. Beyond the HIV/AIDS goal (reversing the spread of the disease by 2010) and related health goals, the epidemic also threatens the Poverty, Education and Gender goals. It is therefore seen as important that *all sectors* assess their actual and potential roles in combating the disease (Kadiyala and Gillespie, 2003).

8. Attributing impacts to HIV/AIDS is challenging since it is not always possible to isolate HIV/AIDS impact from others impacts (Hammar skjöld, 2003). However, the more challenging issue in the field is that HIV/AIDS adds to and compounds existing rural poverty and development problems. Rather than isolating impacts, this calls for combined assessments of what has been referred to as 'the triple threat' in Southern Africa, i.e. issues around HIV/AIDS, destabilized food insecurity and weakened governance capacity. (Tibbo, p.c.).

9. In the context of agriculture and pro poor growth, HIV/AIDS becomes an issue through several points of entry- agricultural growth, poverty, rural development, food security.

- *HIV/AIDS is an issue for agricultural growth:* While rural livelihoods include a much wider range of activities and an increasing proportion of rural income (up to 40-50%- though highly context specific) is coming from non agricultural sources (Deshingkar, 2004) certain impacts of HIV/AIDS are specific to agriculture. HIV/AIDS induces labor shortages, reduced productivity and output and declining incomes in the agricultural sector. In contrast to other rural sectors, agriculture is less able to absorb the labour shortage resulting from HIV/AIDS (IFPRI, 2003). The severity of the impact of this labor shortage on agricultural production depends on the labor dependency of the farming system and the degree to which one can substitute/decrease labor while maintaining output.
- *HIV/AIDS is a poverty issue:* Poverty affects peoples vulnerability to HIV/AIDS by (1) increasing the rate of contracting the disease (through lack of education and or sexual choice) and (2) reducing the ability to deal with the economic and social impacts of AIDS (IMF, 2004). While most HIV/AIDS epidemics have started off among the better off population, the poor usually bear the highest burden as the disease becomes more widespread. As the impoverishment that results from the sale of agricultural and household assets is more severe for the poor, HIV/AIDS actively contributes to chronic poverty.
- *HIV/AIDS is a rural development issue.* While HIV/AIDS usually starts among urban dwellers, the impacts on rural areas become more severe as the epidemic worsens since many affected

² In 2002 out of the 38 million people living with HIV/AIDS in developing countries, a mere 200,000 had access to antiretroviral drugs (ARVs). Only 30,000 people In Africa, a minuscule 0.1%, are benefiting form these recent medical advances (UNDP, 2002).

migrants return home when they fall sick with AIDS. 80% of the people living with the disease in the most affected countries are in rural areas and depend on the agricultural sector for subsistence (FAO, 2001). Urban orphans are often sent to rural areas, thereby increasing the number of dependents. This has been described as a reversal of urban-rural support networks (De Waal and Tumushabe, 2002).

- *HIV/AIDS is an issue for food security:* The epidemic poses a danger to food security in all its four dimensions - availability, stability, access and utilization (FAO, 2003). Recent findings also suggest that people living with the disease have higher nutritional requirements which impacts aggregate food demand. Malnutrition also increases the likelihood of HIV infection and falling ill with AIDS (Loevinsohn and Gillespie, 2003).

10. Recently, UNAIDS (2004) has called for a “major agricultural response to the HIV/AIDS crisis”. It is claimed that the sector has the capacity to mitigate/reduce the vulnerability of acquiring the disease as well as to ensure availability and access to food. Until now, the sector has not been as forthcoming and innovative as needed (FAO, 2003). HIV/AIDS is of evident relevance to POVNET. For the purpose of the current work on *Enabling Pro Poor Agricultural Growth*, it is important to take record of the current and potential impact on the agricultural sector. The next section reviews the current evidence on HIV/AIDS impact, while Section 4 highlights areas of debate and research needs. Section 5 discusses policy conclusion for effective mainstreaming and priority areas for agricultural growth and HIV/AIDS.

II. The current evidence – What we know so far

The Impact of HIV/AIDS on agriculture

11. This section will briefly outline what is known about the interplay of HIV/AIDS, labor shortages, agricultural output and growth, food security and chronic poverty. In most African agricultural economies, women are more active in agriculture than men. The important gender dimensions of HIV/AIDS are underlined by the following quote from UN Secretary General, Kofi Annan:

I urge you to put African women at the centre of the fight against AIDS. On all fronts, the role of women is absolutely crucial. A Green Revolution in Africa will happen only if it is also gender revolution. And since AIDS in Africa and around the world is more and more wearing a woman's face, we will gain the control of the pandemic if women are the very centre of our strategies. In short, if you want to save Africa, you must save Africa's women first. (SG/SM/8611, 2003)

