Agriculture and Environment Interventions in Support of HIV and AIDS Programming

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Written by:
Geoff Heinrich, Chris Penders, Shannon Senefeld, Gaye Burpee

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Richard Lord

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Throughout this publication, we have attempted to incorporate photographs of the various agricultural and environmental options. However, the individuals in these pictures should **not** be assumed to be living with or affected by HIV. The majority of these photos come from agricultural programming for general communities.

Acronyms

AB	Abstinence and Behavior change
Ag	Agricultural
Ag/Env	Agricultural/Environmental
AI	Avian Influenza
AIDS	Acquired Immunodeficiency Syndrome
ARV	Antiretroviral
ART	Antiretroviral Therapy
CIAT	International Center for Tropical Agriculture
CP	Country Program
CRS	Catholic Relief Services
CST	Catholic Social Teaching
CT	Counseling and Testing
Env	Environmental
FFA	Food for Assets
FFS	Farmer Field Schools
FLS	Farmer Life Schools
FS	Food Security
FFW	Food for Work
HBC	Home-based Care
HIV	Human Immunodeficiency Virus
IGA	Income Generating Activity
IHD	Integral Human Development
IS&L	Internal Savings and Lending
JFFS	Junior Farmer Field Schools
M&E	Monitoring and Evaluation
MTCT	Mother to Child Transmission
NGO	Non-Governmental Organization
OVC	Orphans and Vulnerable Children
PLHIV	People Living with HIV
SHG	Self-help Groups
STI	Sexually Transmitted Infections
STRIVE	Support for Replicable Innovative Village/Community Level Efforts for Children Affected by HIV & AIDS
UNAIDS	The Joint United Nations Programme on HIV/AIDS
USAID	United States Agency for International Development
USG	United States Government

Introduction

Many CRS Country Programs (CPs) are confronted with the challenge of helping individuals, families and communities in rural areas beset with high HIV prevalence. Many persons in rural areas of developing countries who are infected with, and affected by, HIV and AIDS depend on agriculture as a significant component of their livelihood. However, there is limited practical advice to date on how agriculture and environment interventions can be used to strengthen HIV and AIDS prevention and mitigation programs in the field. This paper provides some practical ideas and options for doing this.

CRS works in partnership with local organizations, in line with the principle of subsidiarity. Not only is this an important element of Catholic Social Teaching (CST), but the literature clearly indicates that there are no "one size fits all" solutions to the problems imposed by the HIV pandemic. All effective solutions will need to be developed around the local situation and will require the active participation of people living with HIV (PLHIV), their households and their local communities.

This document includes three main sections:

- **Section I:** This first section discusses the CRS Integral Human Development conceptual framework. This framework provides a holistic perspective in understanding the inter-relationships between HIV, AIDS and agriculture and environment in rural areas;
- **Section II:** This section highlights some of the major cross-cutting issues that relate to agriculture, environment and HIV and AIDS programming;
- **Section III:** This section presents some of the strategic approaches and agriculture and environmental technical options available for supporting HIV and AIDS programming. It includes a table that attempts to rate various Agriculture/Environmental (Ag/Env) technical options in regards to their potential for supporting HIV and AIDS programming in different ways. A second table provides examples of how two specific interventions could be applied to support different aspects of HIV and AIDS programming. An annex provides more detailed examples of how different agriculture interventions can be applied in different aspects of HIV and AIDS programming.

This document is a "work in progress". It should be revised and updated, based on our growing field experience. However, this initial iteration provides a starting point, and some useful ideas. The authors request that country program staff and partners share their experiences as programs continue to adapt and evaluate new methodologies, so that new innovations can be included in future revisions of this paper.

Section I: The Integral Human Development (IHD) Framework

HIV has complex impacts on the lives and livelihoods of those who are already infected with the virus, those who might be at risk, and other members of their households. The effects and impacts are different for different countries, communities, households, and even different individuals within the same household. Yet for any agency that wishes to provide effective and relevant assistance, it is necessary to understand the potential impacts at all these different levels. The CRS Integral Human Development framework (similar to Sustainable Livelihood frameworks) serves as a helpful tool for understanding all of the potential impacts and risks associated with the disease and in identifying key intervention points (see Figure 1).

Integral Human Development means that people are able to meet their basic needs and improve their well-being in an atmosphere of social justice and human dignity.

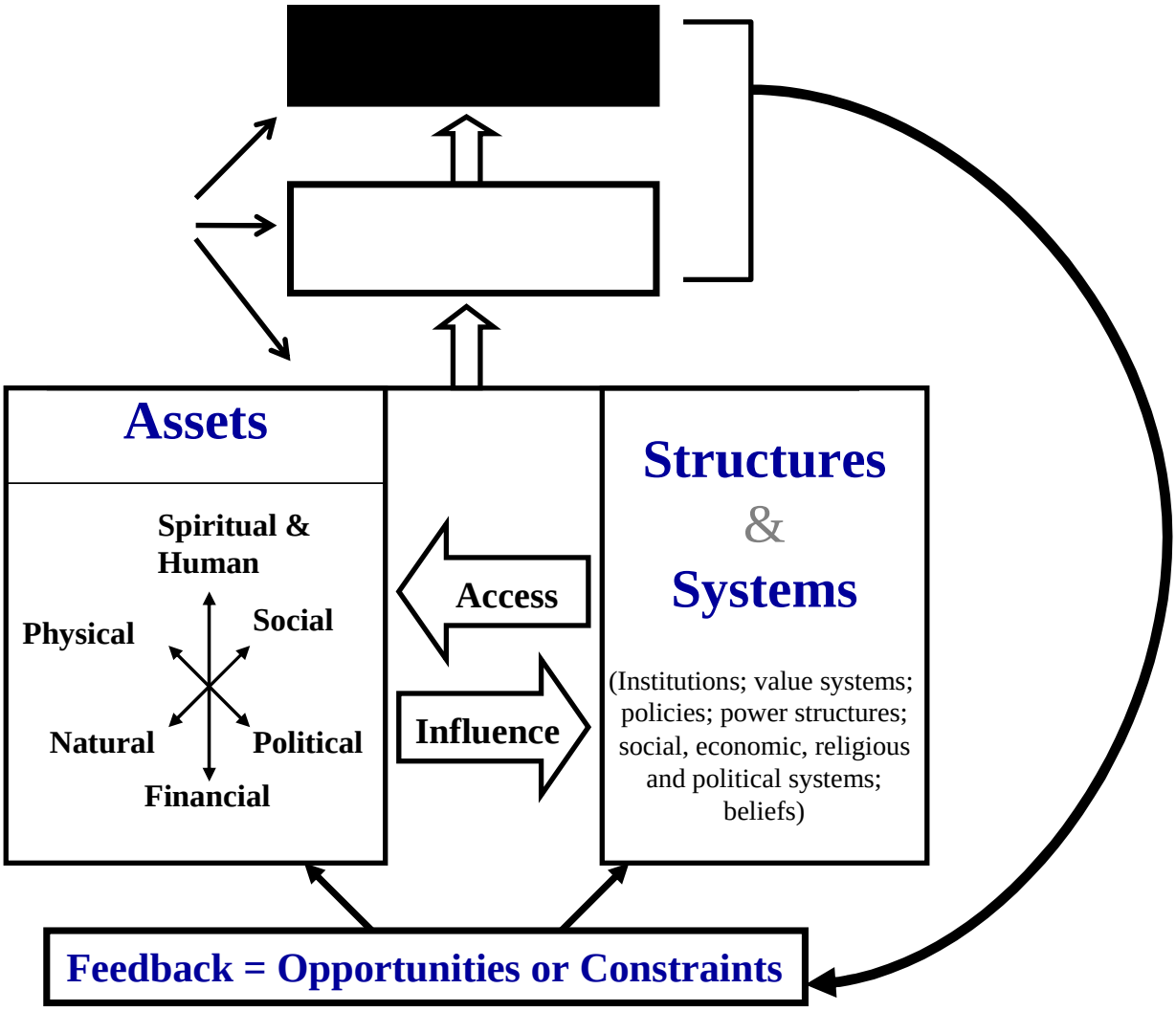
Integral Human Development (IHD), derived from Catholic Social Teaching (CST), is viewed as the condition in which all people are able lead full and productive lives, meeting their basic physical needs in a sustainable manner, while living with dignity in a just and peaceful social environment. A holistic understanding of individuals' constraints and opportunities for progressing toward IHD can be understood through a participatory analysis of their livelihood strategies, and the surrounding context in which they live. This analysis can be based on 3 fundamental components:

1. **Assets** are resources people use to generate their livelihoods. Within the IHD Framework assets are divided into six categories: *(1) human and spiritual; (2) social; (3) political; (4) financial; (5) physical; and, (6) natural.*
2. **Structures and Systems** are the "rules of the game" that govern access to various assets, how different assets can be used to generate livelihoods, and the types of assistance that people may access from external sources. They also have a significant impact on issues of social justice and human dignity. Typically structures and systems include local culture and customs, legal regulatory frameworks (and the application of laws), and the institutions and organization (governmental and non-governmental) that affect and govern peoples' lives.
3. **The Vulnerability Context** reflects the sources of risk that impact peoples' lives. They are usually classified as *shocks* (sudden events such as an earthquake or the outbreak of war), *cycles* (regular but not necessarily predictable events such as droughts or heavy rains that may lead to flooding) and *trends* (such as economic decline or growth, or global warming).

