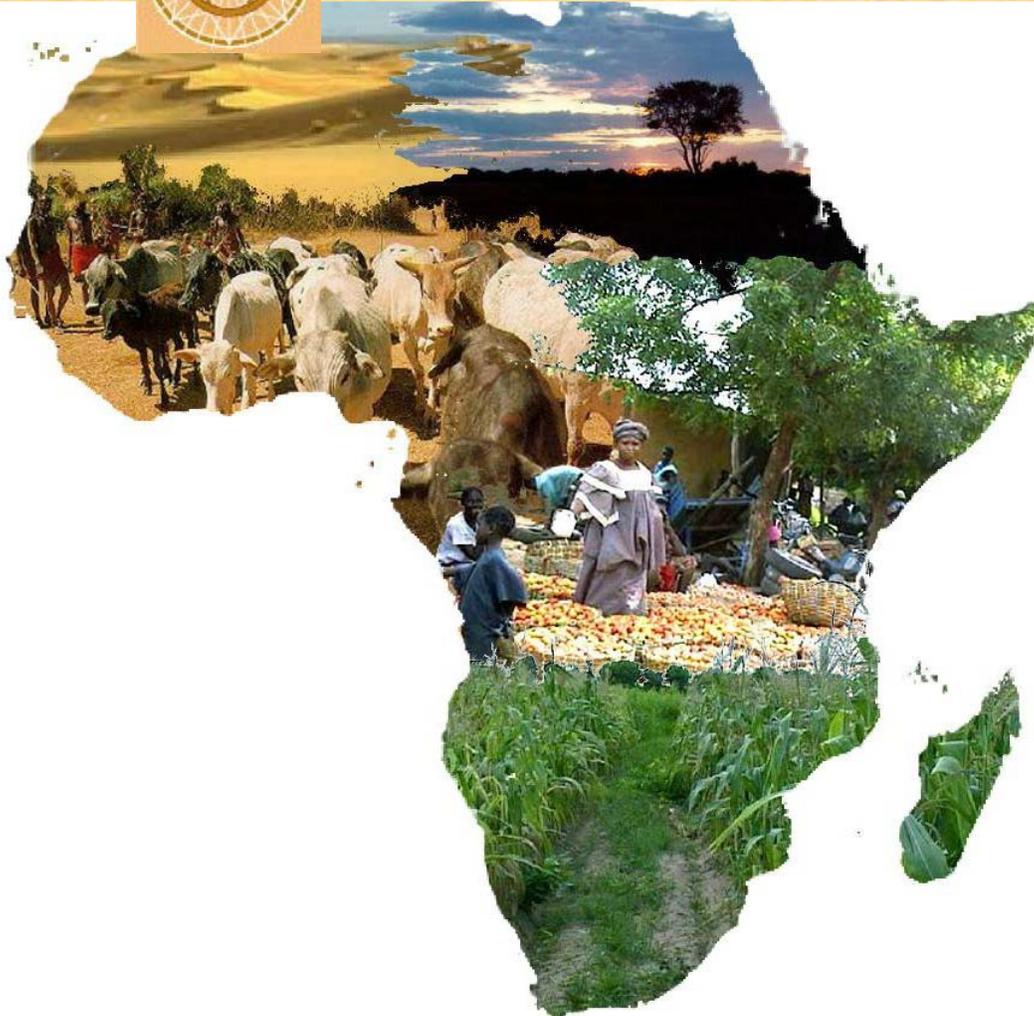




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LIST OF ACRONYMS

ACDI/VOCA	Agricultural Cooperative Development International/Volunteers in Overseas Cooperative Association
ACF	Action Contre la Faim (USA)
AIC	AIDS Information Center
AIDS	Acquired immune deficiency syndrome
ART	antiretroviral therapy
ASO	AIDS service organization(s)
BMI	Body mass index
CARE	Cooperative for Assistance and Relief Everywhere
CDC	Centers for Disease Control
CFW	Cash-for-work
CHILD	Community and Home Initiatives for Long-term Development
CRS	Catholic Relief Services
DANIDA	Danish International Development Assistance
DFID	Department for International Development
EU	European Union
FAO	Food and Agriculture Organization
FFW	Food-for-work
GDP	Gross domestic product
GNP	Gross national product
GOU	Government of Uganda
HIV	Human immunodeficiency virus
IDEA	Investment in Developing Export Agriculture (Project)
IDP	Internally displaced person(s)
IEC	Information, education, and communication
IGA	Income-generating activity/activities
ISP	Integrated strategic plan
Kg	Kilogram(s)
LIFE	Leadership and Investment in Fighting an Epidemic Initiative
LRA	Lords' Resistance Army
MAAIF	Ministry of Agriculture, Animal Industry, and Fisheries
MTCT	Maternal-to-child transmission
MFI	Micro-finance Institution(s)
MFPED	Ministry of Finance, Planning, and Economic Development
MOH	Ministry of Health
MPS	Ministry of Public Service
NAADS	National Agricultural Advisory Services (Program)
NACWOLA	National Community of Women Living with HIV/AIDS in Uganda
NARO	National Agricultural Research Organization
NGEN+	National Guidance and Empowerment Network of People Living with HIV/AIDS
NGO	Non-governmental organization(s)
OI	Opportunistic infection(s)
ORS	Oral rehydration solution
PEAP	Poverty Eradication Action Plan
PLWHA	Person/people living with HIV/AIDS
PMA	Plan for the Modernization of Agriculture
SO	Strategic objective
SPEED	Support for Private Enterprise Expansion and Development

STD/STI	Sexually transmitted disease(s)/infection(s)
TASO	The AIDS Support Organization
TH	Traditional healer(s)
THETA	Traditional and Modern Health Practitioners Together Against AIDS and Other Diseases
Title II PL 480	US Title II of Agricultural Trade, Development, and Assistance Act of the 1954 Public Law 480
UAC	Uganda AIDS Commission
UDHS	Uganda Demographic and Health Survey
UFSI	Uganda Food Security Initiative (Africare)
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Program
UNHS	Uganda National Household Survey
USAID	US Agency for International Development
USDOC	US Department of Commerce
Ush	Uganda shillings
UWESO	Ugandan Women's Effort to Save Orphans
VCT	Voluntary counseling and testing
WFP	World Food Program
WHO	World Health Organization
WVI	World Vision International

EXECUTIVE SUMMARY

The rich natural resource base, the success of smallholder agricultural production, and the rising incomes of the population of Uganda create the expectation that Uganda could be “the breadbasket” for the Horn of Africa. However, that expectation has not come to fruition. Uganda continues to be plagued by internal social conflict, as well as spillover from warring neighboring countries. While the Lake Victoria Crescent has returned to relative civil stability and dynamic economic growth, civil disruption continues across the north and along the western border resulting in approximately one million displaced persons who are particularly vulnerable to food insecurity. This dynamic, coupled with national statistics of poor nutritional status and the steady prevalence of HIV/AIDS, has negatively impacted the food security situation in Uganda and continues to disrupt the pursuit of livelihoods in some of Uganda’s most productive areas.

The U.S. Agency for International Development (USAID, 1995) defines food security as when people have regular access—either through production or purchasing power—to sufficient food to meet their dietary needs for a healthy and productive life. This paper uses a resource framework in which particular attention is paid to the *availability*, *access to*, and *utilization* of food resources.

The primary causes of food insecurity in Uganda are poverty, low agricultural productivity, conflict, HIV/AIDS and the occasional natural disaster like droughts, and floods. Poor food utilization, particularly as it relates to the nutrition of young children is also a food security issue. All of these causes except the natural disasters are chronic situations. Resolving problems of chronic food insecurity requires development solutions, not temporary food relief. Food relief may be required to prevent famine, but it largely treats the symptoms, not the causes of food insecurity.

While many poor households do not have the resources—either from agricultural production or income—to feed their members adequately, food *availability* at the national level is typically not the cause of food insecurity in Uganda. The production of basic food crops nationally is sufficient to meet the minimum energy requirements of the population. Uganda has been blessed with a rich natural resource base and two rainy seasons per year over much of the country. If one harvest fails, the next harvest is only 3-4 months away. In addition, crops that have definite harvest periods constitute only about 40% of the supply of basic food crops. Bananas, which supply 53% of Uganda’s basic food crop production by weight, are not seasonal but produce all year round. Cassava, which supplies another 7.5% of basic food crop production can be harvested over a number of months and stored in the ground until needed.

This is not to say that every corner of the country has all the food that it needs all of the time. There are constantly reports of drought, floods, armyworm attacks or other localized problems. However, these problems are generally localized and do not cause the nationwide famines that have plagued neighboring countries. The only region seriously deficit in the production of basic food crops per capita is the Central Region, which is by most accounts the best fed region of the country. The Central Region’s focus on cash crops and expansion into high-value specialty crops for urban and export markets provide the region’s rural population with above average incomes and food security. This performance confirms the notion that self-sufficiency is not necessary for food security, even in a very poor country, and makes the Central Region the model or “poster boy” for high value and export led growth in the agricultural sector.

Approximately 53% of agricultural production is marketed and about 40% of food crops is marketed outside the immediate production area. Transport and marketing infrastructure are primarily oriented to sending marketed foods to the urban areas. Food commodities may well have to transit through urban commodity dealers and be sent back to a deficit locality in the rural area, if the people have the means to pay the urban commodity dealers a price that is competitive with urban food prices.

Rather than *availability*, the primary cause of food insecurity in Uganda is poverty, which limits *access* to an adequate supply of food to meet minimum nutritional requirements. Calculations made during the development of the Food Poverty Line for Uganda indicate that the poorest 50% of the population consume less than 1400 calories per capita per day. This is far below the 2200-2300 calories per capita per day estimated to be necessary to meet minimum nutritional requirements. The approximately 20% of the population below the Food Poverty Line are by definition food insecure, and the 35% below the Poverty Line are probably food insecure as well.

The Poverty Rate in Uganda has declined from 56% in 1992 to 44% in 1997 to 35% in 1999. This is one of the most remarkable successes of economic growth in Africa. However, this still implies that 35% of the population have insufficient income to provide minimum family consumption requirements in addition to other non-food necessities. Nearly 20% of the population do not have sufficient home production and income to provide minimum family consumption requirements alone. This last factor is important because poverty in Uganda is almost entirely a rural phenomenon. While less than 10% of the urban population is below the Poverty Line and even fewer are below the Food Poverty Line, 39% of the rural population are below the Poverty Line and a little more than 20% are below the Food Poverty Line. Rural poverty has declined sharply from 60% in 1992 to 39% in 1999. Cash crop farmers have seen poverty rates decline more rapidly than have non-crop (livestock, fishing) and food crop producers.

Economic growth is responsible for the entire reduction in poverty indicated above. The very modest redistribution effects have had a negative impact rather than helping to reduce poverty. Since poverty is the primary cause of food insecurity, poverty alleviation through economic growth is the primary solution. However, prospects for economic growth will also be compromised if large portions of the population such as single parent households and those households whose livelihoods are disrupted by conflict, poverty or AIDS remain disenfranchised and neither contribute to nor benefit from economic growth. Furthermore, economic growth will not result in an enhanced quality of life for the people of Uganda if large portions of the populations remain excluded from its benefits.

Smallholders are responsible for 95% of the agricultural production in Uganda and are generally characterized as low-input low-output consumption oriented producers. While low agricultural productivity has not prevented Uganda from producing enough food to feed its population, it does constrain the ability of rural households to produce adequate food and income to provide proper nutrition for their members. It also constrains the competitiveness of Ugandan agricultural products in international trade, which further limits opportunities to earn income.

Another chronic food security issue is the poor nutritional status of young children in Uganda. Nationally, 33% of children ages 0 to 5 years have their growth stunted because of inadequate food intake/nutrition and healthcare. While stunting is highly correlated with poverty, it is not clear that reducing poverty alone will solve this problem. There is concern that many mothers may not have proper nutrition and health care to bear healthy babies and provide adequate breast milk for exclusive breastfeeding, that economic responsibilities may constrain mothers from providing adequate feedings, and that cultural traditions and poor education may prevent mothers from providing nutrient-rich weaning foods and initiating supplemental feeding at the appropriate age. There is also concern that inadequate healthcare may prevent young children from utilizing the nutrients available in the food they consume. Pre- and post-natal programs focused on nutrition and healthcare of the mother and child have helped address these concerns in other countries.

HIV/AIDS is another significant problem with regard to food security, economic growth, and poverty alleviation. At a minimum, some 1.8 million people are HIV positive, and the epidemic has already

resulted in 1.7 million orphans (and the number is growing). Since many of the 1.8 million HIV-positive people are adults with families, millions of additional family members are living with HIV/AIDS. One might hazard a guess that the number approaches 20-30% of the population. If this large a segment of the population is excluded from participating in and contributing to economic growth, it would negatively impact future rates of economic growth, and there would be little chance that the national poverty alleviation objectives could be attained.

In Uganda, conflicts—both internal civil unrest and warfare in neighboring countries—have caused some 800,000-900,000 citizens to be displaced from their lands and located in protected camps, along with another 200,000 refugees from neighboring countries. The North, the region most affected by conflict is the region that has seen the least progress on reducing poverty and food security, and the only region where rural incomes and consumption actually declined (poverty incidence among rural populations rose from 62% to 67%) between 1997/98 and 1999/2000. Some of the areas most affected, particularly Gulu and Kitgum, have been (and potentially are) among the most productive regions of the country in the past. Conflict is a major constraint to national food security, economic growth, and poverty alleviation. Since many of the camp dwellers have been displaced two or three times over the last 15 years; the problems of income and food security are chronic and not amenable to solution by food relief alone.

Economic/Agricultural Component

Although Uganda remains one of the poorest countries in the world with 1999 per capita GDP of \$320, economic growth rates for the last decade have been among the highest in sub-Saharan Africa. Poverty rates have declined significantly and the rate of growth in food production exceeds the population rate of growth. Although agriculture remains the largest economic sector, it continues to grow, its contribution to GDP is declining. Rapid growth in the service sector and the industrial sector are the cause of this decline. The agricultural sector accounts for 44% of GDP, 80% of employment, and nearly 90% of merchandise exports, of which coffee provides 55%. The five-year average total production of basic food crops (by weight) increased 35% between 1981-85 and 1995-99, or at a rate of approximately 3.4% per year. Total area planted to these basic food crops grew by about 46% during this same period. With land area increasing more rapidly than production, productivity in food crops overall has apparently declined slightly over the last 20 years.

The key to addressing food security in Uganda is poverty alleviation through economic growth. Economic growth and increasing incomes will do more to reduce food insecurity for a larger number of people than any other strategy. Addressing conflicts, HIV/AIDS and the poor nutritional status of young children are other necessary aspects of an overall food security strategy that also begins to address the issues of groups marginalized by the typical economic growth process. Addressing these issues will contribute to poverty alleviation and help maintain high levels of economic growth. In addition, several approaches should be considered to help alleviate food insecurity and contribute to economic growth and poverty alleviation.