Severe labor shortages and agricultural productivity

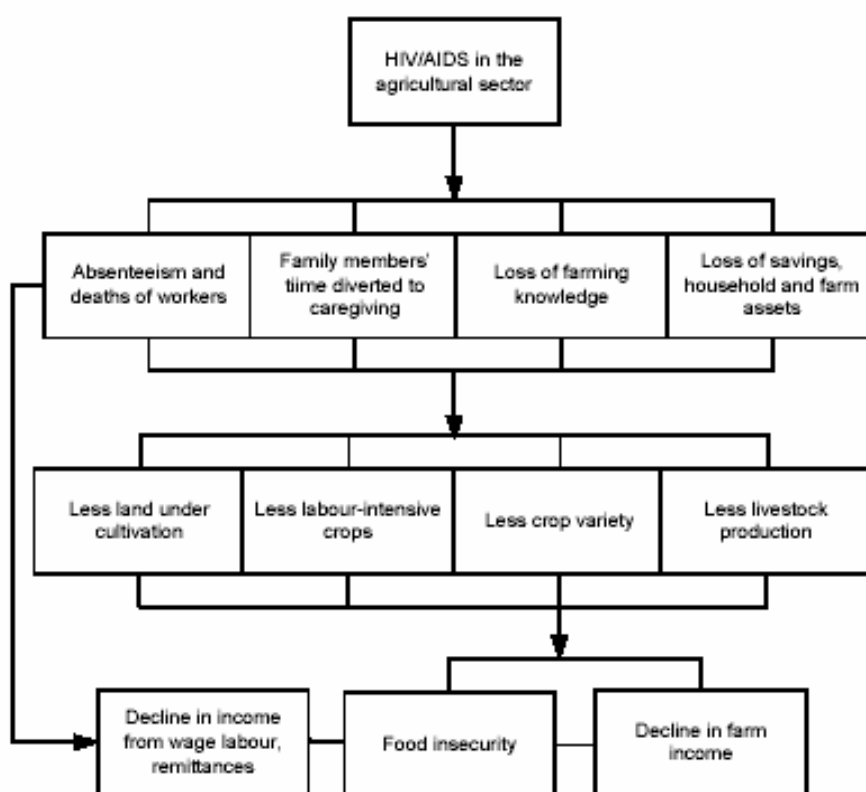
12. While other “diseases” in rural areas mainly affect children and the elderly with little impact on productive activities, HIV/AIDS is fundamentally different. Its victims are young, socially and economically active and the main motor for economic development (Hammarskjöld, 2003). The disease leaves behind a population dominated by the elderly and the young. Little data is available about how this impacts the wider labor force given widespread underemployment and unemployment in Africa.

13. When an adult household head falls ill, households lose the labor of the affected person, but also part of the labor of the person caring for the sick (FAO, 2003). The workload of healthy family members increases and children (particularly girls) are often taken out of school to help nurture the sick (Hammarskjöld, 2003). Labor patterns also change, for example both women and children's work in

agriculture, already large³, increases further. Substitute labor is usually less productive at farming due to limited knowledge about production methods, distribution and marketing, contacts with networks and extension agencies. Illness or death of a household head can undermine motivation to continue to farm effectively for the remaining household (De Waal and Tumushabe, 2003).

14. Labor remains a key component of agricultural production in many developing countries and particularly in Sub Saharan Africa due to the limited use of purchased inputs and narrow scope for compensating with other inputs (inorganic and organic fertilizer and mechanization). African agriculture is highly labor dependent at key times of the year. Illness, caretaking or extensive funerals can lead to delays in planting, harvest or cultivating activities (weeding, pruning or mulching).

Figure 1: Conceptual Framework of the impact of the HIV/AIDS epidemic on Agriculture.



Source: UN, 2003.

15. Common household responses to HIV/AIDS are changes in the production area and the types of crops grown. Households frequently turn to crops that require less labour and are more easily stored, usually leading to a decline in the area planted for cash crops and an increase in the production of storable food such as cassava in Mali. Similar changes are seen in animal production where households are moving towards less time intensive and risky activities (such as chicken rearing). Changes in farming practices and crops are usually exacerbated by a strict gender task segregation, which may not allow the surviving spouse to perform certain agricultural tasks and may even lead to the abandonment of farming (UN, 2003).

³ In addition, according to IFPRI African women perform about 90% of the work of hoeing , weeding, processing food crops and providing household water and fuel wood, 80% of the work of food storage and transport from farm to village and 60% of the work of harvesting and marketing.

16. Given little empirical evidence on African labor markets, it is a challenge to accurately predict aggregate HIV/AIDS impact on agricultural production and agricultural growth (Tibbo, p.c). Yet, local case studies clearly suggest that the epidemic leads to declining agricultural production. For example, studies in Kenya found a 68% drop in net household production after AIDS related adult deaths (Loevinsohn and Gillespie, 2003) and the output of different crops in AIDS affected households in Zimbabwe declined between 37-61% (UN, 2003). While most case studies report changes in output rather than revenues, a study in Burkina Faso reported a 25 to 50% decline in net revenue from agricultural production (UN, 2003). One study on Thailand showed that farm output and income fell between 52%-67% in AIDS affected households (UNDP, 2002).

17. One combined effect of the loss of labour and income are the possible long term negative environmental side effects resulting from less income and land under cultivation (Hammarskjöld, p.c.) Less land under cultivation and more bushes will in some areas increase the occurrence of tsetse-flies and thus the spread of sleeping sickness⁴ and possibly other diseases. This in turn will affect the access to labour and production capacities of small farmers (Hammarskjöld, p. c). Barnett & Whiteside (2002) suggest that the rapid spread of the highly damaging banana disease “Black Sigatoga” in Central and Eastern Africa could be caused by HIV/AIDS induced labour shortages in banana production.

Declining Incomes and hikes in expenditure

18. The costs of HIV/AIDS in terms of treatment and additional nutritional requirements are real and substantial. Once symptoms emerge, some households spend sizeable sums on treatment- some local some not (Kinsella, p.c.). AIDS affected households have to reallocate a greater share of their declining incomes to health care, including not only drugs and doctors fees but also supplies for home care (IMF, 2004). A UNAIDS model based on Cote D’Ivoire (UNAIDS, 2000) shows that household income declines by 60% coupled with a 400% increase in medical expenditure- leading to dis-savings or sale of household assets.