The use of the IHD framework helps to provide a holistic understanding of the specific impacts of HIV, as well as local constraints and opportunities for mitigating these effects. Furthermore, the IHD framework leads us to examine the increased risk and vulnerability imposed on individuals, households and communities affected by HIV and AIDS; the impacts on individual and household assets; and the structures and systems that affect, and

are affected by, the disease. The major issues related to each of these, in respect of agriculture, environment and HIV and AIDS are discussed in Section II.

Figure 1: Integral Human Development Framework



Section II: Cross-Sectoral Issues Impacting HIV, Agriculture and the Environment

This section reviews some of the major cross-sectoral issues affecting programming, viewed through the IHD lens. First, it considers how vulnerabilities are increased by impacts of HIV from an Ag/Env perspective. Then it considers major effects on household and community assets as related to Ag/Env matters, including labor productivity, capital depletion, transfer of knowledge and environmental degradation. Lastly, it considers some ways in which structures and systems can increase or decrease the impacts HIV and AIDS have on asset accumulation and vulnerability, particularly for women and children.

2.1 The Vulnerability Context

The degree of *risk* that an individual or community faces in regards to a particular *hazard* can be described as a function of their "*vulnerability*" to that hazard. For example, the degree of risk a household may face from a hurricane (a hazard) would depend on their vulnerability to hurricanes. Families living in strongly built stone houses might be *less vulnerable* than families living in poorly constructed wooden buildings – thus the families in stone houses would face *less risk* from a hurricane. Vulnerability can be understood as the capacity to manage, cope with and/or survive a particular hazard.

The degree of *risk* that an individual or community faces in regards to a particular *hazard* can be described as a function of their "*vulnerability*" to that hazard.

If we consider the vulnerability context as "shocks, cycles and trends", HIV and AIDS can be considered both as a "shock" (sudden illness and/or death) and as a "trend" – as prevalence and the numbers of orphans and vulnerable children (OVC) continue to increase or decrease at the community and national levels.

HIV and AIDS generally decrease the capacity of individuals, households and communities to manage and cope with a wide range of common hazards, thus increasing their vulnerability. This happens because HIV and AIDS tend to decrease an individual's physical capacity to combat diseases, and also because they tend to reduce the *productive capacity* of individuals, households and communities. At the same time, demand for expenditures is increased at all levels (increased nutritional needs, medical expenses, etc.) thus reducing the resources that families and communities have to deal with other threats (e.g., if grain stores and livestock resources are reduced, their capacity to cope with a year of drought and low harvests will be reduced). Specific issues of vulnerability related to household and community circumstances and the impacts of HIV and AIDS on assets and Systems and Structures are discussed in the following sections. The main point of this section is to recognize that HIV and AIDS can significantly increase the vulnerability of households and communities that are already poor and marginalized. A thorough

understanding of the main impacts of HIV and AIDS at the household and community levels will help to understand the most important *threats* imposed by the disease, and *who is most at risk*. This understanding is necessary to ensure appropriate targeting and design of interventions.

From an IHD perspective, there are a range of strategies available for increasing impoverished peoples' resilience and ability to cope – thus reducing vulnerability – in the face of the HIV and AIDS pandemic. These include:

- *Prevention,* to avoid contracting or transmitting the disease;
- *Mitigating the effects of HIV*, once it has been contracted, through antiretroviral therapy (ART) and improved nutrition, psychosocial support, and healthcare (this often requires enhanced systems and structures, as described below);
- *Retaining and increasing productive assets*, so as to be able to generate the food, nutrition and/or income necessary to cope with the effects of HIV and other shocks. This may include the adoption of new production practices and enterprises better suited to the limitations imposed by HIV and AIDS (e.g. low-labor agricultural enterprises), or avoiding lifestyle choices such as transactional sex that may increase the risk of contracting and spreading the disease; and,
- *Enhancing systems and structures* in order to provide effective support to those suffering from the impacts of the disease, such as external programs that provide education and counseling, access to ART, care for OVC, medical support, direct provision of food and other assistance, and promoting laws that protect against loss of assets and property rights.

All of these strategies are fundamental to current CRS HIV and AIDS programming, and many of them are also incorporated in CRS Ag/Env programming. However, relatively little of the Ag/Env programming is currently targeted to specifically support HIV programming within CRS and vice versa. This gap needs to be amended because of the vital role that agriculture and natural resources play in the lives and livelihoods of the rural poor in the developing countries where we work.

Issues created by cross-sectoral impacts between HIV, AIDS and Ag/Env are highlighted in the remainder of this section. Cross-programming options to address these issues are discussed in the subsequent sections.

2.2 Assets

The impacts of HIV and AIDS on all sectors of society are far-reaching. As a result of HIV, average life expectancy has declined in 38 countries since 1999. In seven African countries, where HIV prevalence surpasses 20%, the average life expectancy of a person born between 1995 and 2000 is now 49 years – 13 years less than it would be without AIDS.[1] The impact

[1] United Nations Population Division (2003), The HIV & AIDS epidemic and its social and economic implications. New York.

of HIV and AIDS on a person's life expectancy is severe. However, the impact is also seen on a person's assets throughout life.

Globally, 75 percent of people who live on less than one dollar a day live in rural areas and depend on agriculture for a living.[2] This holds true in most of the high-prevalence countries in Africa. In such areas, the interactions between agriculture and HIV and AIDS are particularly important, and certainly need to be considered in programming.

Vilundi Kamela works with fellow members of a CRS-supported farmers group in Alto Cubal, a community in the Benguela Province of Angola. A member of the farmers group since 2002, Kamela and the other farmers receive seeds and tools through the project, which is designed to increase food security for farmers returning to their farms after Angola's 27 year civil war, which left many rural farmers with no seed supplies or proper tools with which to farm. Photo credit: Dave Snyder/CRS.

[2] World Development Report 2008. Agriculture for Development. 2007. The World Bank. 1818 H St. NW. Washington D.C. 20433. USA.

2.2.1. Loss of Productive Assets is the Greatest Threat: The loss of productive assets[3] is considered to be the greatest threat to agricultural productivity. HIV and AIDS reduce productivity directly when there are chronically ill individuals in the household because their potential to do work declines. For example, a study in Zimbabwe found that agricultural output declined by nearly 50% in HIV-affected households.[4] The additional burdens of care are imposed on members of the household, further reducing net household productivity. This reduces income. Ill health often also increases expenditures on health care and transportation. In response, households frequently resort to the sale of productive assets such as land, livestock, plows and tillage equipment. This loss of assets further reduces their productivity, increases vulnerability and hastens the decent into deeper poverty.

2.2.2. Financial Assets: Households experience directly impacts of HIV and AIDS on their financial assets. The UNAIDS 2004 report lists the following impacts[5]:

- AIDS in the household causes the loss of income, as the productivity of household members decline, especially if the infected member was a breadwinner.
- AIDS creates additional care burdens on the household, which are often met by decreasing education and increasing workloads for other household members.
- AIDS causes household expenditures to rise as a result of medical and related costs, as well as funeral and memorial costs (Food and Agricultural Organization, 2003a).

The same UNAIDS report states that poor households are particularly in danger of losing their economic and social viability, and of eventually being forced to dissolve, with the children migrating elsewhere.[6],[7] Studies of poor South African and Zambian AIDS-affected households found monthly income fell by 66%–80% due to coping with AIDS-related illness.[8]

2.2.3. Human and Spiritual Assets: One major impact of HIV and AIDS is the *reduced labor productivity* of affected households through morbidity and mortality. While conventional wisdom suggested lack of labor would have major impacts on the productivity of all households with chronically ill members, recent studies indicate that *the impact of reduced household labor availability depends greatly on wealth status of the household, and which individual in the household is affected.*[9] Many households in the middle or upper ranks of

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[3] The term "productive assets" in this context refers to any and all assets that contribute to the health and/or the generation of food and income for an individual, household or community. They are therefore not restricted to any particular "asset category" as defined by the IHD Framework.

[4] United Nations (2004), The Impact of AIDS. New York. http://www.un.org/esa/populations/publications.htm

[5] UNAIDS (2004), Report on the global AIDS epidemic. Geneva. http://www.unaids.org/bangkok2004/GAR2004_html/GAR2004_00_en.htm

[6] Rugalema G (2000). Coping or struggling? A journey into the impact of HIV/AIDS in Southern Africa. *Review of African Political Economy*, 86:537–545.

[7] Akintola O, Quinlan T (2003). *Report of the scientific meeting on empirical evidence for the demographic and socioeconomic impact of HIV/AIDS*. Durban, 26–28 March.

[8] Steinberg M, Johnson S, Schierhout S, Ndegwa D (2002), *Hitting home: how households cope with the impact of the HIV/AIDS epidemic*. Cape Town, Henry J Kaiser Foundation & Health Systems Trust. October and Barnett T, Whiteside A (2002). *AIDS in the 21st century: disease and globalization*. New York, Macmillan.

[9] Personal communication – TS Jayne, Michigan State University, May 2005.

wealth categories are able to compensate for the loss of labor by attracting relatives from less wealthy households, or by hiring needed labor. Many of the relatively wealthier households do not suffer a net loss of production, even when they have a chronically ill household member. *However, for the poorest households the loss of labor may be a major constraint to protecting their livelihoods*. These households are the most vulnerable to begin with, and they will most likely be in the greatest need of assistance. Gender analyses are also an important component in understanding the linkages between HIV and agriculture. In many rural farming communities in Africa, women produce most of the food crops. As women, who are biologically more vulnerable to HIV succumb to illness, their ability to produce food is reduced. Since women are often responsible for caring for ill family members, their labor may be diverted away from the crops.[10]

HIV also contributes to a loss of knowledge from the "older" generation. Children learn from their parents, even after they have become young adults and are living independently. This is particularly true in rural areas where children are likely to depend on parents for knowledge of agricultural production and business systems, use of wild products and management of their natural environment. In high-prevalence HIV areas, it is common for both parents to pass away before the children are fully mature and economically independent. This loss of inter-generational knowledge transfer is increasingly mentioned in the literature[11,12,13] and it leaves a "knowledge gap" in the general population. In regards to agriculture, such losses are likely to reduce the productivity of young people, and their capacity to anticipate – and buffer themselves against – potential vagaries of the environment (e.g. periodic droughts or insect plagues).