Improved Agricultural Productivity: The most basic approach to achieving economic growth in agriculture and improving food security is through improved agricultural productivity. This is an important aspect of the PMA strategy of facilitating a transition from “subsistence” (more correctly, low-input, low-output, consumption oriented) production to commercial agriculture. There are many things that may stimulate improved agricultural productivity, including improved technology and practices, technology transfer, facilitating access to agricultural inputs, marketing services, improved transportation, improved post-harvest handling and processing, and secure land tenure. However, there is no certainty that agricultural production and productivity will improve until all of the necessary enabling conditions for productive and profitable agricultural production are provided. As each of the constraints is overcome, another of these necessary conditions will limit the advance in

agricultural productivity until it too is overcome. However, as each constraint is eliminated, agricultural production in general, or some aspect of agricultural production in particular, will move to a higher level. For example, if one resolves a commodity marketing constraint, production will typically increase, albeit perhaps less than one might hope if lack of access to basic input supply, credit, or improved production technologies still constrains production and productivity.

Income Diversification: While there may be adequate food nationally, many (particularly rural households) do not have either the home production or the income to *access* the food they need. Increasing food crop production is one way to resolve this problem, but only one of several. A massive campaign to increase production of a given crop, if successful usually results in a sharp fall in the price of the commodity. A focus on income diversification has the advantage that it provides an opportunity for farmers to achieve food security through cash crops, livestock production and a variety of other methods that may better fit their systems of production, and with less risk of a crop failure or a price decline producing a national or regional disaster. Off-farm employment and other non-farm income-generating activities should be included among the options considered. At the sector level, diversification into new high value crops and export markets has better potential than traditional crops of resulting in rapid economic growth and opportunities for employment generation.

Asset Accumulation: Agriculture tends to be cyclical in nature, and most farmers have to expect that there will be bad seasons or years. Farmers need to set aside assets that they can draw upon to help ensure food security in those bad years. Any income-generating activity can serve this role, if some of the income is saved. Enterprises like livestock production that build income-generating assets, some of which can be sold in hard times, may provide a better buffer against food insecurity than some other forms of income. Off-farm income may serve a similar purpose by helping maintain household income when the farm income is down.

Addressing Groups with Special Needs: A variety of groups with special needs are at risk of food insecurity and of neither benefiting from nor contributing to economic growth. These include the very poor, internally displaced persons (IDPs), women- and child-headed households, orphans and families living with HIV/AIDS. Families with one or more of these disadvantages would perhaps constitute 25-35% of the total population. It seems unlikely that the economy can maintain a high rate of economic growth if this large a segment of the population is not benefiting from and contributing to that growth. To the extent that the very poor, IDPs, women- and child-headed households, orphans, and families living with HIV/AIDS have chronic income and food security problems, then these are development problems and not just transitory problems that can be adequately addressed by relief. Many of these families are capable of fully participating in growth oriented and income-generating activities and more will be able to do so if they receive a minimum of strategically targeted assistance with some of their special needs. However, these families are greatly in need of income-generating activities appropriate to the reduced labor status that many of them have experienced.

Multi-Sectoral Development Approaches: Activities that use a multi-sectoral approach seem likely to have the best chance of addressing the development needs of vulnerable populations. Programs that have a local level geographic focus (District, county, sub-county) should look at ways of providing, or partnering with other programs to provide, responses to the population's needs with regard to food production (*availability*), income generation (*access*), and nutrition and health (*utilization*). Addressing nutrition (particularly adequate sources of nutrient-rich foods) and healthcare and maintenance will also address many of the immediate needs of families living with HIV/AIDS. Many of these families are capable of fully participating in growth oriented and income-generating activities, and even more will be able to do so if they also receive some help with these basic needs. Economic growth and poverty alleviation have a much better chance of achieving their quality of life

objectives if a substantial portion of these disadvantaged households can be maintained in the mainstream of families with growing incomes, which will have a positive impact on food security.

Relief to Development Transition: Most people experiencing food insecurity in Uganda are suffering from a chronic situation of poverty, conflict, and limited household labor rather than the loss of a season's food supply because of a natural disaster. These people need development activities to address the chronic nature of their problem rather than just short-term relief. A transition from relief to development is very welcome but difficult to accomplish. Relief keeps people alive in a famine situation but often has a tendency to inhibit people from taking control of their own lives, community and development. Unless ways can be found to reduce these disincentives from relief actions, it may be better to find some approach that separates relief and development activities. School feeding may provide a focus for meeting some of a community's food needs and allow relief to be separated from other development activities.

Nutrition Component

While the poverty rate has decreased from 56% in 1992/93 to 35% in 1999/2000, the data shows a continued high percentage of preschool age children who exhibit stunted growth as well as a continued prevalence of wasting and underweight children. Some of these statistics are specific to the Northern Region of Uganda with its problems of continuing civil disturbance, but it has been found that poor nutritional status among Ugandans is widespread with the highest stunting rate reported in the Western Region of the country. These statistics relate to a variety of factors such as childhood illnesses, lack of micronutrients, food consumption patterns, and the distribution of resources within the household. Therefore, to achieve effective food security programming, interventions need to pay more attention to incorporating activities that address these factors, while continuing to stimulate increased household income. This more integrative approach involves not only the *availability* and *access* of food, but its *utilization* by the population as well.

Food consumption of the poor is often insufficient to meet minimum nutritional requirements, particularly in terms of calories per capita per day. As stated earlier, those in the population who fall below the Food Poverty Line, by definition fail to meet these requirements. The 35% of the population that falls below the Poverty Line, probably do not receive the 2200-2300 calories per capita per day estimated necessary to meet these requirements. Since incomes are higher in urban areas, urban populations have higher average consumption than do the rural populations. Food and related products constitute nearly 60% of rural expenditures (treating home grown food as if it were an expenditure) and about 40% of urban expenditures.

Interpretation of the results of and comparisons between the 1988/89 UDHS, 1995 UDHS, and 1999 UNHS national-wide surveys need to be done with caution. For the most part, comparisons do show a declining trend in stunting, wasting, and underweight over the years. But comparing individual statistics is not a straightforward affair. For example, the 1995 survey included only children age 0 to 48 months, rather than 0-60 months in the 1988/89 survey and 6-60 months in the 1999 survey. Since older children in this age group tend to have the highest stunting rates, the stunting rate for 1995 would be higher if the broader age group had been used. Also, in each of the surveys a different groups of districts was excluded for security reasons. Since children in areas affected by civil insecurity tend to have worse nutritional status than those that do not have conflict, one must assume that all of the surveys would show somewhat higher rates of stunting, wasting, and underweight, if it had been possible to include these areas. The fact that each survey excludes a different set of districts makes comparisons between them less accurate. The 1988/89 survey excluded the most districts, so it probably also understates stunting, wasting, and underweight more than the others with regard to that consideration alone. There is little basis to decide whether the exclusion of districts with conflict or the exclusion of the children age 49-60 months of age, causes the greater under reporting. Fortunately,

the 1999 UNHS survey seems to generally indicate both better nutritional status and the least bias toward under reporting.

The percentage of children affected by wasting remains low with the exception of the North, where conflict and disruption of access to food apparently have had a significant impact. While the national average in 1999 was 4.7%, the average for the North was 7.1 %, more than 50 percent above the national average.

Another regional disparity is that in the 1999 UNHS, the Western region had the highest prevalence of stunting at 39.3%, even though it had the second highest income and the highest food production per capita of the four regions. This contradicts a large body of literature based on many such surveys that would lead one to expect that higher income and food production should be associated with lower rates of stunting. There is no obvious answer to this anomaly.

Another interesting observation is the gender bias contained in the anthropometric data presented by the three national surveys. In all of the surveys, the statistics show that boys have a poorer anthropometric performance than girls, particularly with regard to stunting. However, several studies indicate that it is not the lack of food intake that creates this phenomenon, but rather that morbidity is higher among young boys than girls. Young boys are reported to be more biologically fragile than young girls, as manifested in higher morbidity and mortality rates. The poor nutritional status of boys relative to girls may reflect this tendency of boys to be ill more often than girls.

If poor health and childcare practices persist, even among higher-income groups, improvements in household income and food production may not automatically translate into improved nutritional status among children. There is a higher prevalence of stunting among children 6-23 months of age in cultures that delay supplemental feeding beyond the 4-6 month age. There is also an indication that economically active mothers may not breastfeed young children as often as would be desirable.

Nutritional status is traditionally viewed as a feedback indicator that provides information about how well children are surviving the food security (and health) conditions that existed over the previous 5 years (when surveying children 0 to 60 months). If growth-monitoring data can be made available on a monthly or periodic basis, it can potentially be used to monitor current changes in food security. Fluctuations from month to month in the weight of a particular age group would reflect food intake and health conditions during that period. A declining trend in weight for age would indicate reduced nutrition (or a health epidemic of some sort) that would likely be associated with reduced food intake.

Improvements in access to micronutrients—particularly Vitamin A, iodine, iron and zinc—need to be targeted among nutrition-related interventions. Wasting, as a measurement of acute nutritional (or health-related) distress should be used in conjunction with mortality data, particularly in refugee or IDP camp populations.

The Luwero Rabbit Project and the Africare Uganda Food Security Initiative are examples of successful projects that increase food security both through increased production and diversification of food products, but also through the integration of nutrition education. Such educational programs associated with agricultural activities can help translate the improved availability and access to food into better nutritional status results at the household level.

HIV/AIDS Component

Uganda is one of the African countries where HIV/AIDS was first recognized and where its impacts have been most severe. In the mid-1980s, the government responded early to the epidemic after

realizing the potential magnitude of its impact on the country. It has achieved notable success in fighting HIV/AIDS after developing one of the most vigorous and comprehensive HIV prevention and AIDS mitigation efforts in sub-Saharan Africa.

The number of people living with HIV/AIDS (PLWHA) in Uganda is approximately 1.8 million out of a total population of 21.4 million. The national HIV prevalence was 8.3% in 1999, a remarkable decline in new HIV cases in comparison to the previous decade where HIV prevalence was as high as 30% in some areas. Information from voluntary testing programs indicate that prevalence rates among young women remain 2 to 2.5 times higher than for young men of the same age group. However, knowledge of HIV prevalence for the country's 56 districts is far from complete, especially in the rural areas, and the Northern and Western regions that have been embroiled in prolonged civil conflicts. The decline in HIV prevalence, though significant, needs to be viewed as a vulnerable success.

AIDS is presently the leading cause of death among Ugandan adults. The extent of sustained behavior change with regard to preventing the transmission of HIV is not entirely clear. The rate of HIV infection is highest among 15- to 49-year-olds, who constitute the most productive members of society. More than one-half of Uganda's population is below 15 years of age and will soon enter the age range of highest risk for HIV transmission. These demographics suggest that a second wave of the HIV epidemic could occur, could affect even more people than the first wave, and has the potential to produce an even larger impact on the economy. Coupled with these demographics is a growing orphan burden that is currently estimated at 1.7 million and expected to reach 2.1 million by 2010. These statistics suggest that the AIDS epidemic significantly affects the economic and social fabric of Ugandan society and could have even greater impacts in the future. The potential ramifications need to be acknowledged when considering development strategies, as HIV/AIDS will likely affect practically every sector of the economy and society.

Strategies for working with AIDS-afflicted and -affected households may require elements of triage, as well as strategic targeting of limited resources to groups with special needs. Many of the AIDS-affected households have become single parent households. Mainstream economic growth and food security programs (such as those supported by USAID's integrated Strategic Objective 7) have had great success in recent years working with or incorporating women and women's groups and have not found it necessary to exclude women-headed households from participation. The local groups developed under these programs should be encouraged to include adults who have lost their partners but do not show symptoms of HIV/AIDS. While there may be a perceived risk with regard to the ability of these households to repay loans, the time-frame of most loans is so short (usually 4-6 months) that if the individual does not show symptoms of HIV/AIDS, the risk of that person defaulting on a loan because of HIV/AIDS is very small. This strategy would allow the majority of AIDS-affected household members to continue to participate in and benefit from mainstream agricultural production, food security, and economic growth programs. In particular, it would allow the majority of the AIDS-affected households access to income-generating activities and microfinance opportunities with the goal of asset creation to improve the resilience of these households to cope with the food security challenges imposed by poverty and HIV/AIDS.

What the majority of AIDS-affected families need most, like many other woman-headed households, are income-generating activities consistent with their family's reduced labor status. Mainstream food security and economic growth programs should seek out and offer income-generating activities consistent with this reduced labor availability, even if these activities produce somewhat less income than others. Moreover, these families need an opportunity to rebuild their family assets and social capital.

Addressing the needs of AIDS-afflicted households will be more difficult. These families include households with a high dependency ratio, usually headed by a single parent, grandparent, older children, or families with multiple foster children. Their circumstances will vary, but many will have very limited income and few assets. In some cases, transfers from other family members or charitable organizations may be all that permits the family to remain intact. Some may benefit from short-term relief combined with vocational and livelihood skills training and expanded income-generating activities and opportunities for longer-term self-reliance.

The LIFE initiative can provide the short-term nutrition and health care support that these families require. Others may require some form of relief until the children are old enough to care for themselves or other homes are found for the children. One of the difficult questions will be whether or not these families will continue to receive support so that the children may remain in school, or, if the children will be withdrawn from school to help support their family at an early age. Many of these families will need support mechanisms, both for economic and psychosocial considerations. Most commercial financial organizations may not provide loans to these families because they are not good credit risks. It will be necessary to develop creative strategies to help these AIDS-afflicted groups develop income-generating activities.

One approach may be modeled after the Ugandan Women's Effort to Save Orphans (UWESO), which organizes groups of five foster families into a support unit. They are provided with 10 weeks of training, particularly oriented towards business and credit. Loans are paid back in small installments over a period of a few months. The participating families help each other meet the material needs of the foster children in the group, particularly when there is a large expenditure, such as for medical expenses or school fees. The NGO and relief organizations, particularly those working through the LIFE initiative, are an important mechanism to: 1) develop groups that might collaborate on a group IGA or share the responsibility for repayment of loans related to individual IGA; 2) organize community groups that can provide accounting and other business services and/or literacy and numeracy training; and/or, 3) provide loan guarantees on a group or community basis so PLWHA and AIDS-afflicted households can gradually expand their incomes and rebuild assets that have been drawn upon or lost as a result of HIV/AIDS.

PLWHA and AIDS-afflicted households in conflict areas that are supported through the integrated Strategic Objective 9 face unique circumstances that will require a combination of short-term relief (food aid provided by organizations such as the World Food Program) and longer-term livelihood skills training and income-generating opportunities. The transition from relief to development in conflict areas is extremely complicated. The short-term relief often drags on longer than anticipated without any exit strategy, or relief provisions of one organization may undermine the ability of other organizations to create incentives for communities to take charge of their own development. There is a need for NGOs to collaborate more effectively and promote capacity building and civic engagement among local stakeholders to gain a deeper understanding and personal investment in food security problems within conflict areas.

In conclusion, the cross-sectoral nature of HIV/AIDS requires a well-coordinated and multi-sectoral response that has been characteristic of the Government of Uganda—coordinated for nearly a decade through the Uganda AIDS Commission. The continuation of an expanded response is essential so that sectors can identify and address specific factors predisposing groups to the vulnerability of HIV risks and the myriad impacts of AIDS. HIV/AIDS must be placed in the broader context of development planning if sustainable economic growth and gains in human development are to be achieved for all Ugandans.