19. At the level of public policy, the costs for governments to engage in HIV/AIDS treatment can be substantial. Estimates for Burkina Faso with its prevalence rate of 8% suggest that a highly active antiretroviral therapy (HAART) with drugs produced in India (at \$810 per person per year) would translate into 80% of the current health budget (IMF, 2004). For a country with a 15% prevalence rate such as Kenya, estimates would double. Given the concern over the high costs of ARV costs to Mexican HIV patients (Bautista et al, 2003), the Mexican government has engaged in dialogue with pharmaceutical manufacturers, yet (so far) without achieving substantial costs reductions. Countries like Brazil, India and Thailand and South Africa have achieved significant costs reductions by either producing ARVs domestically or by openly declaring such possibilities (Bautista et al, 2003).

Human Capital Impact of HIV/AIDS- Knowledge and extension

20. The HIV/AIDS crisis affects human capital formation of individuals, households and institutions. Declining family income results in reduced means to finance formal education. Children, in particular girls, are taken out of schools as their labor is needed to look after the sick or to help in the household or the farm.

21. Yet in addition to formal education orphaned children also lose the love, guidance and knowledge that parents provide (IMF, 2004). This is particularly relevant for agriculture, as agricultural knowledge is dynamic and comes from a wide variety of sources. Human capital formation for agriculture is critically impacted by the HIV/AIDS crisis and results in an intergenerational loss of agricultural knowledge. A

⁴ potentially threatening 60 million Africans and killing some 300 000 a year (Hammarskjöld, p. c)

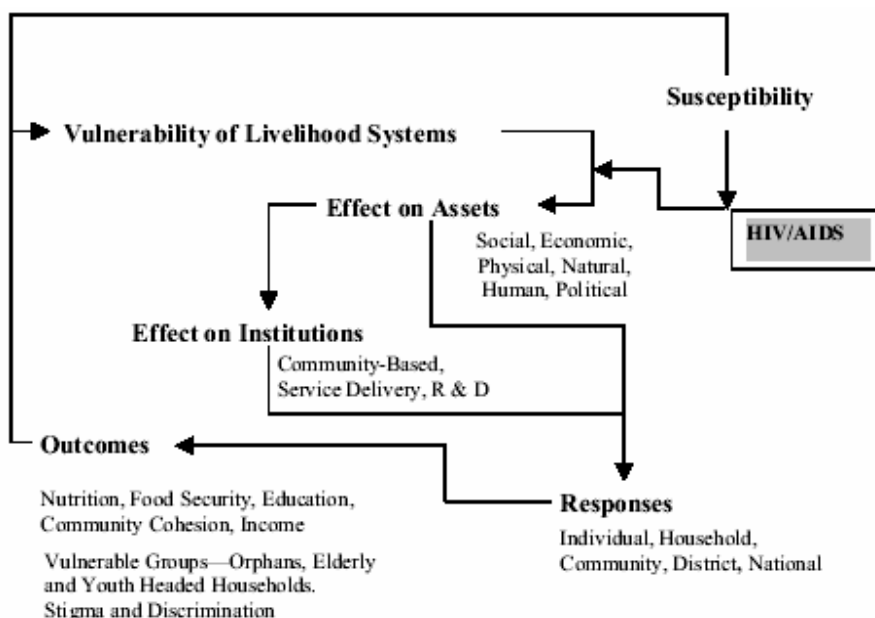
study in Zambia found that among the many orphans now responsible for farming, only 7% had adequate knowledge of agricultural production (FAO, 2003).

22. HIV/AIDS impacts formal agricultural institutions, such as Ministries of Agriculture (MoA), extension services and agricultural research, through *reduced staff productivity* (through loss in human resources, absenteeism, and job fatigue), increased *expenditures, staff turnover and workloads* and the *loss of knowledge and expertise* among staff (Topouzis, 2003). Frequent travel makes certain categories of MoA staff more prone to HIV infection (Tapouzis, 2003). The pandemic affects the staff of ministries and extension services and thus leads to abrupt gaps in knowledge transfer related to agriculture - *effectively severing key linkages in the service delivery chain* (Tabouzis, 2003). Given the decade long decline in African extension services, the absence of services for the rural poor is now (Tibbo, p. c) aggravated by HIV/AIDS.

Increased vulnerability and change in livelihoods strategies

23. The Sustainable Rural Livelihood Framework (SRLF) provides a wider context for analyzing the epidemic and facilitates the understanding of household choices and changes in livelihood opportunities and outcomes (FAO, 2003). HIV/AIDS is endogenous to livelihood systems and patterns of movement and access to livelihood alternatives may affect (positively or negative) the susceptibility to HIV infection and vulnerability to AIDS (Loevinsohn and Gillespie, 2003). From a livelihoods perspective, not enough is known about decision making within the household, i.e. the dynamics of labor allocation at the household level. In a dynamic context (which differs from most static labor analysis) people make very short-term decisions about labor sale and hire, depending on a whole range of issues (Tibbo, p.c).

Figure 2: Understanding HIV/AIDS in the context of people’s livelihoods



Source: Loevinsohn and Gillespie, 2003.

24. Initial susceptibility to infection and vulnerability of the farming system determine the severity of the impact which usually leads to a reduction in capital assets. HIV/AIDS induced changes in livelihood strategies show a greater concern for food security than for maximizing income, such as by shifting to food crops (such as cassava and sweet potato) and petty trade activities. Often, surviving household members

may be under increased pressure to seek agricultural wage labor and/or non-agricultural income activities for a quick return. These AIDS induced survival strategies can in turn increase the likelihood of HIV infection, as for example in labor migration (Loevinsohn and Gillespie, 2003). Households with a small degree of flexibility are usually hardest hit by HIV/AIDS impact, i.e. households with little labor (small or young households) and few assets, few crops, distinct work loads, clear gender roles as regards to agricultural work and generally few alternatives of making a living (Hammarskjöld, 2003).