2.2.4. Natural Assets: HIV can contribute to potential **exploitation and degradation of local environment** due to increasing poverty and lack of income options[14] (e.g., over-grazing near the village, tree cutting for sale as fuel wood or charcoal). When impoverished people experience sudden and dramatic increases in cash needs, understandably they make use of whatever additional resources are available. Quite often, these are common-property resources from the local environment. Efforts to secure medical services to keep family members alive may also lead people to ignore local by-laws, regulations and common customs.

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[10] Shapouri, S. & Rosen, S. (2001). Toll on Agriculture from HIV/AIDS in Sub-Saharan Africa. United States Department of Agriculture. http://www.ers.usda.gov/publications/aib765/aib765-9.pdf, Accessed April 1, 2008.
[11] Topouzis, D & Hernrich, G (1993), *The socio-economic impact of HIV and AIDS on rural families in Uganda: an emphasis on youth*. United Nations Development Program.
[12] Gillespie,S, Haddad, L & Jackson, R (2001). HIV/AIDS, Food and Nutrition Security: Impacts and Actions. www.fantaproject.org/downloads/pdfs/IFPRI2001_hivaids.pdf ; Accessed March 2, 2008.
[13] FAO. (2004). The impact of HIV/AIDS on farmers' knowledge of seed: Case study of Chokwe District, Gaza Province, Mozambique. www.fao.org/sd/links/documents_download/ImpactHIVAIDSknowledgeseed.pdf . Accessed February 14, 2008.
[14] Pell, A (2007). Cornell International Institute for Food, Agriculture and Development, February: Personal Communication to G. Heinrich.

At present, over-exploitation of the environment is already a problem in many poverty stricken areas – especially in southern and eastern Africa, where HIV prevalence is high.[15] Thus increased environmental degradation (and a resulting decrease in the productivity of natural resources) can be expected in rural areas where there are large numbers of poor and a high prevalence of HIV and AIDS. In such areas, access to credit (micro-finance), natural resource management, and income-generating programs become critically important for protecting the environment and the productivity of future generations.[16]

Reduced maintenance of water management structures, such as contour bunds, and gully prevention/control, is another concern. In many rural areas, local natural resources and infrastructure are managed and maintained by village committees, and sustained through local contributions (labor) or payment for use of the resources (e.g. Community Watershed Committees in India). One potential impact is that if available labor in the community is reduced by high HIV prevalence, and if the disposable income of families is reduced due to high medical costs, then the cash and labor available to maintain local infrastructure (contours and terraces on hillsides, rural roads, etc.) will be reduced. While the authors have not seen any specific studies addressing this topic, it merits further investigation and concern.

Improving environmental productivity may help reduce the spread of HIV (e.g. watershed projects in India). Improving the productivity of local environments may be effective in reducing the spread of HIV.[17] One example of this is the case of successful watershed development in India. In some CRS watershed management programs, the increase in water availability (rising water tables), and the capacity to generate food and income during the "off-season" through irrigation, greatly reduced or eliminated the need for people to migrate in search of work. Seasonal out-migration is one of the primary risk factor for HIV in rural Indian communities. This risk factor was greatly reduced through better management of the environment.

2.2.5. Social Assets: Social assets are the networks of relatives, friends and communities that individuals and household can rely on for help in times of need. In many poor rural communities, these social "safety nets" are vitally important in reducing vulnerability. However, in high prevalence areas, it is possible for social safety nets to become over-taxed to the point where they start to break down.[18] Families, and especially households headed by elderly people, reach a point where they cannot take in any more orphans or vulnerable

[15] African Biodiversity Collaborative Group. (2007). HIV/AIDS and the Environment: Impacts of AIDS and Ways to Reduce Them. Fact Sheet for the Conservation Community.
[16] Population Reference Bureau. (2007). Guidelines for Mitigating the Impacts of HIV/AIDS on Coastal Biodiversity and Natural Resource Management.
[17] Loevinsohn, M. (2006). AIDS and Watersheds: Understanding and Assessing Biostructural Interventions. Printed in: Gillespie, S, ed. 2006. AIDS, poverty and hunger: Challenges and responses. Highlights of the International Conference on HIV/AIDS and Food and Nutrition Security, Durban, South Africa, April 14-16, 2005. Washington, DC: International Food Policy Research Institute.
[18] De Waal, A & Whiteside, A (2003). "New Variant Famine": AIDS and Food Crisis in Southern Africa. *The Lancet, 362*: 1234-37.

children. Wealthier households reach a point where they cannot afford to provide further financial or material support to their poorer relatives. It should also be recognized that the impacts of orphanhood on the future structure and strength of societies is unpredictable, and may be both significant and strongly negative.[19] It is imperative that HIV and AIDS interventions are designed to strengthen and support community coping mechanisms, and protect and improve social assets. It is important to note the role of social assets (community-based networks) in providing psychosocial support to HIV-affected individuals and households to encourage resilience and positive coping mechanisms (i.e. positive living).[20] Social assets also play an important part in influencing structures and systems in order to ultimately safeguard the rights and assets of affected community members. In this way, social assets may be closely tied to the political assets described below.

2.2.6. Physical Assets: "Wealth" is often measured at least in part through possession of physical assets – the quality of housing a person has, mode of transport (bike or vehicle), types of farming equipment (ox carts, plows, etc.). Many physical assets fall into the category of "productive assets" mentioned in 2.2.1 above. These include equipment used to produce food and income – such as plows, hoes, axes, and the like. Loss of these assets through distress sales (often to cover medical expenses)[21], or even inheritance (and removal) by relatives after the death of the head of household, presents a grave threat to the wealth, productivity and resilience of individuals and households affected by HIV and AIDS.

2.2.7. Political Assets: These assets reflect the abilities of individuals, households and communities to exercise their rights and to successfully advocate to change their situation. It reflects their "voice" in society. For example, at an individual level, children and/or women may have less of a "voice" in how family finances are spent, relative to the male head of household. At a community level, a well-organized women's group may be able to reduce gender-based violence through advocacy, education or collective action.

Political assets are very important in HIV and AIDS programming – e.g., in promoting behavior change or advocating to reduce stigma. They can also be important in agriculture and environment programming, especially for the protection of common-property resources (e.g., preventing the exploitation of forest areas by a few individuals, or ensuring that water sources are not over-used or polluted by individuals and communities up-stream). Thus strengthening the political assets of marginalized and vulnerable groups may be useful for both HIV and Ag/Env programming.

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[19] Garrett L (2005). "HIV and National Security: Where are the Links?" Council on Foreign Relations Report. www.cfr.org/content/publications/attachments/HIV_National_Security.pdf

[20] See Catholic Relief Services. "Compassionate Action: A Guide to CRS HIV Programming." (2007).

[21] Donahue, J., Kamau, K., & Osinde, S. (2001). HIV/AIDS -Responding To A Silent Economic Crisis Among Microfinance Clients In Kenya and Uganda. MicroSave: Kenya.

2.3 Systems & Structures

Systems and structures refer to the external environment that governs behavior in society. They typically include social norms, culture, rules and regulations and both government and non-governmental institutions. They include the services that are available in society, and can affect who those services are available to. They also include the stigma that is commonly attached to HIV and AIDS and how the disease – and those affected by the disease – are viewed and treated by society.

There is usually an important interaction between "assets" and "systems and structures". For example, local regulations or norms may affect who can access and use common property resources such as forest areas or water resources. At the same time, individuals or groups that have a lot of assets may be able to influence systems and structures in their favor. For example, wealthy individuals or businesses may be able to influence government policy; and large and well organized women's groups may be able to advocate successfully for a change in the social norms in their communities.

Understanding local systems and structures, and working to influence and improve them, is often very important in HIV and AIDS programming. Some systems and structures issues that are important to both HIV and AIDS and agricultural programming are discussed below.

2.3.1. Improve Income Sustainably, with an HIV Perspective: Increasing incomes is a common target of both Ag/Env programming and HIV and AIDS programming. Programs that provide free inputs to members of a community may inadvertently destroy local markets for those same products. For example, in the past, frequent distribution of free seed in drought relief programs in southern Africa negatively impacted the development of rural seed markets. The approach of Seed Vouchers and Fairs can actually enhance the development of local seed markets, so good seed may be more available after the relief program has closed.[22] In areas of high HIV prevalence, the introduction of crop varieties or small livestock that can improve both household income and nutrition should receive special attention (e.g., poultry or multi-purpose legumes). Supporting the development of *sustainable* production and marketing systems that are adapted to the needs of PLHIV, (e.g., increasing both income and nutrition, and not imposing excessive labor burdens) should be the target for agriculture based income generating programs.

[22] Catholic Relief Services. (2004). CRS Seed Vouchers and Fairs: Using Markets in Disaster Response. www.crs.org/publications/pdf/Agr0518_e.pdf

A seed seller measures out some product as a farmer holds CRS seed vouchers at a seed fair in Awer camp for Internally Displaced Persons 15 kilometers northeast of Gulu, Uganda. About 200 farmers who live in the camp received vouchers enabling them to begin growing a crop which will bring them money, food and seed for the next growing season. Photo by Rick D'Elia/CRS.