SECTION 1

Introduction

The rich natural resource base, the success of smallholder agricultural production, and the rising incomes of the population of Uganda create the expectation that Uganda could be “the breadbasket” for the Horn of Africa. However, that expectation has not come to fruition. Uganda continues to be plagued by internal social conflict, as well as spillover from wars in neighboring countries. While the Lake Victoria Crescent has returned to relative civil stability and dynamic economic growth, civil disruption continues across the north and along the western border, resulting in approximately one million displaced persons particularly vulnerable to food insecurity. This dynamic, coupled with national statistics of poor nutritional status and the steady prevalence of HIV/AIDS, has negatively affected the food security situation in Uganda and continues to disrupt the pursuit of livelihoods in some of Uganda’s most productive areas.

While it is noted that Uganda has made great strides in agricultural production and economic growth since the present government came to power in 1986, the need to incorporate disenfranchised populations remains important. In a time of relative prosperity when poverty rates have declined from 56% to 35% between 1992 and 2000, the nutritional status of young children remains surprisingly poor. HIV/AIDS prevalence has declined but there is fear that a second wave of the epidemic could appear as the 50% of the population under the age of 15 reaches the age of maximum risk for transmission. On a regional scope, the statistical evidence supports the fact that areas not plagued by conflict are faced with other systematic and long-term effects that have a direct, and sometimes negative impact, on food security at the national and household level.

Food security considerations are somewhat different at the national, regional, and household level; this paper attempts to comment on all three. At the household level, food must be *available* and the combination of food produced and income resources must be sufficient to *access* enough food to meet at least the minimum per capita daily energy requirements. In addition, those food resources must be *utilized* in such a manner to meet the needs of each and every household member.

Aggregated to the regional and national levels, to be food secure, the region or country must produce adequate food (*availability*) or have the financial resources (foreign exchange at the national level) to *access* food sufficient to meet the needs of the population. Strictly speaking, to be food secure, food resources in the region or country should be distributed such that the needs of each and every member of the population are met. This last requirement is not usually adhered to in the aggregate and a region or country is said to be generally food secure if they meet the availability and access criteria (Otherwise, in the real world, no region or country would ever be considered food secure.)

This paper uses a resource framework in which particular attention is paid to the *availability*, *access to*, and *utilization* of food resources. It is the opinion of this team that to be successful, programmatic interventions must incorporate these three components and define the linkages that exist between them from the outset. Important distinctions, such as regional differences and cultural practices, will also be highlighted and considered where appropriate.

This paper begins with a definition of food security followed by a summary of the primary causes of food insecurity in Uganda. Chapters 2-4 summarize three annexes that provide detailed explanations of three components impacting food security: agricultural/economics, nutrition, and HIV/AIDS. Included within these three sections are conclusions and recommendations for program planning both at the national and household level.

1.1 DEFINITION OF FOOD SECURITY

The U.S. Agency for International Development (1995) defines people as being food secure when they have regular access—either through production or purchasing power—to sufficient food for a healthy and productive life.

Another definition from the USAID Policy Determination #19 (1992) uses a slightly different formulation which highlights the important nutritional aspect that is sometimes forgotten in food security activities: “When all people at all times have both physical and economic access to sufficient food to meet their dietary needs for a productive and healthy life.”

Food security programs usually address one or a combination of these three components:

Food availability: When adequate quantities of food, supplied through a combination of household production, commercial imports, or food assistance are consistently available to all persons in a country annually.

Food access: When all members of a household have adequate resources to secure culturally acceptable food for a nutritious diet; this depends on the income available to and distributed within a household as well as the affordability of local food.

Food utilization: When food is prepared and consumed to maximize its value for all family members, which relies upon the knowledge and behaviors within a household concerning food storage and processing, basic nutrition principles, and proper child care.

There are three types of food insecurity: *chronic* (when there is inadequate access to food on a regular or repetitive basis); *seasonal* or *cyclical* (appearing at predictable times of the year); and *transitory* or *temporary* (resulting from shocks and natural disasters). The primary causes of food insecurity in Uganda are poverty, low agricultural productivity, conflict, HIV/AIDS, and the occasional natural disaster (droughts, floods). Poor food utilization, particularly as it relates to the nutrition of young children is also a food security issue. All of these causes except the natural disasters are chronic situations. Resolving problems of chronic food insecurity requires development solutions, not temporary food relief. Food relief may be required to prevent famine, but it largely treats the symptoms, not the causes of food insecurity.

1.2 CAUSES OF FOOD INSECURITY

Responsible for 95% of the agricultural production in Uganda, smallholders are generally characterized as low-input low-output, consumption-oriented producers. While low agricultural productivity has not prevented Uganda from producing enough food to feed its population, it does affect its competitiveness in many agricultural commodities. It also adversely affects the ability of poor smallholders to adequately feed their household members, both in terms of food produced and income generated, as on average rural households purchase 50% of what they consume.

However, at the national level, lack of food *availability* is typically not the fundamental problem causing food insecurity in Uganda. There are regional disparities, but even the North is nearly self sufficient in basic food crops (although this apparent self-sufficiency may be deceptive given the substantial contribution the North makes in supplying food to the Central Region and urban center from this production). Some districts may not have adequate transportation to *access* food quickly when they are in deficit. But the bigger question is whether people have the resources to purchase the food when it does arrive. The primary cause of food insecurity is poverty and lack of sufficient

purchasing power or *access* to meet a family’s food consumption requirements and other basic necessities. Even in a number of the IDP camps, the critical issue seems to be less the *availability* of food than opportunities to generate income so that a family can meet its entire range of needs.

In addition to the problems caused by conflict and HIV/AIDS, there is also a question of food *utilization* within households, particularly linked to poor nutrition (and health) as indicated by stunting rates among children 0-5 years that remain persistently high at 33%. Reducing poverty alone may not resolve the problem of compromised nutritional status of small children unless the complex factors related to food utilization—child health, maternal care, child feeding and cultural eating practices—are better understood and also addressed.

1.2.1 Food Availability is Generally Adequate

Very rough calculations indicate that production per capita of basic food crops is about 856 kg, or 80 kg per capita per year more than the approximately 776 kg per capita per year required to constitute the basic crop portion of the food basket used to establish the Food Poverty Line. Production of livestock and animal products has also trended upward during the decade, implying that they also are sufficient to make up the remaining portion of that reference food basket. Typically, Uganda produces enough food to supply its population with their minimum calculated food and energy requirements, although the same cannot be said for all regions.

In terms of basic food crop production, the Central Region has the lowest production per capita but, by most reports and measures, is the best fed. The Central Region’s focus on cash crops and expansion into high-value specialty crops for urban and export markets provide the region’s rural population with incomes that are 24% above the national average for rural populations and the possibility of being relatively food secure. This performance confirms the notion that self-sufficiency is not necessary for food security, even in a very poor country, and makes the Central Region the model or “poster boy” for high-value and export-led growth in the agricultural sector.

1.2.2 Natural Disasters

Food security is often associated with providing short-term food relief to people whose livelihoods are disrupted by natural disasters. Yet Uganda has a varied natural resource base, a climate that provides reliable rainfall and two harvests a year over much of the country, which have helped insulate it from the widespread droughts that regularly affect neighboring countries. Uganda produces sufficient food so that in most years there is adequate food to supply a region that has experienced a poor harvest. A more serious problem is whether or not the people affected by a natural disaster have the purchasing power to *access* the food products that they need, and whether the transport and marketing systems are adequate to distribute foods from surplus regions to food deficit areas. This is where some form of food relief (preferably locally purchased food supplies) may be required in a transitory situation to provide the affected population with access to adequate food to get them through the crisis. Local purchases help maintain the marketing channels for inputs and agricultural products that will be needed when farmers need to purchase inputs and sell agricultural products in succeeding seasons.

1.2.3 Conflict

In Uganda, a larger problem with regard to food security is the conflicts, both internal civil unrest and warfare in neighboring countries, that have caused some 800,000-900,000 citizens to be displaced from their lands and relocated in protected camps, along with another 200,000 refugees from neighboring countries. While some IDPs may be able to walk to their farms or borrow land within walking distance that allows them to return to the protected environment of the camp at

night, many cannot. Particularly in the North, when an attack occurs, people die, children are abducted, women and girls are raped, and homes and other assets are destroyed or stolen. Under such conditions, farmers have little to invest in improving agricultural production and incomes and would have little incentive to invest, even if they had the means to do so. The North, the area most affected by conflict, is the region that has seen the least progress on reducing poverty and food insecurity. In fact, the North is the only region where rural incomes and consumption actually declined (poverty incidence rose from 62% to 67%) between 1997/98 and 1999/2000. Some of the areas most affected, particularly Gulu and Kitgum, have in the past been (and potentially are) among the most productive regions of the country. Conflict is decidedly a major constraint to national economic growth, poverty alleviation, and food security. Since many of the camp dwellers have been displaced two or three times over the last 15 years, the problems of low income and food insecurity are chronic and not amenable to solution by food relief alone.

1.2.4 HIV/AIDS

HIV/AIDS is another huge problem impacting economic growth, poverty alleviation, and food security. At a minimum, an estimated 1.8 million Ugandans are HIV positive, and the epidemic has already resulted in 1.7 million orphans with a projected growth to 2.1 million by 2010. Since many of the 1.8 million people living with HIV/AIDS are adults with families, millions of additional family members are living with HIV/AIDS. One might hazard a guess that 20-30% of the population is AIDS-affected. If this large a segment of the population is excluded from participating in and contributing to economic growth, it would negatively impact future rates of economic growth, and there would be little chance that the national poverty alleviation objectives could be attained.

Many of the people living with HIV/AIDS have special needs for nutrient-rich foods that will help them maintain their health and productivity as long as possible. Families that lose the labor and income contribution of an adult member, often the husband/father, suffer income and productivity losses that greatly increase their risk of food insecurity. The remaining family labor may not be sufficient to grow enough food crops to feed the family, and cash crops are often left unattended. These families have a particular need for income-generating activities that fit their reduced labor profile, as do women-headed households in general.

1.2.5 Nutrition of Young Children

Another chronic food security issue in Uganda is the compromised nutritional status of young children. Nationally, 33% of children between the ages of 0 and 5 years have had their growth stunted due to some combination of inadequate food intake, illness, or inadequate health care. Many studies indicate that stunting may have a negative impact on the future productivity and health of these children. Evidence worldwide indicates that stunting rates are highly correlated with poverty rates. However, concern remains that many mothers may not have proper nutrition and health care to bear healthy babies and provide adequate breast milk for the recommended exclusive breastfeeding for 3 to 6 months, that economic responsibilities may constrain mothers from providing adequate feedings, and that cultural traditions and poor education may constrain mothers from providing nutrient-rich weaning foods and initiating supplemental feeding at the appropriate age. There is also concern that inadequate healthcare may prevent young children from absorbing adequate nutrition or otherwise compromise their bodies' use of the food intake provided. There is very little information available on how important these issues might be in the Ugandan context. However, combined with poverty, they obviously contribute to the poor nutritional status of young children. Antenatal programs focused on improving the nutrition and health care of both the mother and child have helped to address these concerns in many countries

facing similar problems regarding the nutritional status of small children. (This issue is addressed in more detail in the Nutrition Component.)

Inadequate food intake is one of the several factors that may compromise the food security of young children. Obviously therefore, increased *availability* and *access* to appropriate quantities and qualities of food may contribute to resolving the problem. However, neither the *availability* of, nor the means to *access* more food, are necessarily sufficient to resolve these problems of *utilization*. The problems of health and nutrition must also be addressed to ensure that the compromised nutritional status of young children will be improved.

1.2.6 Poverty

Finally, the major cause of food insecurity in Uganda is poverty, which limits *access* to an adequate supply of food to meet minimum nutritional standards. Using 1993 data, Appleton (1999) calculated that the poorest 50% of the population consumed only 1373 calories per day per capita, far below the 2283 calories per capita per day that Appleton calculated is necessary based on a basket of local foods typically consumed by the population. It is also far below the international standard of 2200 calories per capita per day. There has been significant improvement in the poverty rates since 1993, but 35% of the Ugandan population has insufficient income to provide the minimum family consumption requirements in addition to non-food necessities. This segment of the population below the poverty line has little chance of achieving food security.

Poverty in Uganda is predominantly a rural phenomenon. While only about 10% of the urban population fall below the Poverty Line, 39% of the rural population fall below that same measure. However, the portion of the rural population below the Poverty Line has fallen from 60% in 1992/93 to 39% in 1999/2000. Cash crop farmers have seen poverty rates decline much more rapidly than have non-crop (livestock and fishing) and food crop producers.

Analysis by Appleton (2000) indicates that the entire reduction in poverty in recent years is due to economic growth— more income, as opposed to the redistribution of existing income. But it will be difficult to sustain the present target of 7% per annum growth in GDP. Some of the rapid growth in the early 1990s was due to investment in, and the rehabilitation of, estates and industries by Asians returning after being expelled by Amin. More fundamental changes in the economy will be necessary to maintain high rates of investment and economic growth into the future.

Since poverty is the primary cause of food insecurity, poverty alleviation through economic growth is the primary solution. However, prospects for economic growth will also be compromised if large portions of the population such as single parent households and those households whose livelihoods are disrupted by conflict, poverty, or AIDS remain disenfranchised and neither contribute to nor benefit from economic growth. Economic growth will not result in an enhanced quality of life for the people of Uganda if large portions of the population remain excluded from its benefits.

SECTION 2

Economic/Agricultural Component Summary

2.1 NATIONAL POLICY

The international donor community, and USAID in particular, has been very pleased with the growth-oriented policies and the success of the government of Uganda (GOU) in achieving 6-7% economic growth. These policies are based on the Poverty Eradication Action Plan (PEAP) as the overarching policy and Comprehensive Development Framework. Accompanying sector-specific strategies include the Plan for the Modernization of Agriculture (PMA) and the Medium-Term Competitive Strategy for the Private Sector.

USAID has determined that it should align its new Integrated Strategic Plan (ISP) for 2002-2007 with the PEAP, which is based on the premise that poverty eradication will depend on economic growth and cannot be eliminated without raising incomes.

2.2 AGRICULTURAL INSTITUTIONS

The institutional setting for the agricultural sector is in a stage of transition. Institutional roles are being changed as a consequence of structural adjustment, market liberalization, and decentralization. The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) is withdrawing from an implementation role to focus on policy-making, regulation, and enforcement functions. Responsibility for the provision of public sector services, such as extension, is being devolved to the district and sub-county level governments. Operations like marketing are being left to the private sector. The National Agricultural Research Organization (NARO) is decentralizing its agricultural research on the basis of agro-ecological zones and the establishment of Agricultural Research and Development Centers (ARDCs). NARO will also serve a new role in the guidance of extension activities. Local governments will be encouraged to contract out extension services to private sector individuals or entities. An initial pilot project to decentralize extension functions supported by the World Bank was not very successful and has since been redesigned as the National Agricultural Advisory Services (NAADS) Program. NAADS will support this privatization of extension services and the management of farms as business enterprises as well as provide more local and stakeholder input into planning agricultural research.

The problem is, of course, that with the entire range of agricultural institutions taking on new roles and functions, there is no information on how effective the system might be. The system being put in place is based on international "best practices," but until it is up and running, it is difficult to know whether farmers will receive the support they need and whether the system will provide an enabling environment that makes agricultural sector activities productive and profitable—in other words, whether or when it will provide the support needed for economic growth is uncertain.