25. Donahue (2001) argues that coping strategies range from reversible (such as the use of savings, which can be replaced; reduced food consumption; or pledging of labor in return for cash) to those that permanently increase the family's poverty level (such as sale of land or draught animals, or truncation of children's education). The poorest households are most likely to resort to non-reversible coping (or survival) strategies simply because of a lack of other means to cope with the length and severity of the crisis, which means that the burden of AIDS is likely to fall most heavily on the poorest households.

Erosion of assets and chronic poverty

26. The epidemic leads to impoverishment and chronic poverty among the affected population by eroding assets⁵ including the sale of agricultural and household assets to pay for medical and funeral services (Hammarskjöld, 2003). As most farmers are in the informal sector, they seldom have access to life and health insurance as do formal sector employees.⁶ The poverty creating effects are often irreversible as productive assets, in particular livestock, form an important reserve in times of stress.

Box 2: Gender dimensions and the market and household interface

HIV/AIDS impacts differ for men and for women, and reflect their different roles and responsibilities in household and market activities, as well as differences in their access to and control of assets and resources. Assessment of the impact of HIV/AIDS in Sub Saharan Africa need to take full account of the impact not only in the market economy, but also in the largely invisible and uncounted household economy, this latter of particular significance for women. Because the household and market economies co-exist and are interdependent, *linkages* and *trade-offs* among household and market tasks may be very significant for asset- and labour-constrained individuals and households. The different structural roles of men and women in African agriculture are coupled with their equally different—and unbalanced—roles in the household economy. Compared with men, women operate under *severe time constraints*, which limit their options and flexibility to respond to changing economic opportunities⁷. The costs of gender inequality to Sub Saharan Africa's economic and social development, even in the absence of HIV/AIDS, are considerable and have been increasingly well documented⁸. The advent of HIV/AIDS raises these costs *geometrically*.

⁵ HIV/AIDS induced declines in capital assets can include loss in human capital (decline in labour productivity, reduced school attendance, loss of knowledge) loss in financial assets (savings, medical burden) loss in natural assets (land loss especially for widows) loss in physical capital (sale of productive assets and livestock) and loss in social capital (overburdening the social system with demand on care and cash) and loss in political capital (participation constrained by illness, lack of time and deliberate exclusion) (Kadiyala and Gillespie, 2003).

⁶ In most Sub Saharan countries only 10% of the working age population are covered by formal insurance schemes for medical or death related benefits (IMF, 2004).

⁷ For further discussion of men's and women's role in African agriculture, in the household economy, and of the gender dimensions of poverty in SSA, see Blackden and Bhanu, *Gender, Growth, and Poverty Reduction*, 1998 SPA Status Report on Poverty, World Bank Technical Paper No. 428, 1999.

⁸ That gender inequality has significant developmental costs has been thoroughly documented in *Engendering Development Through Gender Equality in Rights, Resources, and Voice*, A World Bank Policy Research Report, Washington D.C. January 2001. In SSA, these costs were examined in Blackden and Bhanu, op. cit.

Source: World Bank, 2001

27. Women are biologically, socio-economically and culturally more at risk of HIV infection than men, more vulnerable to AIDS impact and often not granted inheritance to agricultural and household assets following their husband's death (FAO, 2003). Property grabbing is common and relatives are not always benevolent. Women are thus particularly vulnerable to the erosion of assets and sliding into chronic poverty. Often, this leaves women without assets or economic opportunity, which increases their vulnerability to HIV/AIDS⁹, such as by forcing female heads of households to engage in commercial sex.

Food insecurity and HIV/AIDS incidence

28. As the margins or buffers shrink more and more due to HIV/AIDS, the concern over a severe reduction or even total elimination of food security (Hammarskjöld, 2003) becomes paramount. Food security for rural households depends on food production, food purchase, assets that can be turned into cash and social claims on family and community networks (de Waal and Tumushabe, 2003). While the impact of HIV/AIDS on food security is context specific, different patterns of vulnerability are emerging.

29. It was recognized as early as the 1990s that HIV/AIDS prevention and care should be combined with emergency food aid in order to sustain the household's ability to provide for ill members. Recent findings further suggest that people infected with HIV/AIDS have higher than normal nutritional requirements (50% percent more protein and 10-15% more fat) and that an adequate nutrition, beyond micronutrients, can actually help to reduce the likelihood of HIV/AIDS. Malnutrition and a poor immune system (strongly related to nutritional status) increases the risk of HIV infection and HIV transmission from mother to child (Loevinsohn and Gillespie, 2003) and thus leading to a vicious circle with important implications for food security. In addition to slowing down the progression from HIV/AIDS to full-blown AIDS, good nutrition is also critical in the administration of ARVs. ARVs need to be promoted conjointly with good nutrition and not in isolation.

30. HIV/AIDS interacts in a particularly pernicious way with drought and famine in many African countries. These conditions make it harder for everyone, but especially the poor, to survive economically and physically because people become weak due to lack of food and to produce enough to survive now involves more work. An HIV/AIDS-afflicted community is already weakened and thus more vulnerable to less-severe drought conditions than would otherwise be the case. This concern has been cited in the context of the current (mid-2003) severe food shortage afflicting 15 million people in Lesotho, Zimbabwe, Malawi, and Zambia (Parker, 2003).