2.3.2. Address Legal/Customary Issues Affecting Women- and Youth-headed Households: In many cultures, women and children are disadvantaged legally or by local custom. For example in some parts of southern Africa, all of the assets of a male head of household are inherited by his brothers, leaving very little to a surviving spouse or children. In some cases, the wife herself may be "inherited" by the oldest surviving brother.

In other cases, poor households may have no legal wills to direct what happens to the assets of the male head of household, should he pass away. This leaves questions of inheritance open to debate – and again may leave a surviving wife and/or children in an impoverished state.

The question of inheritance impacts land tenure (legal or customary) as well as property. There is significant anecdotal evidence of surviving members of rural families losing not only their husband/father, but also then losing their land and livestock.

Advocacy, succession planning and social change are extremely important in helping surviving spouses and children retain agricultural assets vital to their livelihoods, and remain productive and food secure after the death of a male head of household: Less wealthy female-, child- and elderly-headed households are often thought to constitute a sub-group of extreme vulnerability among the HIV infected and affected rural poor. Where this is the case, specifically targeting these groups in program design would be justified.

2.3.3. Evaluate the Capacity of Local Systems and Structures to Deliver Regular Health Care and Social Services: The capacity of local systems to deliver good health care (e.g. to provide ART or combat malaria and tuberculosis), as well as the capacity to provide support in other important areas (agriculture extension, nutrition, water and sanitation, education, etc.) will

directly impact the capacity of individuals, household and communities to retain agricultural productivity and protect the natural environment.

2.3.4. Ensure that the Stigma (and other constraints) Associated with HIV and AIDS Does not Prevent Participation in Groups: Farmer groups are very often an important component of agricultural project interventions (e.g., producer groups, Farmer Field Schools, etc.). In such programs, care should be taken to ensure that PLHIV are not prevented from participating in the program because of issues of stigma or because of other constraints (e.g., location of the group meeting is too for people who are unwell far to walk). Capacity building efforts for all agriculture-focused groups in high prevalence areas should include components that address locally relevant issues related to HIV and AIDS – especially where stigma may be an issue.

Section III: Technical Options

This section outlines strategic approaches and agriculture- or environment-based programming options that can be used to prevent or mitigate the effects of HIV and AIDS. The primary strategic approaches discussed here are of two main types: either increasing resilience through protecting and increasing assets, or through strengthening and improving local systems and structures.

Whichever approach is used, it must be remembered that *all solutions and interventions need to be developed locally*, with input from the affected households and communities to ensure they are truly practical and effective. This process should start with a participatory Needs Assessment or a participatory Livelihoods Assessment. These are both recognized and documented CRS approaches,[23] but it is particularly important that one or both are utilized to develop programs targeting HIV and AIDS prevention and mitigation. In either process, the CRS IHD framework is extremely helpful. The use of the IHD framework ensures a holistic understanding of the specific impacts of HIV and local opportunities for mitigating these effects, while avoiding potential sector bias.

If the Needs or Livelihoods Assessments are done in a participatory manner with households, communities and partners, then the results can form the basis for the next vital step - the design of programs to address priority needs that have been identified and defined. The three key components in designing quality interventions are:

- Involving the targeted beneficiaries in the *analysis* of their situation and potential solutions;
- Using the IHD framework to provide a holistic perspective; and,
- Including targeted beneficiaries in the *design, implementation, and evaluation of local solutions*.

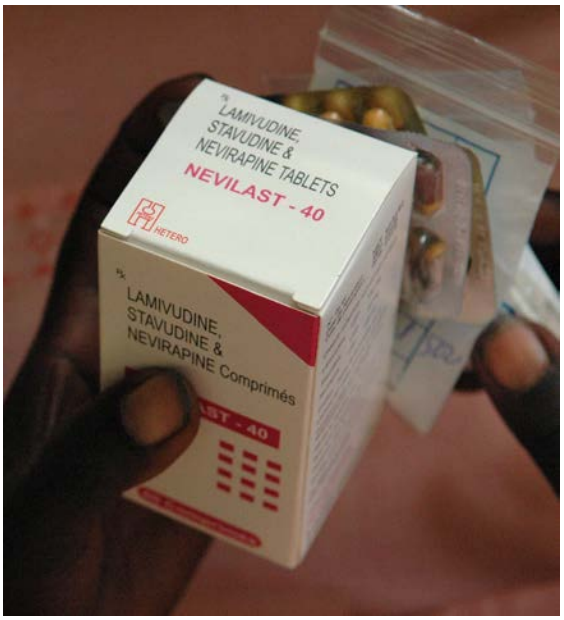
3.1. Protecting and Increasing Assets

As noted, loss of productive assets may be the most critical factor driving HIV-affected households into extreme poverty and reducing their capacity to cope. For that reason, protecting assets must be a key component of all prevention and mitigation programming. This section discusses specific strategic approaches and programming options that can be used to increase resilience through protecting and/or increasing assets.

- ***HIV Prevention and ART:*** People themselves are the most important assets that any family has. Their physical and spiritual health and their capacity to think, to work and

[23] A Needs Assessment is a standard Emergency Response tool. It is faster and less intensive than a full Livelihoods Assessment (LA). However, the LA will provide a more comprehensive understanding of the local situation, and the opportunities for addressing both short and long-term issues. The LA can also be used to meet a wide range of programming needs, and should be done in most country programs at least once during each SPP cycle.

to support each other are all critical to the productive capacity of the household. Conversely, chronically ill individuals impose a steady cost on the household, both in terms of cash needs and in time and energy that could otherwise be spent on productive activities. Thus, protecting household members from contracting HIV is the most important intervention.



For PLHIV, the longer that they can remain healthy and able, the less risk there will be in terms of losing assets, and the more time there will be to modify livelihood activities to those that younger or weaker household members can sustain. Successful ART leading to durable viral suppression will enable those infected to lead a full and natural life. Where ART is not available, sufficient food and good nutrition can help to prolong and maintain quality of life. Agricultural programming that promotes household food *and nutrition* security will be particularly important in these circumstances. Such interventions should be designed in the context of positive living programs that promote a range of interventions including good food and nutrition, regular physical activity, psychosocial support, etc. and target an improved quality of life for PLHIV.

- ***Food for Assets:*** Food for Assets (FFA) is most commonly used to reinforce the ideals of community-managed asset creation or protection. FFA strategies usually involve the exchange of food for labor, but they emphasize the creation of assets that are owned, managed and utilized by targeted households or communities.[24] Preserving the common productive assets of communities (environment and infrastructure) is a recognized strategy for emergency relief programs. In a crisis, poor members of communities in particular may rely on common-property assets for a significant part of their cash income. In some relief programs, food is distributed through FFA programs. For example, food distributed before a drought escalates into a famine allows families to preserve their seed instead of eating it and may prevent the distress slaughter of livestock for cash or food. Sufficient quantity of food is also an important line of defense in mitigating the impact of HIV and AIDS. FFA programs are particularly important for high-prevalence communities following any emergency in which food relief is employed. The key assets to target for restoration or enhancement will need to be identified through

[24] Kayira, K., Greenaway, K., & Greenblott, K. (2004). Food for Assets: Adapting Programming to an HIV/AIDS Context. www.global-poverty.org/PolicyAdvocacy/pahome2.5.nsf/allArticlesHome/EC792D4A3139C91B88256F4A0000EBE5/$file/Food%20For%20Assets.pdf

participatory interactions with the communities in question. These programs are good examples of how "relief" can contribute to "development". FFA projects are most beneficial to households affected by HIV when the food is distributed as a household ration. This is particularly important when chronically ill household members are not able to provide a labor contribution.[25]

A CRS-sponsored food for work project in Dira Dawa. Locals come out to terrace the hillsides (and also complete road construction projects) to prevent soil run off and erosion. Those taking part in the program then receive food aid of monthly rations. Photo by Dave Snyder/CRS.

[25] Stewart, J. (2005). Food for Assets Programming Through an HIV/AIDS Lens: C-SAFE's Experiences in Creating an HIV/AIDS Analysis Tool for Practitioners. Presented at the International Conference on HIV/AIDS and Food and Nutrition Security. International Food Policy Research Institute. Durban, South Africa.

Improving nutrition to protect health and wellbeing (human assets): Research suggests that sufficient caloric intake and good nutrition enables PLHIV to live longer and be more productive. PLHIV require additional caloric intake.[26] In addition, PLHIV have increased caloric needs due to their illness. Symptomatic adults and adolescents may require up to 30% more calories for day than non-infected adults. Symptomatic children may require even more than that if they are experiencing weight loss.[27]

Good nutrition is also important for ART, enhancing its effectiveness and reducing side effects of certain antiretrovirals (ARVs). Improving agricultural production, in terms of both calories and nutritional content, is very important. An increase in *calorie production* can be achieved through increased production of cereals and root crops (using improved varieties, soil fertility and soil-water management). For rural farming households, *improved nutrition* is usually best achieved through increased production of legumes, vegetables and/or animal products (eggs, milk and meat). Ensuring that a gender analysis was during the PLA can help to further elucidate roles and responsibilities of male and female household members and their potential role in various livelihood strategies. Understanding how these strategies would be used by the household will help to ensure that anticipated outcomes from the intervention are achieved. Without an understanding of this dynamic, the intervention may take place, but may not have the intended impact on nutritional status because the right groups weren't targeted with the right interventions. Legume production may be undertaken in both crop fields and home gardens, while increased vegetable production is usually done through home or community gardens. Increasing animal products may be more complicated and/or risky than crops or vegetables, but may also be just as rewarding if not more so. Crop and livestock production can be highly complimentary – for example, small amounts of grain may be used as supplemental feed for chickens, while the chicken manure may be an extremely good input for maintaining soil fertility. Whatever option or set of options is selected, an

Dira Dawa, Ethiopia. An agricultural project also provides materials and education to women concerning nutrition and health issues. The women prepared a meal to demonstrate their nutritional knowledge. Photo by Kevin Kostic/CRS.