2.3 NATIONAL AND AGRICULTURAL SECTOR ECONOMIC PERFORMANCE

Uganda remains one of the poorest countries in the world with a 1999 per capita GDP of \$320, compared with an average of \$500 for sub-Saharan Africa. However the average rate of economic growth for the last decade has been among the highest in sub-Saharan Africa. From 1990/91 to 1998/99, real GDP grew at an average annual rate of 6.9 percent, resulting in an annual 3.7 percent increase in real GDP per capita. For the last half of the decade, these rates have declined slightly to 6.2% real GDP growth and 3.3% growth in real per capita GDP. The average annual rate of consumer price inflation fell from over 24 percent in 1990/91 to generally remain in the low single digits from

1998-2000. Interest rates remain quite high at over 20% for commercial loans and approximately 48% for micro-finance loans. The low levels of domestic tax revenues (11-12%) and of private investment (13-14%) are constraints to both public and private investment. (World Bank, 2000; and Ministry of Finance, Planning and Economic Development, 2000).

One of the true successes of national economic performance has been a significant decline in the poverty rate. From 1992/93 to 1999/2000, the poverty rate has declined from 56% to 35%. Analyses by Appleton (1999, 2000) and others indicate that this decline is entirely attributable to economic growth. The relatively minor distributional effects that have occurred during this period have been in the direction of greater inequality.

Agriculture remains the largest sector of the economy, but its contribution to GDP has declined from 57% to 44% since 1989. In the same period, industry's contribution has increased from 11% to 18% and the service sector from 32% to 38%. Agricultural sector growth has lagged the rest of the economy growing at an average 2.7% per annum from 1979 to 1989 and 3.7% from 1989 to 1999. During the 1990s the agricultural production has grown comfortably in excess of the 2.5% per annum population growth. In addition to accounting for 44% of GDP, agriculture provides employment for 80% of the population and about 90% of total merchandise exports with coffee accounting for 55% of total exports. Approximately 53% of total agricultural production and 40% of food crop production are commercialized.

Average total production (tonnage) of selected (basic) food crops increased by 35% between 1981-85 and 1995-99, a rate of approximately 3.4% per year. Total area planted to these basic food crops grew by about 46% during the same period. Contrary to some reports of declining importance of *matooke* in the local diet, banana production grew from 50% to 53% of average total production between 1981-85 and 1995-99. During this same period, maize production increased 3.5 times, but cereal production grew to only 11% of average total production. Root crop production declined from 37% to 31% of average total production in the interval between the two 5 year averages. Production of beans and other pulses also increased 35% between the two periods but remains at only 3% of average total food crop tonnage. Oil seed crop production increased 2.5 times during the period, but only reached 2% of average total tonnage. Livestock production increased at about 3% per annum from 1989 to 1998.

2.4 FOOD DISTRIBUTION

Food distribution is a function of both transportation and marketing systems. Transportation infrastructure was developed primarily with the intention of exporting cash crops through Mombassa, and providing food commodities for the urban center. Marketing systems were structured in the same manner. While roads may exist that would allow food to move from one district capital to another, in many cases the marketing system is such that a surplus from one district would be aggregated by small traders and shipped to a wholesaler in Kampala. The wholesaler might ship it back to the deficit district, but a food deficit district then has to compete with urban prices and purchasing power to attract food in the commercial system. Little factual information seems to be available about marketing channels, margins, and how the system really functions.

Commodities produced along the borders flow in whichever direction offers a price incentive. Trade along the border with Kenya and other neighboring countries is substantial and largely informal. As such it is not recorded, not subject to taxes, and difficult to stop by decree, although price changes may have an important impact. Efforts to ban food exports are often ineffective and may disrupt the export market for years to come. It may, in fact, be cheaper in the long run to import food to deal with a transitory shortage and maintain the market for the exports. This is particularly true if coupled with a new orientation towards regional (multi-country) integration. Increased trade will at least in part be

based on seasonal or transitory differences in supply and demand of agricultural products between countries.

2.5 NATIONAL ABILITY TO RESPOND TO FOOD SECURITY CRISES

With the liberalization of commodity markets, the Government no longer controls major stocks of food commodities. In Uganda, it does not appear that the Government ever attempted to establish sufficient food stocks to feed a million people for several months, as might be necessary in the case of a major natural disaster or conflict. This seems to be in recognition of several important factors with regard to national food security:

- Bananas and root crops are the staples for much of the country, and these crops cannot be easily stocked and stored
- With two rainy seasons a year in much of the country, if one harvest fails, the next harvest is only 3-4 months away
- The banana harvest which supplies 53% of Uganda's food supply by weight is not seasonal, as it would be for cereal crops, rather bananas produce all year round
- Cassava, one of the important root crops that supplies 7.5% of Uganda's food supply by weight, can be harvested over a number of months and stored in the ground until needed

For these reasons, Uganda is much less at risk from the kind of nation-wide food security disaster that has plagued Sahelian countries during drought years. Government-controlled stocks are not recommended as international experience with that approach to food security have typically produced poor results. In a (limited) crisis, international stocks can be deployed fairly quickly. However, increased on-farm storage would contribute to both food security and income generation. This is technically difficult in the humid, high rainfall zones, and many of the crops do not lend themselves to extended bin or granary storage. Conflict constrains on-farm storage in the North, where on-farm storage was a traditional practice and the climate and crops make on-farm storage more practical. Commercial food stocks in Uganda are also quite small, in particular, because high interest rates limit investment in facilities and cause traders to focus on rapid turnover of stocks. An increased volume of regional (inter-country) trade could help stimulate an increase in commercial food stocks. Improved regional market information might serve as a catalyst to increase regional trade volumes.

2.6 REGIONAL DISPARITIES IN FOOD SECURITY

Uganda is blessed with a host of varied agro-ecological zones with different farming systems. This diversity in the natural resource base and climate are the basis for understanding some of the initial disparities between regions. Still, in many cases, history, location and other impacts of human settlement have an even larger role in these disparities.

On average Uganda produces enough of the basic food crops to satisfy per capita consumption requirements. Two regions do not produce the approximately 776 kg per capita per year of selected food crops necessary to provide that portion of the food basket (used to establish the Food Poverty Line) estimated to produce 2283 calories per capita per day. These are the Northern Region and the Central Region. The North produces very close to the required amount (760 kg), but one must also assume that a significant portion of this production helps feed the Central Region and urban area, given their greater purchasing power. Approximately 50% of the cultivated area in the Central Region is devoted to sugar cane and other perennial crops, particularly tea and robusta coffee. It was once the dominant banana-producing region but has in recent years been surpassed by the Western Region in banana production. The Central Region is also heavily influenced by the presence of the Kampala-Entebbe-Jinja urban triangle. Much of the production in the peri-urban fringe is focused on higher

value specialty products for the urban and export markets, including vegetables, fruit, chickens and eggs, dairy and milk products, pork, cut flowers, horticulture, and other high-value crops like vanilla. Since the Central Region has the highest income levels and probably is the best fed section of the country, this demonstrates that a region does not have to be self-sufficient in basic commodities to be relatively food secure.

The Northern Region is chronically at risk of food insecurity and will continue to be so until there is peace and civil security in Northern Uganda, Southern Sudan, and along the Uganda-Kenya border. Although Gulu and Kitgum were once among the most productive areas of Uganda, 15 years of conflict and civil insecurity have forced people off their land and disrupted the production and marketing systems of the region. Nearly 450,000 people, approximately 80% of the population in Gulu and 20% in Kitgum, presently live in protected camps for internally displaced persons (IDP) to protect them from attacks by the Lord's Resistance Army (LRA). In the past, cotton production animal traction were used by the more advanced farmers in the country; however, the collapse of the cotton industry left the region without a cash crop, and civil unrest has claimed their oxen. Conflict has caused this potentially rich agricultural production area to become a marginal food and income producer and have the lowest income levels in Uganda.

The West Nile area has a somewhat similar situation although based on a different history. Approximately 200,000 Sudanese refugees live in camps in the West Nile and Kitgum. The camps have been in constant use for nearly 15 years although there is continual turn over in the actual populations in the camps, depending on the situation across the border in Sudan.

The Karamoja is a third area in the North that is chronically at risk for food insecurity. The Karamojong are a transhumant pastoralist group that traditionally depend on milk and blood as primary sources of nutrition, supplemented by small areas of food crop production. While transhumance zones may once have included higher rainfall zones, they are now largely restricted to the dryer pasturelands of the northeast by population pressure and the expansion of sedentary farming areas. Cattle rustling raids on other ethnic groups and sedentary farmers are a long-standing cultural tradition. However, the recent availability of automatic rifles has made such raiding a much bloodier and more destructive process than in the past.

The Western Region, with 120,000 displaced persons, has civil unrest and some of the elements that cause food insecurity in the North. In Bundibugyo District, 70 percent of the population is reported to be living in IDP camps. Climate and rainfall vary in the West (particularly by elevation), and drought risk varies accordingly. The West has the highest per capita production of traditional food crops and the second highest income of the four regions in Uganda. For these reasons, *availability* and *access* to food products is less of a problem in the West than the North. While food products are *available* and incomes are higher than for the North and East, there is still an important segment of the rural population for whom *access* is a problem. Furthermore, there is a suspicion that there are some *utilization* problems at the household level, based on the fact that the West has the highest levels of stunting among children age 0-5 years of age.

Some portion of the population in these areas of the North and West will be food insecure and periodically require food relief to avoid famine:

- As long as civil insecurity persists
- Until "normal" production systems and income sources are reestablished
- Until households are able to accumulate assets that help withstand the normal cyclical declines in agricultural production (bad years) and the strain of natural disasters such as droughts and floods

2.7 DEVELOPMENT APPROACHES TO ADDRESS FOOD INSECURITY

The key to addressing food security in Uganda is poverty alleviation through economic growth. Although there is generally enough food *available* in the aggregate, the country can not be food secure as long as 35% of the population do not have the income to *access* the food they need for a nutritionally adequate diet throughout the entire year. Low agricultural productivity constrains the ability of rural households to produce adequate food and income to provide proper nutrition for their members, particularly since on average, rural households purchase 50% of what they consume. It also constrains the competitiveness of Ugandan agricultural products in international trade, which further limits opportunities to earn income. While there are some intra-household *utilization* issues that need to be addressed, the nutrition aspects tend to be highly correlated with income. Economic growth and increasing income levels will do more to reduce food insecurity for a larger number of people than any other single strategy. That said, there are still a number of different complementary approaches that can produce a synergistic effect towards enhancing national, regional and household level food security.

2.7.1 Improved Agricultural Productivity

The most basic approach to achieving economic growth in agriculture and improving food security is through improved agricultural productivity. This is an important aspect of the PMA strategy of facilitating a transition from “subsistence” (more correctly, low-input, low-output, consumption oriented) production to commercial agriculture. Many things may stimulate improved agricultural productivity including: improved technology and practices, technology transfer, facilitating access to agricultural inputs, marketing services, improved transportation, improved post-harvest handling and processing, secure land tenure. However, there is no certainty that agricultural production and productivity will improve until all of the necessary enabling conditions for productive and profitable agricultural production are provided. As each of the constraints is overcome, another of these necessary conditions will limit the advance in agricultural productivity until it too is overcome. However, as each constraint is eliminated, agricultural production in general, or some aspect of agricultural production in particular, will move to a higher level. For example, if one resolves a commodity marketing constraint, production will typically increase but perhaps less than one might hope if lack of access to basic input supply, credit, or improved production technologies still constrains production and productivity.

In the past, many of the agricultural production projects, particularly those designed to resolve a lack of food security, have focused on obtaining a large increase (100-400% in a few years) in the production of a single commodity that appeared to have attractive potential. If successful, the production often exceeded the capacity of the marketing system and led to a major decline in the price of the commodity. Although this may make the commodity very competitive in export markets, it may not be the best way to raise household incomes. A more generalized approach can make an important contribution to household food production and income.

2.7.2 Income Diversification

In the aggregate, the agricultural sector does not need to increase food production to provide the minimum calculated food consumption requirements of the Ugandan population. Instead, the primary object would be to provide the rural population with the income and purchasing power necessary to *access* the food required for family consumption and other basic necessities. This distinction is important because a massive campaign to increase the production of a given crop, with the almost inevitable decline in prices if that campaign is successful, will not solve the income problem. Rather farmers must find better ways to exploit the resources and markets that are available to them to

produce higher incomes. Supporting farmers' capacity to produce different crops and products is more likely to provide opportunities to augment incomes (and with less risk of a significant price decline for a given commodity) than encouraging everyone to produce more of the same crop or product. Therefore, diversification is one of the approaches that will contribute to increased incomes and food security.

Diversification is important at both the household and sector levels. Households benefit most from diversification when the different enterprises have synergistic effects and form a coherent system. Such synergies are demonstrated in the use of crop byproducts to feed livestock and the use of livestock manure to improve soil fertility, which benefits crop production. Components that have multiple uses are also beneficial. In many cases, farmers would be well served to add a non-farm activity that can supplement their farm income and reduce the risk of being totally dependent on farm production.

At the sector level, diversification tends to imply finding new crops or products that can be produced locally and identifying new markets, both for traditional products and the new high value crops proposed. High-value crops for which opportunities exist in the markets of developed countries are often those that are very labor intensive to produce or process. Thus these crops provide an opportunity to generate substantial employment and income. The Investment in Developing Export Agriculture (IDEA) project has played an important role in helping connect entrepreneurs to opportunities to market such crops and to financial institutions which might finance such endeavors. IDEA also plays a role in connecting the entrepreneurs with sources of technical support. In addition, IDEA has helped explore market opportunities for the export of traditional crops that have not traditionally been exported like maize and beans. Most farmers and small business entrepreneurs have had limited access to sources of credit and business services which should be helped by USAID's new Support for Private Enterprise Expansion and Development (SPEED) activity.

2.7.3 Asset Accumulation

Another important aspect of an approach to strengthening household level food security is asset accumulation. Agriculture tends to be cyclical in nature, and most farmers have to expect that there will be bad seasons or years. Farmers need to set aside some assets that they can draw upon to help get them through the bad times. Any income-generating activity can serve this role, but expenditures tend to rise to the level of regular income. Enterprises such as livestock production that tend to build assets, some of which can be sold in hard times, may provide a better buffer against food insecurity than some other forms of income generation. Off-farm activities may serve a similar purpose by helping maintain income during hard times.

Credit unions and community savings programs provide another approach to asset accumulation, often more focused on the eventual investments that they will accommodate. Insurance programs, now becoming increasingly important in Uganda, provide another means of helping insure that resources are available in bad times.

2.7.4 Addressing Groups with Special Needs

A variety of groups with special needs are at risk of food insecurity and of neither benefiting from nor contributing to economic growth. These include the very poor, IDP, women- and child-headed households, orphans, and families living with HIV/AIDS. The numbers are quite significant: 26% of households are female headed, 20% of the population is below the Food Poverty Line, and perhaps 20-30% of households are living with HIV/AIDS. There is undoubtedly significant overlap between these groups (for example, a family that has lost the husband/father to AIDS, now female-headed, may be living below the poverty line). Families with one or more of these disadvantages would

perhaps constitute 25-35% of the total population. It seems unlikely that the economy can maintain a high rate of economic growth if this large a segment of the population is not benefiting from and contributing to that growth. To the extent that the very poor, IDP, women- and child-headed households, orphans, and families living with HIV/AIDS have chronic income and food security problems, then these are development problems and not just transitory problems that can be adequately addressed by relief measures.