31. Recently more attention is given to using emergency food aid as a response to HIV/AIDS. This draws attention to a couple of issues that need to be considered: Firstly, it is important to target food aid for wider vulnerability and not sickness alone: As individuals take 6-8 years to develop full-blown AIDS, targeting based on sickness will miss HIV positive individuals with whom nutrition has the greatest impact. When targeting for wider vulnerability it is also important to note that currently only around 2% of Africans know their HIV status (Tibbo p.c.). In the discussion of using food aid for HIV/AIDS interventions, some concerns related to current debates the effectiveness and efficiency of food interventions and the massive cost of international food aid vis-à-vis local purchase. Recent research (Clay, 2004) by the DAC Working Party on Aid Effectiveness on the *Development Effectiveness of Food Aid and the Effects of its tying status*

⁹ HIV rates are up to 5 times higher in among young women- partly due to biological factors, but also due to age differentials between sexual partners which do not always allow women to demand protected intercourse (FAO, 2003). Older men at higher risk of being HIV positive often dictate the terms by which they have sex with younger women (Loevinsohn and Gillespie, 2003).

confirmed that the inefficiency cost of tied food aid is at least 30% compared to financing commercial imports. Greater flexibility in sourcing food aid as well as integration into sectoral components (such as health or education) increase the development gains of this type of aid. Also, food aid is one response among many, given that HIV/AIDS is a long-wave crisis it's important to have exit strategies (Tibbo, p.c)

Reduced investment and growth

32. The usual channels through which HIV/AIDS can affect GDP per capita are changes in (1) total factor productivity; (2) the efficiency of skilled and unskilled labor; (3) the composition of the workforce; (4) the saving rate; and (5) the rate of population growth (IMF, 2004). However, not much empirical data is available on how HIV/AIDS affects national level GDP growth in the long term. While some earlier macro-econometric studies on the growth impacts of the AIDS epidemic have shown an insignificant effect on the growth rate of per capita income (Bloom and Mayal, 1995), a more recent study by British parliamentarians and the Royal African Society concludes that the disease is currently suppressing the Sub Saharan African annual GDP growth rate by 0.8, which jumps up to 2.6% for countries where the prevalence rate among adults is over 20 % (The Economist, 22-05-2004). These findings are supported by the recent IMF (2004) report which states that an otherwise growing economy severely affected by HIV/AIDS could contract to about one-third its size (or subsistence levels) if the intergenerational human capital implications are taken into account. Compared to earlier models which focused mainly on AIDS related disruptions in the production process, the IMF model (the Overlapping Generations Framework) focuses on the formation of human capital as the main source of economic growth (IMF,2004).

33. At sector level, earlier studies on the agricultural sector failed to account for the vulnerability of the agricultural system to labour shortage (Negin, 2004). While it is clear that any drastic increase in adult mortality in the order caused by the HIV/AIDS epidemic will have an impact on agricultural growth (Hammarskjöld, p.c) lack of systematic information makes it difficult to estimate the extent of this impact, which is bound to be very context specific (Yamano & Jayne 2004). Hammarskjöld (p.c.) hypothesizes that HIV/AIDS is one (of many) reason(s) for the poor agricultural performance in the seriously HIV/AIDS-affected Eastern and Southern African countries, compared to the (so far) less affected West African regions (Toulmin & Guèye 2003).

34. The psychological effects of the epidemic are particularly difficult to measure. Incessant reminders of the likelihood of an untimely death can seize both individuals and society with a pessimism that obstructs provisions for the future (IMF, 2004). This is likely to have severe implications for planning long term investments, future productivity and growth. Mounting food insecurity in rural areas and the related high levels of crop and livestock theft, make investment in agriculture less secure than those in other sectors. The costs of agricultural investments also increase as rural funds for investment are in short supply due to increasing defaults on both formal and informal loans and lower savings rate due to medical and funeral expenses (de Waal and Tumushabe, 2003). Overall, these factors reduce the ability of households to restore productive activities following AIDS related deaths.

III. Closing the knowledge gap

35. The first part of this section will highlight some current debate on HIV/AIDS and agriculture, while the second part will focus on identifying further knowledge needed for informed policy making.

Contested areas- some current debates

36. *Coping vs. responding*: Responses to impact of HIV/AIDS are often discussed in the context of “coping” or “coping strategies”. Increasingly, researchers (Loevinsohn and Gillespie, 2003, de Waal and Tumushabe, 2003) make the point that this is in fact a dangerous misnomer. It provides the illusion that

these distressed households are indeed coping with the crisis, when “struggling” may be more appropriate. While it is recognized that we do not know enough about livelihood decision making at the household level, the term implies that choices made by affected households (such as the sale of assets or changes in livelihood strategies) are reversible when this is usually not the case. Coping in the HIV/AIDS context may force households to make sub optimal choices for short term survival, such as taking children out of schools and thereby reducing future income earning potential (de Waal and Tumushabe, 2003). These choices may lead to increased workloads and less nutritional food and may thus be detrimental for the medium- and long-term survival of the household and its individual members (Hammarskjöld, 2003, p.c.). The term also distracts policy makers from the crisis. Consequently, it is necessary to distinguish between “coping strategies” in a traditional livelihood context (to shocks such as drought and diseases) and the HIV/AIDS context. The more value neutral term “responding” is thus proposed (Loevinsohn and Gillespie, 2003).

37. Secondary shocks and HIV/AIDS: This hypothesis claims that the vulnerability created by the HIV/AIDS crisis together with secondary effects leads to a new type of famine, referred to as the “New Variant Famine”. As discussed above, the hypothesis builds on the cycle of interactions between food insecurity and HIV/AIDS, where malnutrition results in increasing HIV infections and a faster onset of AIDS. Models for food security assume that households can command a basic food entitlement in “normal times” which may no longer hold. Similarly, early warning famine systems do not take increases in HIV/AIDS related vulnerability into account (De Waal and Tumushabe, 2003).