[26] World Health Organization. 2003. *Nutrient requirements for people living with HIV/AIDS:* Report of a technical consultation 13-15 May 2003. Geneva, Switzerland.

[27] N.B. This does not include recommendations for pregnant and lactating women, who require additional caloric consumption and specific supplementation.

evaluation of risk (loss) and impact on labor and cash demands must be considered. There are certain available agricultural technologies that may improve labor efficiency and reduce the overall labor required to yield the desired agricultural production. Examples include improving soil fertility (increasing production per unit of labor) or small-scale irrigation systems. It is also good to keep in mind that an increase in income (even from non-farm activities) may also be an effective way to improve both the quantity and quality of nutrition.

Nutrition Priorities for PLHIV by Stage of Disease[28]

Staying healthy in the early stage of initial HIV infection
- Build stores of essential nutrients
- Encourage physical activity
- Ensure understanding of good nutrition as part of living positively with HIV
- Maintain weight and lean body mass
- Ensure understanding of food and water safety

Mitigating the impacts of middle stage infection when AIDS-related symptoms begin to appear
- Maintain dietary intake during acute illness
- Increase nutrient intake for recovery/ weight gain
- Adjust diet to support adherence to treatment protocols
- Continue physical activity

Providing comfort and care during late stage infection: AIDS stage
- Treat opportunistic infections
- Encourage eating, fluid intake and physical activity.
- Modify diet according to symptoms

Improving labor productivity in crop production: For relatively poor households with one or more members living with AIDS, reduced labor availability may be a major constraint. One way to address this is through improving the productivity of the labor that *is* available. One key to increasing labor productivity in crop production is ensuring good soil fertility. Relatively small improvements in fertility can lead to very significant improvements in crop production on the same area of land (50 – 200% in some cases). The amount of additional labor required to improve soil fertility depends to a large extent on the systems and types of inputs used. Applying concentrated doses of chemical fertilizer or using legume rotations may require relatively small increases in labor requirements. Using large amounts of organic fertilizer (which often requires 5 – 10 tons per hectare and more) may be quite labor intensive. However, increasing labor requirements may sometimes be off-set by spreading labor over time (i.e. doing some of the work in the "off-season" when other labor requirements are low). Conservation farming is a system widely used in southern Africa that targets integrated soil and water management. It has a higher labor requirement than traditional systems in the first few years of application, but it also improves crop yields - both in normal and drought-years. Poor households seem to be able to manage the system

[28] Adapted from SARA Project. 2002. *Nutritional Care and Support of People Living with HIV/AIDS in Limited Resource Settings.*

well, however, because they can perform a number of the additional operations outside of the normal cropping season.[29]

- ***Drought resistant agriculture and environment strategies*** *(crops, livestock, natural resource management):* The rural poor who depend on rain-fed agriculture are often the most vulnerable to climate fluctuations. In southern Africa and parts of eastern Africa, serious droughts have been common in recent years, reducing household food supplies and food security. PLHIV cannot afford extended periods of low caloric intake and/or poor nutrition. In fact, in the symptomatic stage of the disease, they require 20-30% more energy consumption. There are cost-effective ways to reduce household vulnerability to drought, and these are particularly important for HIV and AIDS affected households. Two low-cost options include:

    - Using more drought tolerant crops and varieties
    - Diversifying the production system to include drought tolerant enterprises (e.g. extensive poultry, small livestock, honey production, and homestead water-harvesting for use in home gardens or home orchards)

    From a village or community perspective, water conservation and/or watershed management programs can greatly improve water capture and availability, and greatly increase productivity, incomes and food security. Good examples can be found in the CRS watershed work in India, which is discussed in more detail later in this document. It is worth noting that there are often good opportunities to use "relief" funding to build a more resilient future, for example by using food for work (FFW) or FFA to rehabilitate degraded environments and/or protect temporarily threatened livelihoods. Seed distribution programs (Seed Fairs) can be used to introduce and disseminate drought resistant varieties and/or crops. Such work can benefit whole communities, but they can also be oriented

Kasisi Organic Farm & Training Center, near Lusaka. Photo by Sean Sprague/CRS

[29] Conservation Farming for Agricultural Relief and Development in Zimbabwe. 2007. Kizito Mazvimavi and Steve Twomlow . *International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) Matopos Research Station, P. O. Box 776, Bulawayo, Zimbabwe (unpublished).*

to provide particular assistance to families with chronically ill members.

- ***Crop and/or enterprise diversification for nutrition and income:*** In addition to building resilience in the face of droughts, the strategy of diversification can contribute to improving household nutrition and income – both vital for HIV affected households. Farming activities that can support improved *nutrition* include: home orchards and vegetable gardens (using waste water or simple water harvesting techniques), beekeeping for honey, extensive poultry production (eggs and meat), increased production of legumes (e.g. cowpeas, groundnuts, pigeon peas, field beans) and small livestock. Activities that contribute to increased income include all of the above plus: production of high-value field crops (e.g. paprika), high-value tree crops (e.g. cashews, avocados, mangos), specialty crops (e.g. mushrooms), and value-addition activities for locally produced crops (e.g. shelling groundnuts, pressing sunflower or sesame oil). Linking HIV programming to the CRS agro-enterprise initiative may be particularly useful for increasing income (with special care to select enterprises that fit the labor and resources profiles of the households of PLHIV).

- ***Seed and/or Livestock Fairs*:** As noted, seed and/or livestock fairs are proven methods for helping to protect or rebuild the productive assets of the poor following an environmental disaster. They can also be used to help families gain access to more drought tolerant crops, new crops (for nutrition or income-generating purposes) and more or different types of livestock. This type of program is easily adapted to target families made vulnerable by HIV and AIDS as described in Annex 1. CRS Afghanistan adapted the Seed Fair approach to provide households with "Livelihood Vouchers". These were used to purchase resources or equipment that help families to reestablish livelihood activities and could also be used to enhance labor efficiency at household level.

Seed fair at Kaunga Mashi, Shangombo district. Farmers receiving seeds after handing over vouchers. Photo by Sean Sprague/CRS.

- ***Internal Savings and Lending***

Groups (ISL): Access to even small amounts of credit has the potential to significantly reduce household vulnerability, and help protect and augment productive assets. The self-help group model being used by CRS and other private voluntary organizations in India and elsewhere has shown that even extremely poor people can generate savings and successfully operate ISL groups. Such groups also tend to provide strong social support to members, which can be as beneficial in a crisis as the financial aspects. While HIV imposes additional constraints on traditional microfinance methods, it is very worthwhile to adapt this model for those affected by HIV and AIDS. Experience from southern Africa has shown success in initiating ISL activities among PLHIV support groups (or post-test clubs) and groups of home-based care volunteers as an incentive to continue their work. Allowing microfinance staff to be flexible in the adaptation process may be the key to success. It should also be noted that poorly designed or implemented credit programs can sometimes actually increase vulnerability, and ISL and other microenterprise development programs should not be initiated without previous knowledge and expertise in microfinance.[30] It should also be noted that ISL can contribute significantly to agro-enterprise endeavors, and has recently become a recommended component of such programs. Ensuring access to these services for both men and women may be important as well.

***Agro-enterprise programs targeted to HIV infected and affected households*:** In 2002, CRS and the International Center for Tropical Agriculture (CIAT) initiated the CRS-CIAT Agroenterprise Learning Alliance. The purpose was to evaluate and refine systems for linking poor smallholder farmers to markets in efficient and sustainable ways. Since then, a specific agroenterprise approach has been adopted by CRS.[31] In particular, the approach starts with the identification of market opportunities in the local area, and understanding the value chains of targeted commodities. This approach is essential to ensuring the success of the agroenterprises that are selected. As noted earlier, increasing income is vital for individuals and household impacted by HIV and AIDS to address the increased expenses associated with the disease, medical as well as nutritional expenses.

Agroenterprise is useful because it will generally increase both agricultural production and income, and sometimes nutrition as well. It would appear to be quite easily applicable in HIV and AIDS programming. A recent "Study Tour" found that most groups, including farmer groups, are multi-functional, and that it would be possible to add agro-enterprise components into existing groups, or to introduce other sectoral components into agro-enterprise farmer groups.

It would be relatively easy to introduce HIV activities into ongoing agroenterprise programs. HIV prevention messages are easily incorporated into ongoing programs, by organizing additional education and sensitization sessions for the agroenterprise groups. Agroenterprise

[30] The SEEP Network is currently developing a Guide for Micro-Enterprise Development in high HIV prevalence areas; please see their website at: www.seepnetwork.org.

[31] CRS follows the approach described in the documentation that is available from the CIAT website www.ciat.cgiar.org/agroempresas/ingles/index.htm .

programs can also incorporate trainings that are relevant for people living with or affected by HIV and AIDS, for example, sessions on child and women's rights, succession planning, and basic HIV prevention and behavior change.

It should be noted that some research has shown that increased household expenditure and education are associated with increased risk-taking behavior, as individuals with higher education levels are also associated with increased exposure opportunities. For example, more educated individuals and those with additional disposable income may be likely to travel more regularly and have more sexual partners.[32] As such, the need to increase HIV education and prevention alongside interventions designed to improve income and livelihoods is essential. Additionally, all enterprises developed with PLHIV need to take into account their possibly reduced labor and capital, and reduced capacity for risk.