In some cases, food relief will be necessary, particularly in the form of nutritionally dense food products for small children and persons living with HIV/AIDS. However, many of these families are capable of fully participating in growth-oriented and income-generating activities, and more will be able to do so if they receive a minimal amount of strategically targeted assistance for some of their special needs. Many of these families are greatly in need of income-generating activities appropriate to the reduced labor status that they have experienced. (This issue is addressed in greater detail in the HIV/AIDS Component.)

2.7.5 Multi-Sectoral Development Approaches

Activities that use a multi-sectoral approach seem likely to have the best chance of addressing the development needs of vulnerable populations. Programs that have a local level geographic focus (district, county, sub-county) should look at ways of providing, or partnering with other programs to provide, responses to the population's needs with regard to food production (*availability*), income generation (*access*), and nutrition and health (*utilization*).

Agricultural programs need to go further than some have done in the past by linking the utilization issues of food security more closely with food production. Uganda's performance on such key indicators (of past food insecurity) as stunting has not been very good. In a country where 33% of the children are stunted, locally focused agricultural programs need to address food consumption and nutrition, as well as production, or partner with other programs that will. A child's nutritional status is primarily a function of food intake, adequate health, and maternal care. Locally focused programs need to integrate activities concerning nutrition education and pre-and post-natal health care and maintenance to help ensure that mothers know how and have adequate means to feed young children. Addressing nutrition (particularly adequate sources of nutrient-rich foods) and healthcare and maintenance will also serve to address many of the immediate needs of families living with HIV/AIDS (refer to HIV/AIDS Component). Many of these families are capable of fully participating in growth oriented and income-generating activities, and even more will be able to do so if they also receive some help with these basic needs. Economic growth and poverty alleviation have a much better chance of achieving their quality of life objectives if a substantial portion of these disadvantaged households can be maintained in the mainstream of families with growing incomes, which will have a positive impact on food security.

2.7.6 Relief to Development Transition

Most people experiencing food insecurity in Uganda are suffering from a chronic situation of poverty, conflict, and limited household labor rather than the loss of a season's food supply because of a natural disaster. These people need development activities to address the chronic nature of their problem rather than short-term relief. One would think that people living in camps for displaced persons should be a short-term problem, but in fact, many of the IDP have been displaced two or three times over the last decade. But even many of the IDP manage to find nearly adequate food. What they really need are opportunities for employment to generate income, provide for their family's needs, and do something useful with their lives. Unfortunately, the international community tends to be more

willing to fund relief (motivated in part by images of starving babies and war-ravaged children) than to fund longer-term sustainable development.

A transition from relief to development is very welcome but difficult to accomplish. While keeping people alive in a famine situation, relief often has a tendency to inhibit people from taking control of their own lives, community, and development. There is often little incentive to do those things when their needs are being met. Programs like food-for-work (FFW) and cash-for-work (CFW) are meant to allow the recipients to feel like they are earning what the relief organization is providing, rather than receiving charity. CFW is typically more successful in this respect because FFW is usually not sufficient to be considered an honest wage. But both often result in participants not taking ownership of the development activity that the FFW or CFW are meant to support; people tend to regard the food or cash as a wage, and lose interest in the activity when the wage ends. These incentives may work for short-term discrete activities such as building roads, assuming the government, local or national, is going to maintain them. In the case of a development activity that requires additional work, investment, maintenance, or upkeep, it often is not completed or maintained, such that the negative incentives of FFW or CFW render it unsustainable. It is very difficult to find methods that allow relief work to support development rather than hinder it. The new approach of using vouchers rather than distributing seeds and tools is a step in the right direction in the sense that it supports the markets that local residents require to meet their needs in the aftermath of relief. Unless ways can be found to reduce these disincentives from relief actions, it may be better to find some approach that separates relief and development activities. School feeding, may provide a focus for meeting some of a community's food needs and allow relief to be separated from other development activities.

SECTION 3

Nutrition Component Summary

Analyses in the Economic/Agricultural Component of this Food Security Assessment indicate that at a national level, Uganda produces enough food to adequately feed its population. In fact, many sources indicate that Uganda has the climate and resources to serve as the breadbasket of the Horn of Africa. Yet national and regional statistics show that a considerable percentage of the preschool age population exhibits poor nutritional status. While the poverty rate has decreased from 56% in 1992/93 to 35% in 1999/2000, the data reveal that the growth of one-third (33%) of preschool age children had been stunted, as well as a continued prevalence of wasting and underweight children. Some of these statistics are specific to the Northern Region of Uganda with its problems of continuing civil disturbance. Nevertheless, poor nutritional status among Ugandans is widespread, with the highest stunting rate reported in the Western region of the country by the 1999/2000 Uganda National Household Survey (UNHS).

These statistics relate to a variety of factors such as childhood illnesses, micronutrient deficiencies (especially vitamin A, iron and iodine), food consumption patterns, and the distribution of resources within the household. Therefore, to achieve effective food security, requires interventions that address all of these factors or complementary interventions that do, in addition to stimulating increased household income. This more integrative approach involves not only the *availability* and *access* of food, but optimizing food *utilization* by the population as well.

3.1 ANTHROPOMETRIC MEASUREMENTS

Much of the discussion in the following sections is based on the interpretation of survey results, both nationwide and regional, that address health and nutrition issues, as well as anthropometric measurements. Several of the important national surveys that contain such data include the Uganda Demographic and Health Surveys (UDHS) of 1988/89 and of 1995, and the UNHS survey of 1999/2000. The three primary anthropometric measurements or indexes are:

Table 1. Anthropometric Indices

Index	When "Low" indicates:
Height-for-Age	Stunting
Weight-for-Age	Underweight
Weight-for-Height	Wasting

These measurements have primarily been collected in health surveys or surveys with a major health component. There is a rich body of literature and international standards allowing results to be compared through time and across many countries. Weight-for-age is often considered the best overall indicator of nutrition and health status of a preschool-age population, and by extrapolation, of the population as a whole. However, both the height-for-age and the weight-for-height affect this measure and it is often useful to disaggregate the results into these two measurements. Weight-for-height (*wasting*) is considered to be a good indicator of acute nutritional or health distress and is therefore followed very closely by food relief programs like the World Food Program as an indicator of famine. Height-for-age (*stunting*) is considered a better indicator of longer-term or repeated nutritional or health inadequacy. Stunting has been found over the years to be highly correlated with poverty,

because the poor often suffer long-term or repeated nutritional effects and health inadequacy. Since there is a direct biological relationship between nutritional adequacy and stunting, it is also a good indicator of food insecurity (although repeated episodes of illness and inadequate care also contribute to child malnutrition).

In these studies, the statistic is usually expressed as the percentage of children who are more than two standard deviations below the mean of the growth reference population (less than -2 Z score). Some studies indicate a second percentage for children who are more than three standard deviations below the mean and label these as severely stunted, wasted, or underweight. These are truly extreme cases, and particularly in the case of wasting, one would expect that there is a high risk that these extreme cases might not survive.

3.2 FOOD CONSUMPTION/NUTRITIONAL ADEQUACY IN THE GENERAL POPULATION

Nutrition in Uganda would seem to be adequate if one only looks at the calories available nationally (4320 calories per day per capita). However, Appleton (1999) estimated on the basis of 1993 data, that the poorest 50% of the population consumed only about 1373 calories per capita per day, far below the international standard that indicates people need 2200 calories per capita per day. Using the 1993 data, Appleton and others calculated a Food Poverty Line or absolute poverty line for Uganda, based on the cost of a basket of food items typically consumed by the population. This Food Poverty Line was stated as the cost of providing 3000 calories per adult male equivalent per day, which translates to approximately 2283 calories per capita per day. The quantities of food in the original food basket were scaled up by 219% to allow it to provide this level of calorie intake. The interpretation of the Food Poverty Line is that people who fall below this line do not have sufficient income to supply the food required to provide minimum adequate calorie intake. The value of home-grown products is included in the expenditure estimates such that for people below the food poverty line in rural areas, the combination of home grown foods and income is not sufficient to provide minimum adequate calorie intake.

The 1999/2000 UNHS data published to date does not indicate the percentage of the population that falls below the Food Poverty Line. However, the average income for the lowest decile of the urban population (6413 in 1989 Ush) is considerably higher than the Food Poverty Line (4359 in 1989 Ush), indicating that less than 10% of the urban population fall below the Food Poverty Line. The same approach would indicate that a little more than 20% of the rural population, and a little less than 20% of the total population, have insufficient food production and income to supply a minimum adequate calorie intake. As might be expected from these urban-rural poverty differences, the nutritional status statistics of preschool-age children in urban areas are generally better than for the rural areas. Other differences observed are that while on average Ugandan households spend nearly 50% of total expenditures on food, drink, and tobacco, rural households spend nearly 60% and urban households just under 40%. This is basically due to the fact that housing and other non-food necessities are more expensive in urban environments than rural. Food related expenditures by region are fairly consistent (55-59%) with the exception of the Central Region (49%), which is heavily influenced by the presence of Kampala where food expenditures are 35% of total expenditures.

3.3 RESULTS AND INTERPRETATION OF NUTRITIONAL STATUS SURVEYS

A comparison of the UDHS survey results from 1988/89 and 1995 indicate a decline in the stunting rates among Ugandan children. Still, there are some inconsistencies contained within the data that require that these statistics be interpreted with caution. The 1995 UDHS only surveyed children 0-48 months rather than the more typical range of 0-60 months. Since older children typically have higher stunting rates than younger children do, the results reported for the 1995 study are likely lower than

they would have been if children 0-60 months had been surveyed.¹ Stated another way, if the 1988/89 results were recalculated using only the results of children 0-48 months, they would be lower and there would be less improvement between the 1988/89 and the 1995 results.

Another cautionary note is that districts with civil disruption are left out of all of the national surveys, but the number of districts left out varies according to the conditions at the time of the survey. Since one might expect that living conditions are worse in these troubled areas than elsewhere, it is likely that the indices would have been higher for each of the studies if it had been possible to include results from these districts. The 1988/89 survey excluded more districts than in more recent surveys so that the results reported are likely lower than they would have been if all districts were included.

Table 2. Trends in Protein-Energy Malnutrition (PEM; < -2 Z-score) in Uganda

Indices	1988/89 UDHS	1995 UDHS	1999 UNHS
	%	%	%
Stunting	44.5	38.3	32.8
Wasting	1.9	5.3	4.7
Underweight	23.3	25.5	19.7

Sources: UDHS, 1988/89 and 1995.

Anonymous, 2001, The Nutritional Status of Children in Uganda Now.

The 1999/2000 UNHS found that rates of stunting, wasting and underweight among preschool age children had declined from 51%, 6%, and 29% respectively in 1992 to 32.8%, 4.7%, and 19.7% respectively in 1999/2000. The values of the 1999/2000 UNHS indices are also 12 to 23% below those of the 1995 UDHS survey. These results substantiate the notion that the rates of stunting, wasting, and underweight are declining, regardless of the problems in interpreting the differences between the two UDHS survey results. However there is still some concern that the UNHS understates the true rates of stunting, wasting, and underweight.

The UNHS surveyed children 6-60 months and excluded certain districts in the Northern Region (including Gulu and Kitgum) for security reasons. The stunting rate among children 0-6 months would normally be very low. Thus the rates reported are slightly lower than if the 0-60 month norm had been used, but have less of a downward bias than the 1995 UDHS survey which only included children 0-48 months. Studies conducted by Action Contre la Faim (ACF) in Gulu and Kitgum in 1999 report stunting rates between 36.8% - 39% for children ages 6-60 months. Since these rates are higher than those for the UNHS survey, which excluded those districts, it also supports the notion that the true stunting rate for all of Uganda is a little higher than indicated in the 1999/2000 UNHS results.

Wasting results in Uganda have remained low but prevalent throughout the country, especially in the Northern Region that is more prone to conflict and disrupted access to food. In comparing the studies conducted in the North with the studies conducted throughout the rest of the country, the percentage of the population that is wasted is continually higher in the North than in other regions. In baseline surveys for both the Rabbit Project in Luwero and the World Bank, sponsored Community and Home Initiatives for Long-Term Development (CHILD) project, wasting percentages hovered at the 4.5% mark while studies conducted in Gulu and Kitgum reported wasting rates of 6.4% - 6.7%. The UNHS

¹ Statistics from the baseline survey for the Nutrition and Early Childhood Development Project conducted in five districts of the East and West of Uganda included preschool age children 0-72 months. It showed a higher percentage of stunting, 39.5% lending credence to the idea that the incorporation of older age groups in nutritional surveys result in higher stunting rates.

report of 1999 found that 4.7% of the population was wasted, but with the caveat that the Northern Region had a wasting rate of 7.1%.

One regional difference that is worthy to note is the high prevalence of stunting in the Western Region of Uganda. The 1999 UNHS found that although the Western Region has the second highest income and the highest food production per capita, it also has the highest stunting rate among the four regions of Uganda (39.3%). This finding is contrary to a large volume of literature that indicates that lower stunting rates are associated with higher the income levels. However, there are some striking parallels between this finding and a recent analysis of surveys conducted in Ethiopia. In a 1992 survey, one of the highest rates of child stunting was in the West Gojam area, which is one of the main food surplus regions of the country. In trying to explain this phenomenon, the researchers found that child nutritional status was only weakly and inconsistently associated with the size of cultivated land area. The study also confirmed the importance of other factors in the causation of malnutrition, specifically those related to health and care, and the possible interaction between these factors and household food security (Pelletier et al., 1995).

Another interesting observation is the gender bias contained in the anthropometric data presented by the three national surveys. In all of the surveys, statistics show that boys have poorer anthropometric performance than girls do, particularly when it comes to stunting. However, the higher rate of stunting among boys in rural households should be interpreted with caution. Several studies from sub-Saharan Africa have shown that it is not the lack of access to food that creates this phenomenon, but rather the increased morbidity experienced among young boys who may be more biologically fragile than girls (manifested by higher morbidity and mortality rates). Therefore, the low weight and height of boys relative to girls may reflect that illness contributes more to the poor anthropometric results of boys than girls (Svedberg, 1996).

3.4 HEALTH AND CHILDCARE PRACTICES

The idea that improvements in household income and food production automatically translate into improved nutritional status may not be the case if poor health and childcare practices persist, especially among higher-income groups. One example of this type of problem might be that economically active mothers may not have the ability or time to breastfeed their child as often as is recommended. There is a strong association between the median age of introducing complementary foods and the prevalence of stunting among children 6-24 months of age. Stated another way, there tends to be a higher prevalence of stunting among children 6-24 months of age in cultures that delay the introduction of complementary foods beyond the 4 to 6 month age. The team has found few anthropological studies that explore the *availability*, *access* to, and *utilization* of resources within the household in different cultures. This is an area that deserves further investigation.