Agriculture and HIV/AIDS-where are the gaps?

38. Agricultural/Rural Development strategies and HIV infection: Past agricultural development that facilitated the movement of goods and people may have contributed to HIV spread by improving the network of transport and marketing facilities and increasing urban/rural linkages and seasonal migration. Of course, it is not the flow of people that determines vulnerability to HIV infection, but the conditions under which movement occurs (Loevinsohn and Gillespie, 2003). Yet, little is known about how agriculture and rural development affect these conditions and what some of the trade-offs may be. Useful research could address the following questions.

1. Which elements of an agriculture/rural development strategy are favourable/ unfavourable?
2. What are the transmission mechanisms by which certain agricultural sector policies affect HIV infection and AIDS onset?
3. What are the synergies (and/or trade-offs) between achieving objectives in agriculture and rural development and curbing HIV infection?

39. Livelihood systems and Vulnerability to HIV and AIDS: Some general knowledge exists on livelihood systems and vulnerability to HIV/AIDS. For example, it is recognized that systems are more vulnerable if labour is the limiting factor and if gender roles are clearly defined. In this context non agricultural rural activities are very important and account for 30- 50% of non-farm labor (context specific). The usual direction of the flow of people (from rural to urban) changes with HIV/AIDS, as migrants come back to rural areas when they fall sick. More detailed knowledge¹⁰ is needed to clarify the nature of the contribution that rural and agricultural livelihood systems can make towards reducing susceptibility to HIV

¹⁰ Two suggestions for closing this gap (Hammarskjöld, p.c.) are to create a database with all the relevant case studies on the subject and to make follow-up studies to obtain the necessary longitudinal data on HIV/AIDS-impact, such as follow up on the research coordinated by Tony Barnett in Uganda, Tanzania and Zambia (Barnett 1994)

infection and resilience to AIDS impact (Loevinsohn and Gillespie, 2003). Questions that could be addressed are:

1. How do different rural or agricultural livelihood systems impact susceptibility and resistance to HIV?
2. Which components of a rural or agricultural livelihood strategy reduce the vulnerability to AIDS and increase resilience to AIDS impact?
3. How can resources be effectively channelled to families to avoid irreversible coping behavior?

40. Responses to AIDS and policy interactions: Research shows that AIDS affected households can adapt at the local level by making efficient use of labor and resources, focusing on certain parts of a landholding, adapting technologies, reforming gender roles and organizing collective action. It is in the interest of the donor community to understand more about household adaptations and responses in order to scale up worthwhile experiences where they exist. Such an approach would have to recognize that options tend to narrow or disappear for affected people (i.e. less credit for those sick and dying). Research would analyze innovative resistance to HIV/AIDS and address how donors can support these efforts in order to increase the ability of infected people to delay the onset of AIDS and thus increase the duration of their productive lives. Questions asked in this context may include:

1. What responses in agricultural practices are employed by AIDS affected households or communities? How do responses differ for different groups of the poor bearing in mind differences in the range of options (disaggregate the poor and consider labour availability)? What are possible interventions for poor orphans, widows?
2. How can household or community responses be promoted to sustain agricultural productivity and reduce food insecurity?

41. Secondary Environmental Side effects: The combined effect of less land in cultivation and less income can have important environmental repercussions. Yet little knowledge is currently available on these environmental side effects. More information is needed on these possible secondary effects of the epidemic as these may have severe implications for enabling pro poor agricultural growth. For example, there may be an increased incidence of pest and diseases calling for stronger needs for pest control (for example through treating seeds with pesticides). Questions to raise are:

1. What are secondary environmental effects of HIV/AIDS resulting from lower income and changes in farming practices?
2. What innovative and low costs technologies exist to address environmental pressures identified under question 1?

IV. Closing the Action Gap

42. Despite increasing evidence of HIV/AIDS impact on agricultural output and potential implications for long term growth, these insights are not yet systematically adopted by Ministries of Agriculture and major donors. The process of mainstreaming HIV/AIDS is slow with few development organizations having completed thorough analysis of the impact of what they do and how they do it. Even fewer have changed policies and proceeded to adjust to new realities (Loevinsohn and Gillespie, 2003). Reasons may include the perception of HIV/AIDS as a health issue, denials of the impact at national level and affected communities or simply the sheer magnitude of the problem (de Waal and Tumushabe, 2003). Recently, there has been a call for a major agricultural response (UNAIDS), yet it is not self-evident what this

response should entail. While some clarifying debates are taking place and some important research questions are yet to be answered (Section 3) it is not advisable to wait for consensus and complete knowledge before moving into a major action mode given the urgency of the problem. It may be best to work with what's available and adapt to a moving environment .

43. This section will discuss some common policy conclusions for agriculture and HIV/AIDS. In particular it will focus on the benefits of effective mainstreaming of HIV/AIDS into the agricultural sector and priority areas for both agricultural growth and addressing HIV/AIDS impact.

Mainstreaming HIV/AIDS into agricultural sector initiatives

44. Given the threat that HIV/AIDS poses to achieving MDG1 and other MDGs, it is usually accepted that HIV/AIDS should be mainstreamed into ongoing sectoral aid activities. Where there is resistance, the case for mainstreaming HIV/AIDS into agricultural and rural activities can be made by pointing to agricultural development and productivity gains in the long term.