- ***Technical Ag/Env management and business skills enhancement for youth:*** Agriculture and natural resources are the basis for rural livelihoods. The above mentioned skills are especially important for youth, first because they may have limited access to basic knowledge and skills if one or both of their parents are chronically ill, and secondly because their parents may have limited knowledge themselves of business skills and appropriate modern technologies for agricultural production and natural resource management. Equipping rural youth with these types of skills gives them confidence and hope that they will be able to generate a reasonable and sustainable livelihood for themselves and their future families. Such confidence and hope will enable them to make positive choices about lifestyles that increase their resilience and reduce the likelihood of their contracting the disease. In CRS Zimbabwe, an intervention in the OVC and livelihoods programs, Junior Farmer Field Schools (JFFS) provide young people (high school age) with technical agricultural knowledge (crops and poultry at present), basic business skills, and detailed knowledge of HIV and AIDS prevention and mitigation. The JFFS are linked with Senior Farmer Field Schools to build sustainable networks of learning and ensure that local farming knowledge and expertise is transferred to the younger generations within communities. CRS is now piloting this program in several provinces with promising results.[33]

- ***Income Generating Activities (IGAs):*** As far as possible, all IGAs should be initiated using the CRS-CIAT Agroenterprise methodology – that is, starting with an evaluation of local market opportunities, and understanding the associated value chains, before selecting and initiating an enterprise. In addition, farmers will need to acquire some specific skill sets that will allow them to participate equitably in markets and sustain their businesses in the long-term[34]. Applying the CRS-CIAT agroenterprise approach to the process of setting up any IGA will significantly increase the probabilities of success.

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[32] Green, E. "Rethinking AIDS Prevention" 2003.

[33] Catholic Relief Services. (2008). CRS Zimbabwe Junior Farmer Field School Evaluation Report. Forthcoming.

[34] Preparing Farmer Groups to Engage Successfully with Markets – A field Guide for Five Key Skill Sets. 2007. CRS, RII-CIAT (Rural Innovations Institute). Catholic Relief Services

A few of the more commonly considered IGAs are discussed briefly in the following pages. These are examples of agriculture and natural resource-based IGAs that have been successful in some locations.

Organic farm of Moses Malenga, near Lusaka. Seedlings, compost, and livestock. Mary Malenga with green velvet bean seedlings. Photo by Sean Sprague/CRS.

- ***Draft Power Clubs***: In low rainfall areas, being able to prepare the land and plant at the right time is key to getting a reasonable harvest. Delay of even a day or two can be the difference between success and failure. For poor families impacted by HIV and AIDS, the lack of labor, draft animals or plows may severely reduce productive potential. In many rural areas, even "average" households struggle to get their crop planted and weeded in a timely manner.

When households can pool labor resources, and access draft animals and plows (from among themselves or non-governmental organizations [NGOs]) they can increase their own productivity. They may also be able to generate additional income by renting their services to other community members. This is particularly true when the groups can access ox or donkey carts and provide transport in the community. It should be noted that such groups often require technical training to manage and utilize the animals or to manage financial matters. For HIV affected participants, the issue of labor may also be an important consideration. The CRS program in southern Sudan introduced draft power groups and has been addressing some of these issues.

o *Fish Ponds:* There is much literature available on community and household fish production in inland ponds. This option is only viable where there is reliable access to water. Where practical, this option is attractive both for income and nutrition. Household fish ponds often provide calories and protein when last year's grain crop has been exhausted. They are also an efficient way of converting kitchen scraps, animal manure, plant leaves and weeds into high quality, easily digestible protein.

Fish ponds may require considerable labor initially to develop and start-up production, so the initial investment may require some form of subsidy if the programs target PLHIV. They may also require extensive discussions in the community in regards to where they are located, how they will be managed, and how these benefits will be distributed if they are owned/managed by groups (as opposed to individuals or families). However, once established, they are usually relatively easy to maintain and operate. One community in India indicated that no maintenance had been needed on their fish pond since it was first built, three years earlier. Fish ponds can be a viable alternative for a community level intervention where labor can be pooled to initiate the project (e.g. in FFW projects). Because they require relatively little labor or costs to manage, they can also be a very useful intervention at the household level for PLHIV, as long assistance is provided for initially establishing the ponds.

A woman cleaning fish in Cambodia. Photo by Richard Lord for CRS.

- *Contract farming:* In this activity, a group of farmers (producers) develops a contract with a buyer for a certain volume of a particular commodity. This has the advantage of a guaranteed market and a guaranteed price for the producers, and the buyer usually also provides transport from a central point in the local community. It is also advantageous for the buyer, because it will usually ensure availability of a particular commodity at a known location and known price. Thus it may be a useful approach for all parties. However, experience has shown that this approach can also be problematic. If climatic conditions are not particularly good and production is low for any reason, farmers may wish to retain their crop for home consumption, rather than sell it and buy food later at a higher price. Also, if supplies of the commodity are limited for any reason, other buyers may approach farmers offering higher prices. Farmers then have to decide whether to honor their original contract, and sell for less than the going price, or break their contract, and undermine their relationship with the original contractor. Hence this approach is often not the best, except in very specific circumstances. The relevance of this type of activity in programs targeting PLHIV will depend on the specific commodity being produced, and the nature of the market for that product.

- *Home orchards:* These usually involve planting of fruit trees, or trees with other commercial value, around the homestead. This is often accompanied with small water harvesting systems where rainfall in the homestead area is channeled to the trees, or waste water from the home is used to provide supplemental water for the trees. This is often a useful and low-cost way of generating both food and income for the household. The one disadvantage is that it can take some years to "bear fruit" – but this might be as little as 2 years, depending on the type of trees planted, and it is certainly a good investment for the future. Once established, home orchards generally require low levels of labor for maintenance, and so are well suited for PLHIV – especially when associated with ART programs.

- *Irrigation-related options* (home or community gardens, drip kits, treadle pumps): Vegetable gardens are often used for generating food, improved nutrition and income. Vegetable production requires a regular supply of water for the growing plants, and except for rare cases, this means some sort of irrigation system must be developed and used. For the smallest home gardens, sometimes *waste water from the household* can be used (bath water, water from washing dishes, etc.) For larger areas, but still relatively small, water may be

Drip irrigation in Zimbabwe. Photo by CRS Zimbabwe.

harvested from roofs or yards, and stored for later use. Home gardens, and sometimes small community gardens, may be supported in this way.

In cases where water is being taken from near-by wells or bore holes, many CRS programs support small gardens through the provision of "*Drip Kits*". These are simple systems that rely on thin plastic tubing to "drip" water on to the plants. They have the advantages of being relatively cheap, and quite efficient in the use of water (meaning that less water has to be collected and transported to the garden). The main disadvantages associated with Drip Kits is that water needs to be brought to the garden in separate containers – which can add significantly to the labor burden on the household if the water source is not very close. within about 100 meters. Their other disadvantage is that the thin pipe makes it necessary to use very clean water to avoid blocking the system and also there is a need for a regular supply of spare parts (piping and nozzles).

When there is an open water source near-by (e.g. a dam or river) and there is not too much of a difference in elevation between the water and the garden (so the water does not have to be "raised" very high), a "*treadle pump*" system may be a good option. These are very simple, easy to maintain water pumps that are operated by foot (usually one person standing on the pump and operating it with something like a "stair climbing" motion). The advantage of this pump is that it is relatively inexpensive to buy, relatively robust, and it does not require fuel for operation. On the down side, it does require quite a lot of labor (usually from women and children), and it cannot pump very high or very far from the water source (50 meters would be a relatively long distance even with a gentle slope).

A woman standing by a "keyhole garden" in Lesotho. Gardens were built in this community using FFW. Photo by CRS Lesotho.

Some types of irrigated home vegetable gardens are very well suited to HIV and AIDS programming. They usually provide a marked improvement in household nutrition, and may not require excessive labor (e.g. where drip kits are very close to water sources, or waste water from the home is used). In some programs, adaptations to home vegetable garden systems have been made especially for PLHIV. One example is the "Keyhole Garden" system being used by CRS Lesotho. Keyhole gardens are built such that an individual can manage the entire garden from a standing position in one location (see photo below). Standing is much more comfortable than kneeling for someone who may not be well, and requires very little motion or labor to manage the garden. However, initial set-up is labor intensive, and many gardens have been constructed with the help of neighbors or through Food for Asset or Food for Work programs.

- *Mushrooms* can be a good option as long as the local demand is reasonably good (check the market before initiating production). They are easy and inexpensive to produce, and require very little capital to get started. They do not require much space or labor, and can often be sold in the local community/village, without the need for a market. The three most important aspects for ensuring a successful enterprise are: a) to understand the market; b) to have reliable access to a good source of "spore"; and c) to have access to some good technical support at start-up. As long as these three aspects are in place, this is a very good option for HIV programming.

- *Poultry* is often a very good option for improving both nutrition and income for PLHIV. Rural households often have some poultry to start with, as well as a basic understanding of poultry production. The eggs and meat are excellent sources of nutrition for PLHIV, and both of these usually have a ready market in the local community. The productivity of local *extensive poultry production systems* can often be greatly increased through some simple, low-cost, low-labor interventions (e.g. improved shelter; small amounts of supplemental feeding with chaff, household scraps or small amounts of grain; creep feeding of chicks to improve survival rates, etc.). Provided access to basic veterinary supplies, and good market demand, *extensive* poultry production is a very good option for HIV programming because of the relatively low start-up and maintenance costs, and the strong potential for both income and nutritional benefits. *Extensive* poultry production is quite different from *intensive* poultry production (where the fowl are penned continuously, and all food and water is provided directly). Intensive poultry production is usually only a viable option in peri-urban areas where demand is very high, feed and veterinary supplies are readily available, transport costs are low, and there is reliable electricity and refrigeration.