The focus on childhood illnesses is important. In fact, the PEAP identifies poor health as a fundamental cause of poverty in Uganda and includes improving the provision of primary health care as one of its four pillars. The 1999 UNHS survey reports that 28% of the survey population nationally and 24% in the Western Region reported being sick during the 30 days before the survey was conducted. But a baseline survey conducted by Africare (1997) in the Kabale District of the Western Region found that 82.4% of the survey population reported that their children suffered from illnesses, mainly cough and diarrhea, in the two weeks prior to the survey. The Africare survey although much smaller, indicates poor Ugandans experience nearly three times the level of sickness as the respondents of the UNHS survey and in only one-half the time frame. One can only speculate that this significant difference might be related to a variety of factors including the time of year the survey is conducted, the periodic occurrence of cold/flu and malaria epidemics, the manner in which the questions are asked, or respondents' expectation of what might result from the survey.

As mentioned earlier, childhood illness does not act alone in affecting nutritional status. It is the interaction between illness, maternal health/care, and the quantity and quality of food provided that has an effect on the nutritional status of young children. By instituting measures that focus on the prevention of childhood illnesses and the promotion of proper feeding practices, they can positively impact the capacity of households to improve childhood nutritional status and food security. For example, although the percentage of mothers who give their children oral rehydration solution (ORS) when they have diarrhea varies significantly among surveys, it is quite low in some cases. This technique alone can have an important impact on the health status of young children.

Maternal health is of primary importance for three reasons: 1) with the increase in female-headed households, mothers are stepping into the role as the primary breadwinner; 2) a mother's health affects the birth weight of children; and 3) a mother's health affects her capacity to produce adequate breast milk to support exclusive breast feeding. In the 1995 UDHS, Body Mass Index (BMI) statistics showed that 10% of the mothers surveyed fell below the cutoff point of 18.5 kg/m. This finding was correlated with education levels of mothers, as those with lower education levels were found to have lower BMI rates.

The promotion of micronutrients (especially vitamin A, iron, and iodine) is an area that should be targeted in interventions because micronutrients can contribute to the energy levels of productive members of the household, and this approach focuses attention on the quality of food consumed. Certain interventions, such as those of the Africare Uganda Food Security Initiative (UFSI), the Luwero Agricultural and Rural Enterprise Development Project, and World Vision's Uganda Food Security Program, have shown that household consumption of a variety of foods typically accompanies diversification of food production, resulting in improved household nutrition and food security. Each has incorporated a household nutrition program into its activities to help ensure that these improvements in household consumption are maximized.

3.5 NUTRITION-RELATED TOOLS FOR MONITORING FOOD SECURITY

Nutritional status is traditionally viewed as a feedback indicator that provides information about how well children are surviving the food security and health conditions that existed over the previous five years (when surveying children 0 to 60 months). It can be used under certain circumstances to monitor current changes in these conditions. If growth monitoring data (weight-for-age) from various regions across the country can be made available on a monthly or periodic basis, it could potentially be used in this manner. Fluctuations in the weight for any particular age group would reflect food intake and health conditions during the month or period in question. A declining trend in weight-for-age would indicate inadequate nutrition (or a health epidemic of some sort) that would likely be associated with reduced food intake. Used in this manner, growth monitoring can serve as an indicator of current food security and health status.

Weight-for-height (wasting) of preschool-age children is a measure of acute nutritional (or health-related) distress. It has often been used as the only measure of nutritional status among refugee populations. However, it is recommended that wasting be used in conjunction with an assessment of child mortality since several studies of refugee camp populations indicate that while activities implemented to improve nutrition and health may sharply decrease mortality, they may not significantly change the prevalence of wasting.

3.6 DEVELOPMENT APPROACHES TO ADDRESS NUTRITION

Examples of two projects that made valuable inputs and had a positive effect on nutritional status were the Rabbit Project in Luwero and the Africare Uganda Food Security Initiative (UFSI) in

Kabale. Both projects have a similar focus that effectively diversifies and improves household incomes while also promoting good nutrition. For example, the Rabbit Project in Luwero began as a food security initiative that aimed to increase household food production, improve food storage and preservation at the household level, and provide income diversification for markets and expand access to microfinance activities. To achieve these objectives, one of the activities, in collaboration with the Child Health and Development Center, was to train local extension workers to integrate nutrition into their agricultural extension services. These activities grew to involve rabbit rearing, zero-grazing, and growing new varieties of banana, maize, and beans, which are not only consumed, but also sold to generate income.

Africare receives Title II funds to operate the UFSI in Kabale. The interventions center on five activities: soil erosion control, agricultural production and post-harvest handling, community roads, community nutrition, and agricultural marketing. Through their promotion of nutrient-rich vegetables and animal food protein, they have benefited 34,000 individuals in 106 villages. Nutrition education centers have been established at the community-level where 5700 community members have received training in proper diet and infant feeding practices. More than 90% of targeted farm families are consuming vegetables produced in backyard gardens. This is not a reversion to subsistence farming, but instead, through education and training, effectively links the production goals of the project to the consumption needs of households and their members.

One recommendation is to encourage more of these efforts to relate production to consumption. To ensure food security, one must stimulate economic growth. However, in doing so, educational initiatives promoting the utilization of the food that is produced or purchased can have additional beneficial effects. This is not to say that traditional agricultural program personnel need to become nutritionists and nutrition programs need to focus on production. But if the two groups could enter into a collaborative relationship, the program would span all the elements of food security: *availability, access, and utilization*, and be more effective in meeting the needs of the clients.

SECTION 4

HIV/AIDS Component Summary

Uganda is one of the African countries where HIV/AIDS was first recognized and where its impacts have been most severe. In the mid-1980s, the government responded early to the epidemic after realizing the potential magnitude of its impact on the country. It has achieved notable success in fighting HIV/AIDS after developing one of the most vigorous and comprehensive HIV prevention and AIDS mitigation efforts in sub-Saharan Africa.

HIV/AIDS is producing significant impacts globally, and has been particularly devastating for sub-Saharan Africa. Of the 36 million people infected with HIV, the virus that causes AIDS, 95% live in the developing world and 70% live in sub-Saharan Africa. Moreover, 80% of the AIDS-related deaths have occurred in this region since the pandemic began. As productive adults in extended families die in areas of high HIV prevalence, many children are left orphaned. Globally, the orphan count is estimated at 15.6 million children² and more than 90% of orphans live in sub-Saharan Africa. By 2010, as many as 44 million children in 34 developing countries will have lost one or both parents, most of whose deaths will be the result of HIV/AIDS-related illnesses (Hunter and Williamson 2000).

The number of people living with HIV/AIDS (PLWHA) in Uganda is approximately 1.8 million out of a total population of 21.4 million. The national HIV prevalence was 8.3% in 1999, a remarkable decline in new HIV cases compared to the previous decade where HIV prevalence was as high as 30% in some areas. Information from voluntary counseling and testing (VCT) programs indicate that HIV prevalence rates among young women (15-24 years old) declined from 29% to 12% between 1992 and 1999, but still remain 2 to 2.5 times higher than for young men of the same age group, as the prevalence rates for young men aged 15 to 24 years declined from 11% to 2.5% during the same period. Knowledge of HIV prevalence for the country's 56 districts is far from complete, especially in the rural areas, and the Northern and Western regions that have been embroiled in prolonged civil conflicts. The decline in HIV prevalence, though significant, needs to be viewed as a vulnerable success.

AIDS is presently the leading cause of death among Ugandan adults. The extent of sustained behavior change with regard to preventing the transmission of HIV is not entirely clear. The rate of HIV infection is highest among 15- to 49-year-olds, who constitute the most productive members of society. More than one-half of Uganda's population is below 15 years of age and will soon enter the age range of highest risk for HIV transmission. These demographics suggest that a second wave of the HIV epidemic could occur, could affect even more people than the first wave, and has the potential to produce an even larger impact on the economy. Coupled with these demographics is a growing orphan burden that is currently estimated at 1.7 million and expected to reach 2.1 million by 2010.

These statistics suggest that the AIDS epidemic significantly affects the economic and social fabric of Ugandan society and could have even greater impact in the future. The potential ramifications need to be acknowledged when considering development strategies, as HIV/AIDS will likely affect practically every sector of the economy and society. Already, HIV/AIDS has been implicated in contributing to the reversal of development gains. Adult life expectancy has fallen from 48 years in 1990 to 38 years in 1997; infant mortality has increased from 81/1000 live births in 1995 to 97/1000 live births in 1999; and under-five

² An orphan is defined as a child under 15 years of age who has lost either a mother or both parents to AIDS or other causes.

child mortality has increased to 147/1000 live births in 1999. Despite the positive economic growth that Uganda has experienced over the past decade, it remains one of the poorest countries in the world. It is ranked 154 out of 178 countries on the human development index that measures human progress according to life expectancy, educational attainment, and standard of living. In 1996, 40% of Ugandans were classified as being “significantly deprived” (UNDP 1998).

Food insecurity is a growing concern among PLWHA, AIDS-afflicted, and AIDS-affected households³ in Uganda and occurs when food availability, access, and/or utilization are not consistently ensured. In most instances, poverty facilitates the spread of HIV/AIDS and prevents an effective and sustainable response.

4.1 INTERACTIONS BETWEEN HIV/AIDS, FOOD SECURITY, AND POVERTY

4.1.1 Influence of HIV/AIDS on Food Security and Poverty

HIV/AIDS and food security directly affect each other and have additional indirect linkages through their relationship to and interactions with poverty. In many cases, the loss of an adult member of the family will leave a family food insecure and in poverty or with a substantially lower standard of living.

PLWHA may have specific food needs that are not easily accommodated by the typical Ugandan diet. Symptomatic PLWHA may experience a variety of problems that affect food utilization, including loss of appetite, nausea, vomiting, difficulty swallowing, lactose intolerance, and diarrhea which leads to an inability to absorb nutrients from the food that is eaten. Since PLWHA can often only eat small amounts of food, they need nutrient-rich foods that help them maintain their nutritional health and remain physically productive for their families for as long as possible. The typical Ugandan diet is comprised primarily of carbohydrates that have limited nutrient value. A typical meal might consist of plantain (matooke), sweet or Irish potato, cassava, or a stiff porridge made from maize, millet or sorghum (posho) accompanied by a small amount of sauce that may contain some combination of beans or other pulses, meat, vegetables, and groundnut or sesame paste. It is doubtful that PLWHA can obtain sufficient amounts of high-quality food that provide the nutrients needed to maintain their health from the typical starch-based diet, especially if they eat only one or two meals a day. If food intake and nutrition are inadequate or inappropriate, it will hasten the demise of PLWHA. For PLWHA, health-related utilization problems might well cause them to be food insecure, even if food is available and accessible.

With 80% of the population involved in agriculture, the primary impact of HIV/AIDS on food security is the loss of labor to produce food for household consumption or to earn income with which to purchase food. In a typical family of five to six persons with both parents present, three of the family members are typically sons or daughters of the head of the household and one additional relative lives with the family. In recent years, this relative is often an orphan that the family has taken in. On average, heads of households comprise 19% and spouses 12%, for a total of 31% of the household population. Statistics from the 1999-2000 UNHS indicate that only 37.5% of the population are engaged in economic activity as their primary activity. Of those not engaged in economic activity, 72% are students. While there are no exact statistics of the contribution of a male or female head of household to family labor, it would appear that in families where these adults are present, they perform most of the economic activity. Statistics also

³ Based on the research of Barnett and Blaikie (1992), an *AIDS-afflicted household* represents one with many ill or deceased members; an *AIDS-affected household* is one where the death or illness of a family member has led to a loss of cash, labor, support, or the addition of orphans. This distinction may be useful for targeting resources to needy households.

indicate that women are engaged in 75% of raising subsistence food crops such as *matooke*, yams, and cassava while the men spend more time on livestock and tending cash crops such as coffee and maize.

If the male head of a household is debilitated or dies, the family loses perhaps 25% of its food production capacity and much of its capacity to generate cash income. If the female spouse is debilitated or dies, the family loses the majority of its capacity for food crop production and childcare. In fact, the labor loss is often exacerbated by the need for able-bodied family members to care for the person who is sick, thereby diverting their labor. Since women are the traditional care providers in Uganda, a significant portion of their food production capacity may be lost if the husband is sick. Families are often forced to take one or more children out of school either to provide care for a sick family member, to help compensate for the labor lost, or because there are no longer sufficient resources to keep them in school. Depending on the age, skills, and farming knowledge of the child or children, this situation will probably not allow the family to maintain its previous level of food production and income.

A study in Rakai district from 1988-89 (Barnett and Blaikie, 1992) indicates that agricultural production for AIDS-afflicted households decreases significantly and households responded by either hiring labor or cultivating less land. There is also a shift from cultivating high- to low-labor intensive crops, and a progressive decline in cash crop production and food crop sales. Indeed, it was observed that AIDS-afflicted households switched from cultivating cash crops such as maize to growing less nutritious subsistence crops such as cassava and sweet potatoes. The findings revealed that 25% of households were cultivating less land and more than one-third (35%) of these households attributed it to HIV-related illness. In the market setting, changes in cash income were attributed to loss of remittances, loss of cash income due to time spent on domestic or farm work, and diminished sale of food crops. These findings suggest that all three aspects of food security—*food availability, access, and utilization*—are affected by the impact of AIDS.

4.1.2 Influence of Poverty on Food Security in Families Living with HIV/AIDS

If income and/or assets are adequate, families may be able to hire labor to maintain their food production and income-generating activities. But for a typical rural family engaged in smallholder agriculture, income and assets would not be sufficient to hire labor or would not remain sufficient for very long. Meeting the special food needs of PLWHA while providing adequate food to other household members under conditions of poverty is difficult. Even if the family has access to adequate food, they may not have access to the types of food products that would meet the nutritional needs of PLWHA. In fact, FAO research in East and West Africa shows that the most immediate problem for many AIDS-afflicted rural households is not medical treatment but lack of food and poor nutrition (Topouzis, 1998b). Food insecurity is a serious problem for poor families affected by HIV/AIDS. A World Bank (1997) study in Tanzania found that on average, six months following the death of an adult, poor households had experienced a 32% decline in food expenditure and a 15% decline in food consumption.

Medical expenses for HIV/AIDS are reported to be four times greater than for other diseases, and thus place an additional demand on whatever income and assets are available. Furthermore, if the husband/father dies and there is no adult (or nearly adult) male child, the land may be inherited by other male members of the husband's extended family, leaving his nuclear family destitute or dependent on the husband's extended family for their food and maintenance. In the past, it would have been customary for the husband's extended family to care for his spouse and children, but that is less clear at present,

particularly due to the strain on the social fabric when multiple deaths within an extended family (particularly due to HIV/AIDS) leave few able-bodied adults to care for the remaining family members.

4.1.3 Influence of Poverty on HIV/AIDS Vulnerability

In Uganda, 35% of the population lives below the poverty line and almost 20% do not have adequate income to purchase the food required to provide 2283 calories per capita per day. As mentioned earlier, poverty facilitates the spread of HIV/AIDS and also prevents an effective and sustainable response. Families living in poverty would find it very difficult to provide the special foods that would help a PLWHA to maintain adequate nutrition that directly affects health, physical stamina, and productivity. Additionally, AIDS-afflicted families may find it difficult to afford the medications that might keep PLWHA productive. Families living in poverty are likely to be subject to conditions that increase their exposure to HIV/AIDS. They are likely to lack access to clean drinking water, sufficient food, basic health care, nutrition and health education, and adequate housing.