45. Even so, substantial challenges to effective mainstreaming are soon encountered both in country and at the donor level: Firstly, when trying to convince sector institutions and decision makers of the need to mainstream effectively, distinguishing HIV/AIDS impacts from other impacts becomes a challenge (Hammarskjöld, p.c.). Secondly, while action is most opportune in early stages of the disease (to avoid high prevalence rates) the severity of the impact only becomes observable later. Thirdly, the role of the Ministry of Agriculture in the HIV/AIDS crisis is still unclear. So far, HIV/AIDS experts have been placed in the 'softer' units as so called focal points rather than in the "harder" units (e.g. livestock, crop production, fisheries, agriculture extension) (Topouzis, 2003).

46. This shows that despite a call for a 'major agricultural response, the role of the Ministry of Agriculture is still largely undefined resulting in the following open-ended questions: Should the responsibility for integrating HIV/AIDS into sectoral programs best placed in the Ministry of Agriculture, or other Ministries which deal with food insecurity and early warning systems? Or, should responsibility be placed with the Ministry of Finance or other AIDS infrastructure in-country? How should the MoA interact with the UNAIDS 'Three Ones' (soon to be 4) listed below which form the principles for the coordination of national AIDS responses (Tibbo, p.c.):

- *One* agreed HIV/AIDS Action Framework that provides the basis for the work of all partners.
- *One* National AIDS Coordinating Authority, with a broad-based multisectoral mandate.
- *One* agreed country-level Monitoring and Evaluation System.
- *One* financing mechanism (Proposed)

47. Whatever the probably highly context related division of labour to fight HIV/AIDS decided upon by national governments in conjunction with development partners, it is clear that the MoA have to live up to the challenge of unleashing its full comparative advantage in the fight of HIV/AIDS. This may lie foremost in reshaping the extension and research agenda to address the problems faced by affected and infected households (SIDA, p.c.).

48. Researchers (Loevinsohn and Gillespie, 2003) propose that mainstreaming can be facilitated by imposing an HIV/AIDS lens on ongoing activities to reveal ways by which a particular program affects the interactions of HIV/AIDS with problems being targeted. This lens would show the interactions that many well intended rural infrastructure development programs (especially transport and markets) have with HIV

spread and could lead to adapting travel and market arrangements accordingly. Key areas in this regard could include the change of opening/closing times of markets, promotion of family dormitories for farm/other industry workers and effective sanctions for extorting sex for food in famine situations. It is key to use this tool to develop flexible systems which can respond to the dynamic environment in which they are functioning. The lens is not intended as a one-off view, but should serve for continuous monitoring of progress on whether interventions are working and to make necessary adjustments (Tibbo, p.c).

49. However, effective mainstreaming should also go beyond minimizing harm to developing indicators that cover HIV/AIDS in agricultural vulnerability assessments. The aim should be to develop indicators which track changes in wider vulnerability (Tibbo p.c.) rather than singling out HIV/AIDS. It may also mean a shift in priorities to action areas that have potential for agriculture growth and HIV/AIDS impact.

Priority action areas for Pro Poor Agricultural Growth given HIV/AIDS impact

50. This section will focus on opportunities for 1) slowing the epidemic and 2) protecting the poorest access to economic growth opportunities even in an HIV/AIDS environment. These areas have potential for agricultural development and growth as well as reducing the negative impact of HIV/AIDS by retaining the productive potential of AIDS affected households.

51. *Focus efforts on reducing vulnerability and enhancing resilience.* This can be addressed by adapting present programs to the needs of HIV/AIDS affected households and developing HIV/AIDS indicators for vulnerability assessments. Food for work programs and flexible savings services provided by microfinance institutions (MFIs) are also useful. Overall, the promotion of savings and insurance (medical and death) products by financial service providers can provide substantial benefits for increased resilience. One also needs to explore how ex-post transfer payments and grants (such as destitution payments, orphanage allowances and disability grants) and can best be employed to restore livelihood and production potential.

52. *Reform land tenure and inheritance laws:* A reform that allows women to inherit property from male relatives or husbands and provides formal recognition of land tenure/ownership will contribute to growth by allowing poor widows to sustain their productive activity (and thus income and food security) after their spouse's death. It will also allow them to leverage land to obtain access to finance.

53. *Re-orient agricultural service:* Given high turnovers and dwindling financial resources, there is a capacity constraint in the agricultural services in wide parts of Africa- in particular in extension services. While the issue around the quality and reach of African extension services is a wider one, HIV/AIDS may provide the entry point and urgency to put it on the table (Tibbo, p.c.). Firstly, workplace policies (including ARVs) at the Ministry of Agriculture and related institutions are important to sustain their services. Secondly, agricultural institutions need to find an efficient and effective division of labour amongst themselves and others to develop new extension approaches, influence curriculum, promote improved nutrition and conduct adaptive research. In the light of HIV/AIDS, all agricultural services require a paradigm shift towards customer's service and ways to address labour and income constraints in AIDS affected households. It may not always be advantageous for the MoA to take on the role of prevention in rural communities, rather community organization and NGOs should also develop practical skills in providing guidance's on how to adapt to the epidemic while maintaining income potential.

54. *Focus on young people and knowledge transfers:* Losing a generation to AIDS in agriculture has severe implications for human capital formation and thus growth. For the agricultural sector this translates into a rampant loss of knowledge on agricultural production, marketing and networking all of which are important to maintain or improve income levels from agriculture. Special efforts need to address orphan headed households now responsible for farming.