  The two main issues with improving local poultry production systems are the need to prevent poultry diseases (and mortality) and now also Avian Influenza (AI). Good training in poultry management, hygiene and preventative medical care are extremely important – along with access to commonly required medicines and vaccines. In addition, good AI awareness and a good AI contingency plan are both extremely

important. Several CRS country programs already have good AI plans and materials to share.

- *Small Livestock (goats, sheep):* Goats and sheep are often already an integral part of the lives and livelihoods of rural families, so they are often important in programs that are helping rural families re-gain or improve their livelihoods. Small livestock can be a source of both meat and milk, and are often a very useful source of income. They reproduce more rapidly than cattle, and are generally easier to maintain and manage. As with extensive poultry systems, traditional small stock production systems can often be greatly improved through some simple improvements in management, shelter and healthcare for the animals.

Issues that need to be considered when small livestock are to be used in relief and/or development programs include: sources and availability of water and feed (for both the household and community levels); shelter for the animals; veterinary care and access to vaccines and medicines; and availability of household labor to manage the animals. One other issues that is sometimes important is to ensure that the breed(s) of the animals involved are of a type that is adapted to local conditions, and is liked/preferred by the local people (and the market). Where all of the aforementioned conditions exist, small livestock can be a very valuable intervention for HIV programming because labor requirements are relatively low, income generation is relatively high, and in the case of goats – there is good potential for improved nutrition from milk and milk products.

3.2. Improving Systems & Structures

Most of the important agriculture and environment interventions that can be used to support HIV and AIDS programming have been described in the "Assets" section above. However, there are several related issues that have an impact on the long-term success of these interventions, and these are discussed briefly here.

- ***Engage PLHIV directly in project design and implementation*:** First and foremost, the importance of involving PLHIV meaningfully in all aspects of the project needs to be emphasized. This includes project planning; the potentially vital role of influencing systems and structures; and advocating for greater access to services and assets for PLHIV, their households, and other affected members of the communities. Doing this will help to ensure that the projects are relevant, useful and sustainable. It also empowers local people – and this can be one of the most powerful approaches to promote positive change.

  PLHIV must be meaningfully involved in all aspects of the project.

- ***Be inclusive in identifying appropriate interventions:*** As noted earlier, the selection of appropriate interventions depends upon the participation of the targeted beneficiaries and to some extent - their respective communities. In addition however, it is important that technical experts in both agriculture and HIV and AIDS participate in the process. Also, local partner organizations, and other organizations that may be important in providing support for the interventions in the long term, should be included (e.g. local agricultural extension personnel, local community health workers, etc.). The joint participation will ensure a common understanding of the problems being addressed, and why specific interventions are most appropriate. The process also provides partners and support organizations with a vested interest in ensuring that the program succeeds, since they have been part of the design "team" and it is partly "their" program.

- ***Building the capacity of local systems and service providers:*** Any new enterprise or activity will require inputs and technical support long after the "project" under which it began has closed. For example, poultry or small-stock enterprises will probably require technical advice from extension workers and para-veterinarian services, and people who sell medications of various types. Groups that start irrigation projects using treadle pumps will ultimately need to purchase spare parts and effect repairs, etc. Sustaining any new projects in the future will depend on having the necessary support systems in place. To that end, it may be necessary to build the capacity of local systems and structures to ensure that the required support will be available. That means, for example, in setting up a vegetable garden, it may be necessary to provide the local extension personnel with specialist training in vegetable production so they can advise project participants accordingly when problems. It may also be useful to provide some training for the local shop keepers so that they can stock appropriate and necessary inputs like seeds, fertilizers and chemicals for controlling pests and plant diseases. A

simple review of the tangible and intangible "inputs" that are necessary to support a project or enterprise in the long term will quickly highlight the critical support components. The project should include plans to identify and develop those support components at the same time as the project itself is being implemented.

- ***Linking beneficiaries to local service providers:*** Related to the above, a wide range of service providers are likely to be needed to support and expand the project in the future. Examples might include buying inputs (seeds, fertilizers), transporting products to market, finding new buyers and new markets for products, accessing technical advice on new problems (e.g. a new crop or livestock disease). Project implementers should use local service providers as much as possible from the initial stages of the project. Where these are absent, the project may initially provide key inputs and services, but ultimately, independent and self-sustaining service providers will need to be identified or developed. It is therefore a good idea to start linking the project beneficiaries to the relevant service providers at an early stage, so that these relationships are well developed when the project ends. It is also important to ensure that all "subsidies" for various goods and services have been phased out, and that the project is operating on a cost-recovery or profit basis, before the project closes. This will help to avoid one of the most common causes of project failure.

- ***Advocacy for social change:*** Lastly, the capacity to organize and advocate for necessary or useful rights and/or services may be extremely important not just to getting projects successfully established, but also to the success of the project in the long term. Examples could include getting permission from the local headman to use some communal grazing areas near a river for an irrigation project; ensuring that the local health post is staffed with a qualified government nurse; or reducing the stigma attached to HIV and AIDS in the local community. Whatever the objective, helping beneficiaries to organize themselves, understand their rights and responsibilities, and to learn how to advocate successfully achieve specific objectives, will be extremely beneficial to their long-term success. One of the best examples of this type of work in CRS can be found in the self-help groups in India.

3.3. Evaluating and Comparing Agriculture and Environment Technical Options to Support HIV and AIDS Programming

Most of the AG/Env interventions described in this paper are compared in **Table 1**, below. They are compared on the basis of several criteria, which include the following:

- ***The initial investment required*:** This includes both the financial capital and the initial labor that is necessary to start a new project. The initial investment is important because many households that are affected by HIV and AIDS are already suffering from financial pressures, and possibly labor shortages, and may not have much capital or labor to invest in starting up new projects. It would be unfortunate if the neediest households were unable to participate in new projects because they could not make the necessary initial investment. Conversely, interventions that have high start-up costs may require higher project budgets, if the project needs to cover those costs for the beneficiaries.
- ***The amount of labor required:*** This refers to the amount of labor the intervention will require from the participants on a day-to-day basis, once the project is up and running. For example, a fish pond may require a significant amount of money and labor to set up, but require very little money or labor to keep it running, once it has been established. In this case, the "labor required" would be considered as low.
- ***The income potential:*** This refers to the potential cash income for participating household that is likely to be generated by the intervention.
- ***Risk:*** This refers to the amount of risk that households may incur by adopting the intervention. For example, if a participating household needs to make a significant investment of cash or labor to start a particular enterprise, and the possibility of failure is high, then the risk would be considered high. But if the initial cost is low, and the probability of success is high, then the risk would be considered to be low. It is a rough comparison of investment versus potential loss. It is important because many household that are dealing with HIV and AIDS have relatively low margins for risk.
- ***Nutrition potential:*** This is an estimate of the potential for the intervention to significantly improve the nutritional value of household consumption. While some interventions may contribute directly to household nutrition (e.g., fruit trees in home orchards), other interventions may contribute by generating income and increasing the diversity of the diet of the household.
- ***Impact on household food security:*** In this category, increased food production is considered to contribute directly to household food security. Increased income may contribute to increased food security, depending on how the income is used (food versus clothes versus beer and cigarettes).
- ***Impact on HIV and AIDS:*** This is an attempt by the authors to integrate all of the preceding criteria, and it relates to the value of each intervention in supporting HIV and AIDS programming in general. However, it should be noted that this has been done in a subjective manner, based on the previous criteria as well as the authors' combined experience.

Table 1: Comparison of Technical Ag/Env Options for HIV Programs

Innovation or Technical Option	Initial Investment required	Labor Required (participants)	Income Potential	Risk	Nutrition Potential	Impact on household Food Security	Impact on HIV and AIDS * (describe)
Antiretroviral Therapy (ART)	High	Low	N/A	Low (with good compliance)	N/A	Can reduce if required to pay for ARVs	1 Encourages CT; Increases labor availability; reduces morbidity and mortality
Microfinance (SHGs and ISL)	Medium	Low	N/A	Low	N/A	Should increase, depending on marginal propensity to consume	1 May lead to less risky behaviors; can help support paying for ARVs; Good incentive for HBC volunteers?
Participatory watershed management (increase environmental productivity, water availability and incomes)	High	High	Enterprise dependent, potentially very good	Low to moderate	Enterprise dependent, potentially good	As water becomes more available, production can double with second cropping season.	4
Improved crop and/or livestock production options (special focus on food security, nutrition and labor issues)	Medium	Medium	Medium	Medium - use only proven materials	Medium to high - enterprise dependent	Large benefit for "food" crops, may be less benefit with "cash" crops	2 May lead to increased nutrition and food security
Conservation Farming in particular	Medium	Medium to high	Enterprise dependent	Low	Medium to high	Usually increases food security	1 to 2. Somewhat dependent on household situation
Enterprise diversification (food security, nutrition, income security, spreading labor requirements)	Medium	Enterprise dependent	Enterprise dependent	Low	Enterprise dependent	Enterprise dependent	1 May lead to increased nutrition and food security
Contract farming options (increased productivity and income)	Low to Medium	Generally higher	High	Medium (depends on the Contractor)	Enterprise dependent	May depend on who decides how the income is spent	4