Although statistics on HIV prevalence is not readily available in districts where conflict prevails (Gulu, Arua, Kitgum), one might speculate that the vulnerability of internally displaced persons (IDPs) and refugees to HIV risk and the impact of AIDS is much higher than for Ugandans living in peaceful areas. This was confirmed by some of the stakeholders interviewed. In the case of IDP camps in northern and western Uganda, the living conditions contribute to the spread of HIV. A “camp culture” has developed that is characterized by overcrowded living conditions, dependency, idleness, unemployment, poverty, and a breakdown in cultural values. Given the lack of employment or income-generating opportunities coupled with poverty and food insecurity, many young women participate in transactional sex with soldiers and older men who have resources to obtain food and other basic needs for their families.

Table 3: Factors Contributing to Increased Vulnerability to HIV/AIDS

Vulnerability to the Spread of HIV	Vulnerability to the Impact of AIDS
Multiple sexual partners	Drought
Migration for wage work	Limited range of crops
Frequent alcohol consumption	Labor peaks in the agricultural cycle
Proximity to transport or trading	Labor-intensive processes
Frequent interactions with market centers	No tradition of labor-exchange of households
Low status and economic independence of women	Existing pressures on the domestic-farm interface
Physically damaging sexual practices (dry sex)	Limited substitutability between existing labor-intensive and less labor-demanding crops
Exchange of cash or favors for sexual services	Low food surplus reserves
	Limited opportunities for off-farm income

Some of the factors contributing to the vulnerability of the spread of HIV and the impacts of AIDS are listed in Table 3 above (FAO and UNAIDS, 1999).

4.1.4 Influence of HIV/AIDS on Economic Growth and Sustainable Development

In the aggregate, the loss of production and income due to HIV/AIDS by 8-10% of households will impact performance of the agricultural sector and even national level economic growth. In effect, the impact does not stop with the original families affected by HIV/AIDS but also affects the extended families that care for the surviving members. As the dependency ratio increases, families have fewer

resources for investment in modernizing and improving agriculture or for diversification into non-farm income-generating activities. HIV/AIDS can also contribute to a loss of job opportunities for PLWHA, reduced productivity and efficiency, an inability to save and invest, diminished entrepreneurial capacity, poor management and utilization of resources, and work taken off to care for or bury loved ones (Jabbo-Obbo, 2001).

Although there are no figures available to assess the contribution of HIV/AIDS to Uganda's health-sector costs, the experience of other countries may provide some indication of what these might be. By 2005, the health sector costs for treatment, care, and support related to HIV/AIDS are anticipated to represent more than one-third of all government health spending in Ethiopia, more than one-half in Kenya, and nearly two-thirds in Zimbabwe (UNICEF and UNAIDS, 1999).

Large-scale disintegration of extended family networks and social structures, an increased pressure for communities to care for needy orphans, as well as the psychological burden of stigmatization and grieving constitute some of the social costs of HIV/AIDS (Armstrong, 1995). At the 13th International AIDS Conference in Durban, South Africa, the UNAIDS director expressed that "HIV does to society what it does to the human body; it undermines institutions and kills those people who are the basis for Africa's social safety net" (Piot, 2000). In other words, AIDS erodes social capital—the community networks, the people, and the indigenous knowledge base that form the foundation for human development. Social capital is a valuable resource that has been identified as playing an increasingly important role in promoting sustainable development (World Bank, 1997).

4.2 HOUSEHOLD AND COMMUNITY COPING STRATEGIES

A range of coping strategies are adopted by AIDS-afflicted and -affected households and hard-hit communities. It is important to understand when and why they occur in order to help reduce vulnerability to HIV risk, cushion the severity of the impact of AIDS, and strengthen a household's resilience for coping with stresses precipitated or intensified by HIV/AIDS. There is also a need to closely monitor the coping capacity of communities so that policies and programs can be designed to provide support. Strategically targeting households will help to maximize the effectiveness of local initiatives, to use limited resources wisely, and to support emergent coping strategies that have positive outcomes.

Household coping mechanisms are adopted sequentially or in stages that include: 1) reversible mechanisms and disposal of self-insuring assets; 2) disposal of productive assets; and 3) finally destitution. Over several years, bouts of consecutive illnesses may gradually deplete the resources and labor supply of one or more interdependent households.

UNAIDS research (1999) indicates that the coping strategies not requiring cash (intra-household labor reallocation, withdrawing children from school, diversifying household crop production, decreasing the area of land cultivated) are the ones most frequently used. While some of the coping responses can be reversed, others such as the withdrawal of children from school, are often irreversible and represent a short-term survival strategy with long-term consequences.

Many of these coping strategies were identified collectively by stakeholders interviewed in Uganda for a recent food security and HIV/AIDS study. All three aspects of food security were undermined especially for people living in poverty. In terms of reduced food availability and access, adult illness and death in a household results in less household production and income and a shift in spending from food to medicine.

Food reduction and substitution are strategies employed by PLWHA, even though they know that they need more nutrient-dense foods to maintain weight and keep physical stamina as HIV disease progresses. The stakeholders interviewed identified the need for PLWHA to receive foods that provide adequate energy and a high-quality protein. Nonetheless, some stakeholders noted that sources of high-protein foods (eggs from chickens, milk from cows) are often sold off by households to pay debts incurred as a result of the impact of HIV/AIDS (Kraak et al. 1999).

Positive coping responses have been observed within hard-hit communities and represent a way of responding more effectively to the multiple challenges of HIV/AIDS. These include the re-emergence of communal agriculture in the north, mutual assistance for the collective care of orphans, secession planning for AIDS-afflicted families, and comprehensive home-based care programs that provide a range of services from voluntary counseling and testing to food assistance, vocational training, and primary health care. Even with these efforts, AIDS stigma remains a problem for PLWHA and their households in Uganda in spite of widespread community sensitization. The persistence of stigma impacts the desire and ability of PLWHA to seek early treatment, care, and support.

To strengthen a household's coping capacity, it will be important to identify indicators of coping and critical points in time to strategically target short-term assistance combined with longer-term income-generating capacities. Special targeting considerations should be made for AIDS-afflicted households experiencing adult deaths, a high dependency ratio, and those headed by single women, grandparents, older children, and foster families that provide care for multiple orphans.

Further research is needed to explore more systematically the (1) range and timing of coping mechanisms adopted by vulnerable groups in different contexts including conflict versus peaceful regions, (2) intra-household decision-making around the use of limited resources that may jeopardize household food security, (3) indicators of vulnerability to HIV risks and AIDS impacts for different types of households, (4) critical points in time to target short-term food aid and material assistance in addition to providing longer-term livelihood support, and (5) strategies that strengthen existing support systems and community coping responses.

4.3 THE LIFE INITIATIVE

The recent Leadership and Investment in Fighting an Epidemic (LIFE) funds that were awarded to Uganda in 2001 will provide \$20 million over the next five years to establish 10 model district programs throughout the country. Through USAID's Strategic Objective 8, the LIFE initiative will support Uganda's continued progress in HIV prevention and AIDS care by developing "one stop" integrated HIV/AIDS service delivery centers offering a continuum of HIV/AIDS care. The array of services that LIFE can potentially provide for PLWHA and AIDS-afflicted and -affected households in selected districts include:

1. Promoting access to anti-retroviral and prophylactic therapies
2. Expanding access to complementary therapies (e.g., herbs) and trusted practitioners through linkages with traditional healers such as the existing group of Traditional Healers and Modern Practitioners Together Against AIDS and Other Diseases (THETA)
3. Adopting and strengthening innovative strategies developed by communities in response to HIV/AIDS (e.g., secession planning for children in AIDS-afflicted families, community care approaches for orphans, communal agriculture in regions where it is re-emerging)

4. Integrating nutrition education and counseling to optimize overall health and well being and improve symptom management of HIV disease and related opportunistic infections (OI)

USAID's Office of Food for Peace has agreed to a one-year amendment to ACDI/VOCA's DAP to provide approximately \$5 million in FY 2001 food aid resources, both direct distribution commodities and foodstuffs for monetization, with the objective of improving the quality of life of PLWHAs and their dependents. ACDI/VOCA will receive and review proposals submitted by NGOs already implementing HIV/AIDS programs and make awards of food and cash resources to provide food assistance to needy households and to strengthen household coping responses. The program will improve the household food security of the beneficiaries, and give them access to the HIV/AIDS prevention, care, and support services provided by these NGO partners. The Mission anticipates that the program will continue under its Integrated Strategic Plan 2002-2007, again in collaboration with ACDI/VOCA and local partners.

Nutrition education and counseling can assist with HIV disease management and optimize the health of other household members to sustain the agricultural productivity and viability of these households. Nutrition care and support guidelines for HIV/AIDS have been developed by the MAAIF, the Academy for Educational Development, and the CHILD Project. Existing guidelines could be enhanced through participatory research to formulate concrete and culturally competent nutrition messages that are relevant and practical based on the eating habits and life circumstances of Ugandan PLWHA. A simplified version of the nutrition care and support guidelines is needed and could be integrated within the Positive Living Guidelines already being used by several indigenous NGO involved in HIV prevention and AIDS care and support.

4.4 HIV/AIDS INTERVENTION STRATEGIES

Strategies for working with AIDS-afflicted and -affected households may require elements of triage, as well as strategic targeting of limited resources to groups with special needs. Many of the AIDS-affected households have become single parent households. Mainstream economic growth and food security programs (such as those supported by USAID's integrated Strategic Objective 7) have had great success in recent years working with or incorporating women and women's groups and have not found it necessary to exclude women headed households from participation. The local groups developed under these programs should be encouraged to include adults who have lost their partners but do not show symptoms of HIV/AIDS. While there may be a perceived risk with regard to the ability of these households to repay loans, the time-frame of most loans is so short (usually 4-6 months) that if the individual does not show symptoms of HIV/AIDS, the risk of that person defaulting on a loan because of HIV/AIDS is very small. This strategy would allow the majority of AIDS-affected household members to continue to participate in and benefit from mainstream agricultural production, food security, and economic growth programs. In particular, it would allow the majority of the AIDS-affected households access to income-generating activities (IGA) and microfinance opportunities with the goal of asset creation to improve the resilience of these households to cope with the food security challenges imposed by poverty and HIV/AIDS.

What the majority of AIDS-affected families need most, like many other woman headed households, are IGA that are consistent with their family's reduced labor status. Mainstream food security and economic growth programs should seek out and offer IGA that are consistent with this reduced labor availability, even if these activities produce somewhat less income than some others. Moreover, these families need opportunities to rebuild their family assets and social capital.

Addressing the needs of AIDS-afflicted households will be more difficult. These families include households with a high dependency ratio, usually headed by a single parent, grandparent, older children, or families with multiple foster children. Their circumstances will vary, but many will have very limited income and few assets. In some cases, transfers from other family members or charitable organizations may be all that permits the family to remain intact. Some may benefit from short-term relief combined with vocational and livelihood skills training and expanded income-generating activities and opportunities for longer-term self-reliance.

The LIFE initiative can provide the short-term nutrition and health care support that these families require. Others may require some form of relief until the children are old enough to care for themselves or other homes are found for the children. One of the difficult questions will be whether or not these families will continue to receive support so that the children may remain in school, since many families may be forced to withdraw children from school at an early age to help support the family. Many of these families will need support mechanisms, both for economic and psychosocial considerations. Most commercial financial organizations may not provide loans to these families because they may be viewed as poor credit risks. It will be necessary to develop creative strategies to help these AIDS-afflicted groups develop income-generating activities.

One approach may be modeled after that used by the Ugandan Women's Effort to Save Orphans (UWESO), which organizes groups of five foster families into a support unit. They are provided with 10 weeks of training, particularly oriented towards business and credit. Loans are paid back in small installments over a period of a few months. The participating families help each other meet the material needs of the foster children in the group, particularly when there is a large expenditure (e.g. for medical expenses or school fees). The array of NGO and relief organizations, particularly those working through the LIFE initiative, are an important mechanism to achieve several objectives: 1) develop groups that might collaborate on a group IGA or share the responsibility for repayment of loans related to individual IGA; 2) organize community groups that can provide accounting and other business services and/or literacy and numeracy training; and/or, 3) provide loan guarantees on a group or community basis so that PLWHA and AIDS-afflicted households can gradually expand their incomes and rebuild assets that have been drawn upon or lost as a result of HIV/AIDS.

PLWHA and AIDS-afflicted households in conflict areas that are supported through the integrated Strategic Objective 9 face unique circumstances that will require a combination of short-term relief (food aid provided by organizations such as the World Food Program) and longer-term livelihood skills training and income-generating opportunities. The transition from relief to development in conflict areas is extremely complicated. The short-term relief often drags on longer than anticipated without any exit strategy, or relief provisions of one organization may undermine the efforts of other organizations to create incentives for communities to take charge of their own development. There is a need for NGO to collaborate more effectively and to promote capacity building and civic engagement among local stakeholders in order to gain a deeper understanding and personal investment in food security problems within conflict areas.

In conclusion, the cross-sectoral nature of HIV/AIDS requires a well-coordinated and multi-sectoral response, that has been characteristic of the GOU, coordinated for nearly a decade through the Uganda AIDS Commission (UAC). The continuation of an expanded response is essential so that sectors can identify and address specific factors predisposing groups to the vulnerability of HIV risks and the myriad

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impacts of AIDS. HIV/AIDS must be placed in the broader context of development planning if sustainable economic growth and gains in human development are to be achieved for all Ugandans.

ANNEX A

Scope of Work

ANNEX A

Scope of Work

Background

Uganda seems climatically and agriculturally well endowed when compared to other countries in Eastern Africa, and has been described as the potential breadbasket of the Greater Horn. In reality, however, there are problems and constraints in systems of food production, distribution, and consumption that seriously compromise food security at all levels. Factors affecting food security include declining soil fertility, lack of inputs, poor service delivery (extension, health, and education), poverty, conflict and displacement, and cultural norms such as those governing the division of labor, inheritance rights, food allocation and feeding practices. The gravity and complexity of the food security problem in Uganda demand that it be a priority concern to the USAID Mission, and that approaches to enhancing food security be integrated throughout the portfolio.

Under the current program USAID contributes to food security in Uganda with a broad-based approach that addresses the directly agricultural dimensions of the problem, as well as the wider structural and institutional environment. The key components of the USAID food security strategy are: support for non-traditional agricultural exports (NTAE) and dairy development; the PL480 Title II monetization program; assistance extended to internally displaced people (IDP), refugees and drought-affected communities through the World Food Program; production and marketing activities in the North; natural resource management, biodiversity, and sustainable agriculture in the environment portfolio; and nutrition interventions (including breastfeeding promotion and service provider education and training) through the education and health programs. Activities currently being implemented include:

1. IDEA/ADC, promoting production of both high value (flowers, spices) and low value (maize, beans) NTAE. The activity contributes to food security both by increasing household income from sales of commodities, and increasing production and productivity of basic food crops.
2. ACDI/VOCA, using Title II monetization resources to support the efforts of local NGOs and associations to distribute improved agricultural inputs, provide market information and access, and increase oilseed, cassava, and cereals production. ACDI/VOCA also monetizes oil and wheat on behalf of other Title II Cooperating Sponsors: Africare, implementing the Uganda Food Security Initiative in Kabale District; Technoserve, supporting a program of production and marketing interventions in three districts in the North; and World Vision's program in Gulu and Kitgum Districts, also working in production and marketing.
3. ICRAF/AFRENA, implementing a program of research and development to conserve and enhance biodiversity in the Kigezi highlands and Mabira Forest, supported by SO2. Working in close collaboration with Africare's Title II program and dairy development activities supported under SO1, AFRENA is testing and disseminating agroforestry technologies.