55. *Increase dialogue and understanding of HIV/AIDS:* This paper suggests a need to clarify the terminology used in the context of agriculture and HIV/AIDS and improved understanding of the overall impact and interactions. Hopefully future research will inform this debate. The Regional Network on HIV/AIDS, Rural Livelihoods and Food Security (RENEWAL) is a promising initiative in this direction. Meanwhile, donor agencies and national governments have some catching up to do as regards the dialogue on HIV/AIDS which is still perceived too much in the health and nutrition realm. Agricultural development staff not working in heavily affected countries may not be well informed about agricultural impacts of the disease. One possible tool for improved communication is SIDA's model of dialogue which includes direct support and mainstreaming on the one side and prevention, care, support and impact mitigation on the other (Chitundu,p.c.). Discussions on prevention should be broadened from awareness creation and distribution of condoms to addressing the underlying causes of HIV/AIDS (i. e. general vulnerability, poverty, poor nutrition, lack of survival skills, economic empowerment, sexuality education and legal rights). The participation of People Living with HIV/AIDS (Hammarskjöld, p.c.) is important to ensure a client oriented approach in interventions. Political dialogue may also address the issue of excessive focus on ARVs at the expense of the importance of good nutrition (Chitundu,p.c).

56. *Pro-poor budgeting and slowing AIDS impact:* With a declining tax base due to HIV/AIDS impact in high prevalence countries, it very important that government budgets are sensitive to the plight of affected communities. Governments can demonstrate commitment by investing in research and promotion of appropriate agricultural technologies. Budgeting should be informed and reflect current knowledge on HIV/AIDS (such as the link between good nutrition, the postponement of AIDS development and successful administration of ARVs).

57. *Promote Labour saving agricultural technologies.* Such technologies modify the time and energy required for certain tasks, which is an important factor where "on farm" labour is in short supply and "off farm labour" is not affordable (de Guerny, 2002). These technologies aim to maximize returns per unit of labour and may include acquisition of better tools (i.e. hoes that children and the elderly can use), change in cultivation practice to no tillage and improved seed varieties which require minimal weeding. Through funding part of the acquisition of such technologies and providing support services, labour saving technologies can provide a good opportunity for policy makers to promote local resilience in an HIV/AIDS context. For example, USAID has provided simple irrigation drip-kits to AIDS affected families in Zimbabwe, allowing orphans and grand-parents to garden vegetables for home production or sale. The drip irrigation kit costs \$85 which includes a stand, fencing, training, information and follow-up support costs (Kadiyala and Gillespie, 2003). Using new draught animals may also help to overcome rigid gender based divisions of labour and thus ease production capacity of affected communities.

58. However, while new draught animals may need less care and may be cheaper, most HIV/AIDS affected household may not be able to acquire additional farm or household assets. One needs to be aware of proposing technological solutions¹¹ (or "technological fixes") to mitigate HIV/AIDS related labour losses (Hammarskjöld, p. c) while ignoring issues of uptake and credit for inputs. Thus, even if effective, drip irrigation is unlikely to achieve the kind of coverage needed (Tibbo, p.c.) the epidemic has made the conditions (both at household and institutional level) for technology adoption considerably less favourable in the worst affected countries. Today's only advantage could be that the seriousness of the situation might

¹¹ A controlled and strategic use of herbicides would help to reduce labour-consuming weeding. DIFID and Kenyan partners are working with what looks like a promising project to package herbicides (and fertilisers) in affordable mini-packs along with free promotional small packs of disease resistant maize seeds (Kimmins 2004). The successful introduction of striga-resistant sorghum in Tanzania and the wide diffusion of new disease-resistant and high-yielding varieties of sweet potato in Uganda are examples of food security enhancing and labour saving technologies that could be spread to other countries (Muir 2004).

make it easier to break down institutional and other barriers to adoption. Participatory approaches will be important in this regard (Hammar skjöld, p.c.)

59. *Adapt food aid to HIV/AIDS*: Food security has a role in HIV/AIDS prevention and in reducing the incidence of HIV/AIDS. Food aid¹² programs can be designed in ways that reduce susceptibility to HIV infection and vulnerability to AIDS impact. An HIV/AIDS lens on food aid highlights its interactions with HIV/AIDS and suggests the need to revise standard family food baskets to account for changed household composition and to adjust nutritional quality to the requirements of HIV/AIDS affected people. Programs should focus on women; avoid increasing HIV/AIDS stigma and discrimination as well as the susceptibility to HIV infection through food aid delivery (Gillespie and Kadiyala, 2003). One should target for general vulnerability rather than full blown AIDS. Responsibility for targeting is best given to the communities themselves. De Waal and Tumushabe (2003) argue that food aid should be both a nutritional supplement and income transfer and that it cannot be considered a transitory measure.

V. Conclusion

60. Research on agriculture, the rural economy and HIV/AIDS consistently highlights a key impact on and role for agriculture in the HIV/AIDS crisis. The agricultural sector is tasked to deliver a major response to the epidemic, however the record of effective mainstreaming in national governments and donor agencies is lacking. This is aggravated by the unclear division of roles between the Ministry of Agriculture Vis a Vis other ministries and the overall AIDS infrastructure in the country.

61. Given the forward looking nature of a renewed donor engagement in agriculture currently discussed in the DAC Poverty Reduction Network (POVNET), donors have to become aware that the worsening of chronic poverty and food security as a result of HIV/AIDS makes certain interventions infeasible and calls for others- in particular those addressing vulnerability and strengthening resilience. One priority which is clearly emerging for donors and national governments is to provide support towards a reshaping of extension and research agendas to address the needs of affected and infected households. Clearly, HIV/AIDS related productivity shortfalls, declining income, mounting food insecurity and chronic poverty are some of the tougher contextual realities that any future agriculture and rural development agenda will have to live up to.

¹² Defined as food aid/assistance as in kind transfers to vulnerable groups

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