Draft power clubs (pool labor/draft power/equipment. Rent plowing, transport)	Medium	Medium to high	Medium to High	Low	N/A	Should increase	4 May lead to reduced human labor requirements and increased production
Home orchards	Low	Low	Medium	Low	High	Positive	1 May lead to increased nutrition
Poultry	Low	Low	High	Medium - need good vet support	High	Should increase	1 May lead to increased nutrition and income
Honey	Low	Low	High	Low	High	Positive	4 May serve as an IGA
Mushrooms	Low	Low	High	Low to medium	Low	Depends on how income is spent	2 May serve as an IGA
Small livestock (goats, sheep)	Medium	Medium	High	Low	High	Should increase	2 May serve as an IGA
Irrigation-related technology • Keyhole gardens • Other home or community gardens • Drip kits • Treadle pumps	 High Medium Medium Medium	 Low Medium Medium Medium	 Low Medium to high Medium High	 Low Low, if cost of system is low	High for all	Should increase for all	 1 4 4 4
Fish ponds	Medium to high	Low	Medium to high	Low to medium	High	Should increase	4

* 1 = Very good 2 = Fair 3 = Poor 4 = Highly dependent on the local situation

Table 2: Two Examples of How Specific Agriculture Interventions can be used to Support Different Aspects of HIV and AIDS Programming

Ag/NRM Intervention	AB	OVC	HBC	ART
Self-help Groups*	Discussion forum for issues related to HIV prevention	Small scale agricultural and IGAs can provide food, nutrition, school fees if surplus is marketed	Care and psychosocial support; can also help with small scale agriculture and IGAs	Can help prepare patients for therapy; excellent support group for adherence; Post-Test Clubs may be able to graduate into IGAs and other activities as SHGs
Farmer Field Schools (FFS)**	Discussion forum for issues related to HIV prevention; can reach adult and adolescent populations quite easily	Small scale agricultural and natural resource activities can provide new skills, food, nutrition.	Small scale agricultural and natural resource activities can provide new skills, food, nutrition; emphasize low labor, or direct support by FFS	Small scale agricultural and natural resource activities can provide new skills, food, nutrition, especially for those just starting/very sick; can also help reduce stigma and support adherence

* Self-Help Groups are, strictly speaking, a microfinance sector intervention. However, the approach is included here because a very similar approach is now commonly used in a range of Ag/Env activities.
** FFS are an approach developed largely by the FAO that supports farmer learning. They typically involve groups of 20 to 30 farmers, and use participatory, learning-by-discovery techniques. Farmers in the groups usually conduct experiments together at a central location, and monitor and discuss the results. The process usually involves at least one complete production cycle. Additional information on FFS can be obtained from the FAO website. While FFS have been used frequently by CRS in the past, they are not specifically discussed in this document because a new process for developing and supporting farmer groups has been developed within CRS. This new approach is now being promoted in place of FFS.

Annex 1. Examples of How Existing Sectoral Programs could be Expanded to include HIV and AIDS Programming: Seed Fairs, Self-help Groups and Farmer Field Schools

Seed and/or Livestock Fairs: Many CPs promote a standard process for the implementation of the Seed Fairs. In each of the phases, HIV and AIDS considerations could be taken into account. The following seed fair implementation process highlights how HIV and AIDS might be incorporated into the various steps:

- ***Assessment***: Seed Fairs first start by assessing needs. This involves ascertaining varieties of crops grown; how they are used; assessing the availability of seed; identifying the traditional seed saving patterns, constraints, and seed quality; and targeting potential participating households to ascertain the appropriateness of a seed fair. In addition, this assessment could include the prevalence and impact of HIV and AIDS in the targeted communities. The selection of appropriate seed will depend not only on the agricultural sustainability of the varieties, but also on the capacity of households to grow various crops and varieties, and their nutritional needs – both of which may be impacted by AIDS-related morbidity and reduced labor.

- ***Planning the seed fairs:*** The pre-seed fair activities include conducting sensitization of communities and seed sellers, identification of seed sellers, printing vouchers, and setting up committees to oversee smooth implementation of the seed fairs. At this stage, it is relatively easy to integrate HIV and AIDS prevention and education messages into the community sensitization activities for the seed fairs. In addition, depending on the situation within the targeted communities, PLHIV could be invited to participate in the committees to oversee the seed fairs. The pre-seed fair activities also include the targeting of the beneficiaries according to set criteria. While households affected by HIV and AIDS are often among the more vulnerable within the communities, selection criteria should include not only the health measure of the presence of HIV and AIDS in the household, but also the food security or livelihood of the household. Targeting based solely on the presence of HIV and AIDS may result in increased stigma in the communities and inclusion of families that are not necessarily among the most needy.

- ***Implementation of the seed fairs:*** PLHIV would be integrated into the project by this point. However, they should not be treated as a separate beneficiary group. Indeed, oftentimes, PLHIV are impossible to identify. In this case, a proxy indicator can be used to estimate which households are affected by HIV and AIDS. The most common proxy for HIV and AIDS is "chronically ill". In this case, household members of the chronically ill person may attend the fair on behalf of the household, as the chronically ill member may not be well enough to attend the fair. This situation should be considered when setting up the seed fair.

- ***Monitoring and evaluation (M&E):*** These sessions could include PLHIV, and representatives might be asked to form a separate discussion group in order to obtain their open input regarding the process.

Self-help Groups

Self-help Groups are actually a "microfinance" sector intervention. However, because of their utility, this approach is also being promoted as an integral part of group formation for agroenterprise programs. Perhaps the best example of SHGs in CRS comes from our programs in India. There, small and relatively homogeneous groups (15-25 members) are formed around a basic process of internal savings and lending. However, the groups are also assisted and empowered to address what they see as their most pressing social issues in their communities. Through saving and inter-lending the groups start to generate their own capital and learn financial management skills. However, they typically take on a range of other activities which often includes both agricultural or natural resource based IGAs and social actions such as reducing domestic violence or increasing school attendance by children in the community. These groups are often highly effective, and today there are over 2 million women in India who participate. The SHG format is extremely flexible, and can have a very wide range of applications. Some ideas on how they could be used in HIV and AIDS programs are discussed in the following pages.

CRS India has been working with women's self help groups in Orissa since 1999. Photo by Jennine Carmichae/CRS.

Abstinence & Behavior Change (AB): SHGs are an excellent forum for addressing many of the issues related to prevention of HIV and AIDS. Group members can discuss problems and methods for resolving various situations, and reinforce positive behaviors. A Public Health worker can help moderate the discussion and provide relevant information as appropriate. Note: this assumes that the group has indicated that HIV is a concern. If it is not a priority, or concerns over stigma are an obstacle to discussing HIV, then the group may need some background sensitization.

Orphans and Vulnerable Children (OVC): SHGs that want to address the problems of OVC in their communities have many opportunities. For example, group gardens can be used to provide support directly through consumption, or indirectly through the sale of produce to raise funds for school fees.

Home-based Care (HBC): Similar to OVC programming, SHGs can also address the problems of PLHIV, including providing basic care, psychosocial support, and helping people die with dignity. A wide range of community activities can be used to complement these activities, or SHGs can focus directly on care and support of the sick and dying. Assistance in establishing SHGs may also be used to provide and incentive for HBC volunteers.

Antiretroviral Therapy (ART): Not everyone who is HIV-positive will need ART right away – this decision will depend on immune functioning and a variety of other factors. SHGs that may be comprised of PLHIV can help one another prepare for, and succeed on, ART. A major factor in the success of ART is near perfect adherence to the prescribed regimens, and having a strong support network is one important factor that can help patients adhere. Many treatment sites have "Post-Test Clubs" for PLHIV, who provide support to one another. Some of these groups may have the capacity to begin functioning as SHGs and engaging in other activities.

Farmer Field Schools

Farmer Field Schools (FFS), including Junior Farmer Field Schools (JFFS) and Farmer Life Schools (FLS) are another potential format for integrating agricultural and HIV activities. For additional information on FFS see **Table 2.**

Abstinence & Behavior Change (AB): FFS provide an excellent forum for addressing many of the issues related to prevention of HIV and AIDS, and help to reach a specific audience – rural males – that otherwise may not have many chances to discuss these issues (N.B. While FFS and JFFS are not segregated by gender, they typically include a significant number of male participants). Reaching the rural male population may be an excellent way to address stigma, harmful gender norms and certain beliefs that may be helping to fuel the epidemic. Moreover, this gives men a chance to discuss among themselves their attitudes and behaviors towards sex. The group may need some sensitization to this issue, and agricultural extension workers can help stimulate discussion by drawing links with HIV and agricultural concerns. For example, loss of inter-generational knowledge transfer may lead to Ag/Env

practices that reduce yield. Again, a Public Health worker can help moderate the discussion and provide any relevant information as appropriate.

Orphans and Vulnerable Children (OVC): Junior Farmer Field Schools provide an excellent opportunity for interacting with OVC (in fact, FFS were modified into JFFS for this purpose). For example, JFFS can develop gardens and other agricultural activities that can help support these children, improve nutrition, provide school fees, and teach basic business and life skills.

Home-based Care (HBC): Similar to integration with OVC programming, there are a variety of interventions that can be combined to support HBC. Whereas SHGs may engage more directly in care and psychosocial support, FFS programs can help develop a variety of agricultural and natural resource interventions that address the needs of HBC clients, such as reduced labor or by providing the labor directly.

Antiretroviral Therapy (ART): In FFS, group members usually produce crops as part of their learning process. One way for FFS to assist with ART is to have them help support people on therapy with food, especially relatives and friends who are too ill to produce for themselves. FFS will probably also include members that are HIV positive, and while stigma remains a problem, having members who are on or are preparing for ART step forward and speak out may help encourage others to get tested. Members of the FFS can support patients on ART by helping them adhere, and also by being a supportive voice in their communities.

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