These technologies are designed to enhance production and productivity and provide opportunities for income generation through the sale of tree products.

4. FEWS, which has conducted the benchmark assessment of vulnerability to food insecurity in Uganda and has also analyzed Uganda's informal crossborder trade. The monthly FEWSNET newsletter, distributed to all partners, updates the food security and humanitarian situation in the country, and serves as an indispensable planning and management tool.

5. NUFS, the Northern Uganda Food Security program, which targets five of the ten districts of Northern Uganda, where civil strife and armed conflict have increased vulnerability to food insecurity. NUFS grantees collaborate with the Mission's other food security partners to introduce new agricultural technologies, build farmer associations, and increase market access.

6. The World Food Program (WFP), managing over \$70 million in resources for a portfolio of activities spanning the relief to development continuum. Included are emergency and relief and recovery operations, food for work programs, support for education and adult literacy, and vocational training. The USG provides between one-third and one-half of the resources utilized by WFP programs in Uganda.

Objectives

USAID/Uganda is currently developing an Integrated Strategic Plan (ISP) for the period 2002-2007. As part of the strategic planning process, the Mission wishes to undertake a comprehensive food security assessment to provide the analytic basis for structuring its food security interventions in the new program. The assessment will provide the following:

- An analysis of the current state of food security in Uganda, with particular attention to regional variations/disparities and their causes;
- An assessment of the availability and quality of available data on the nutritional status of young children in Uganda, and of the reliability and usefulness of these data as an indicator of food security;
- An examination of the impact of HIV/AIDS on food security at the household level, and the nutritional implications of the epidemic.

Statement of Work

On the basis of the objectives outlined above, this food security assessment will have three key components: an economic and agricultural analysis, a nutrition assessment component, and an HIV/AIDS component. For each of these components, a number of key issues will be examined.

1. Economic/agricultural component.

- Regional (within Uganda) production and economic trends, and disparities in production and purchasing power in different parts of the country.
- National and regional food distribution structure, including import, export and informal cross border trade.
- The infrastructure and transportation grid and its implications for distribution in relation to regional production trends.
- The impact of GOU interventions (if any) that currently and directly affect the food distribution structure/network.
- Smallholder practices, including postharvest handling and utilization of production (sales, consumption, seed, fodder etc.).

2. Nutrition assessment component

- Sources and quality of information on nutritional status, with particular reference to children (age cohorts birth to five years and 6 to 14 years).
- Regional distribution of protein-energy malnutrition (PEM) and micronutrient deficiencies (if data are available), and variables that affect this distribution.
- Relative magnitude and wider health implications of PEM and micronutrient deficiency patterns.
- Potential impact of proposed 416b interventions.
- GOU and NGO supported nutrition programming.

3. HIV/AIDS component

- Nutritional care and support needs of persons living with HIV/AIDS (PLWHA) and affected household members.
- A model of impacts of HIV/AIDS on income, expenditure, and production patterns at household level, and the implications of these for household food security.

Methodology

1. For Objective #1: Review pertinent documents and interview key personnel including the FEWS country representative, World Food Program, Ministry of Agriculture, Uganda Bureau of Statistics, NARO, Title II partners, NGO/PVO active in the agricultural sector, and Makerere University and make site visits/field trips as appropriate, to document the current food security situation in the country, regional disparities and imbalances, and near-term prospects.
2. For Objective #2: Liaise with key partners including UNICEF, Ministry of Health, WHO, WFP, Makerere University, UBOS/MACRO International/DHS to obtain the most recent and reliable data on protein-energy and micronutrient malnutrition and deficiencies in Uganda. Use standard procedures to assess data quality and the linkages between nutritional data and regional food security trends.
3. For Objective #3: Meet with key HIV/AIDS implementing partners (TASO, AIC, CDC) and others (UNAIDS, NAC, EPRC) and consult relevant documents to establish food security impacts of and on HIV/AIDS.

Site and field visits will be scheduled for all three objectives as necessary.

Deliverables

1. Workplan/schedule: within three working days of arrival.
2. Draft Food Security Assessment: prior to departure from Uganda, in hard and electronic versions. An oral debriefing will also be scheduled.
3. Final Food Security Assessment: within five working days after receipt of written Mission comments.

Level of Effort and Timing

The food security assessment will require approximately five weeks. Four weeks will be spent in Uganda with an additional week available for pre-travel planning and post-trip preparation of the final report. The preferred time frame for in-country work is January 2001.

Expertise Required

1. Agricultural economist, PhD preferred, with at least five years of experience assessing food security issues in sub-Saharan Africa.
2. Nutrition expert, advanced degree in nutrition, public health, or anthropology, minimum five years experience in anthropometric and micronutrient data collection and analysis, and sub-Saharan Africa experience.
3. Social scientist, PhD preferred, demonstrated experience with assessing the economic impacts of HIV/AIDS in sub-Saharan Africa.

ANNEX B

Workplan

ANNEX B

Workplan

Food Security Assessment Team Workplan Jan 28 to March 8, 2001

Week 1

- 01/28 Agricultural Economist and Team Leader, John Lichte, arrives in Kampala.
- 01/29 John Lichte has initial meeting with USAID Uganda personnel, IDEA and Africare. Food Security Assessment Coordinator, Karen Pilliod, arrives in Kampala.
- 01/30 Initial contact with local consultants Social Scientist Paul Wagubi and Nutrition Specialist Abby Kalule-Sewali, who sign consulting contracts with Chemonics. Meeting with FEWSNET representative and with ACDI-VOCA. Social Scientist/HIV/AIDS Specialist, Vivica Kraak, arrives in Kampala.
- 01/31 Team meeting with USAID team leaders.
- 02/1-2 Continue collection of key documents and initial meetings with key organizations involved in food security activities.
- 02/04 Nutrition Specialist, Irwin Shorr, arrives in Kampala.

Week 2

- 02/05 Team meeting on roles and responsibilities of individual team members and theme focused sub-groups within the team. Continue focused discussions of roles and interactions between components of food security, including food production, income generation, nutrition, and health, and particularly exploring the interaction between food security and living with HIV/AIDS.
- 02/05-07 Continue meetings with key food security organizations and collection of documents on food security in Uganda and the interaction of the various components of food security. Use evening debriefings approximately every second day as a means to further discussion between team members and ensure that the interactions between food security, nutrition and health are properly addressed in the team report.
- 02/08 Field trips to Masaka by the Nutrition and HIV/AIDS sub-teams to Iganga for the AG/Economics sub-team.
- 02/09 Develop outlines for necessary areas of inquiry based on initial ideas of outlines for writing the 3 sections of the team report:
1. Economic/agricultural component
 2. Nutrition assessment component
 3. HIV/AIDS component
- 02/10 Present outline to CTO. Team meeting to check on status of each sub-group within the team on finding information and addressing key issues, outlines and progress on written report.

Week 3

- 02/12-14 Continue meetings with key food security, health and nutrition organizations.
- 02/15-16 Team shifts focus to writing component annexes and synthesizing information gathered. Final meetings with key food security, health and nutrition organizations. Continue evening debriefings to ensure discussion and interaction among team members which focus on interactions among the 3 components listed above.

02/17 Team meeting to check on status of writing and how the interactions between the 3 components are being addressed.

Week 4

02/19-20 Continue writing of annexes.

02/22 Preparation of debriefing presentation for USAID.

02/23 Meeting with USAID to present conclusions and recommendations.

Team members submit draft component annexes of team report to team leader.

Departure of Karen Pilliod

02/24-25 Sub-teams work on drafting synthesis of component annexes for core report.
Departure of Vivica Kraak and Irwin Shorr.

Week 5

02/26-03/01 Reviewing and finalizing component annexes.

03/02-03 Drafting synthetic core report.

Week 6

03/05-06 Drafting synthetic core report.

03/07 Printing report.

03/08 Team leader submits draft final report to USAID Uganda.

ANNEX C

Contacts

ANNEX C

Contacts

DONORS

Name of Organization	Contact Person	Phone Number/Fax Number
Department for International Development (DFID)	Ros Cooper <i>Health Adviser</i>	348727/348732
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World Bank	Robert Blake <i>Country Program Manager</i> Peter Okwero <i>Health Specialist</i> John Oloya <i>Rural Development Specialist</i>	236825/230092 077 402881

MINISTRIES

Name of Organization	Contact Person	Phone Number/Fax Number
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ORGANIZATIONS

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Catholic Relief Services	Paul Macek <i>Country Representative</i>	267733/268670
CARE	Louis Alexander <i>Program Director</i>	258568/235880 077-221103
Commodity Trading International Ltd.	Gordon Jones <i>Managing Director</i>	255909/344126
CTI	Gordon Jones <i>Managing Director</i>	255909/344126 077-777234
Food and Agriculture Organization of the UN	Ajmal Qureshi <i>FAO Representative</i> Charles Owach <i>Agricultural Economist</i>	250575/250579
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ANNEX D

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ANNEX D

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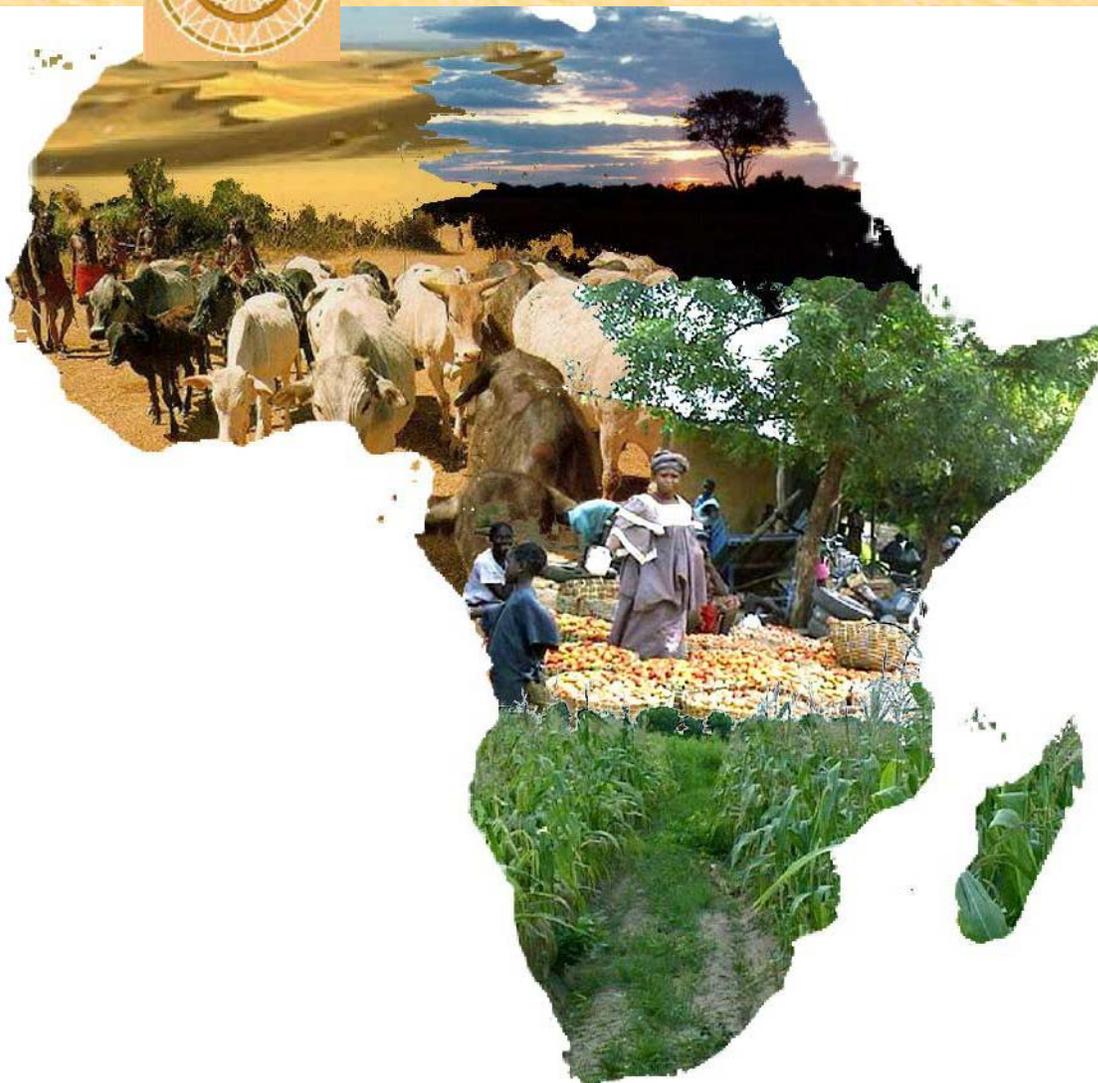
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LIST OF ACRONYMS

ACDI/VOCA	Agricultural Cooperative Development International/Volunteers in Overseas Cooperative Association
ACF	Action Contre la Faim (USA)
AIC	AIDS Information Center
AIDS	Acquired immune deficiency syndrome
ART	antiretroviral therapy
ASO	AIDS service organization(s)
BMI	Body mass index
CARE	Cooperative for Assistance and Relief Everywhere
CDC	Centers for Disease Control
CFW	Cash-for-work
CHILD	Community and Home Initiatives for Long-term Development
CRS	Catholic Relief Services
DANIDA	Danish International Development Assistance
DFID	Department for International Development
EU	European Union
FAO	Food and Agriculture Organization
FFW	Food-for-work
GDP	Gross domestic product
GNP	Gross national product
GOU	Government of Uganda
HIV	Human immunodeficiency virus
IDEA	Investment in Developing Export Agriculture (Project)
IDP	Internally displaced person(s)
IEC	Information, education, and communication
IGA	Income-generating activity/activities
ISP	Integrated strategic plan
Kg	Kilogram(s)
LIFE	Leadership and Investment in Fighting an Epidemic Initiative
LRA	Lords' Resistance Army
MAAIF	Ministry of Agriculture, Animal Industry, and Fisheries
MTCT	Maternal-to-child transmission
MFI	Micro-finance Institution(s)
MFPED	Ministry of Finance, Planning, and Economic Development
MOH	Ministry of Health
MPS	Ministry of Public Service
NAADS	National Agricultural Advisory Services (Program)
NACWOLA	National Community of Women Living with HIV/AIDS in Uganda
NARO	National Agricultural Research Organization
NGEN+	National Guidance and Empowerment Network of People Living with HIV/AIDS
NGO	Non-governmental organization(s)
OI	Opportunistic infection(s)
ORS	Oral rehydration solution
PEAP	Poverty Eradication Action Plan
PLWHA	Person/people living with HIV/AIDS
PMA	Plan for the Modernization of Agriculture
SO	Strategic objective

SPEED	Support for Private Enterprise Expansion and Development
STD/STI	Sexually transmitted disease(s)/infection(s)
TASO	The AIDS Support Organization
TH	Traditional healer(s)
THETA	Traditional and Modern Health Practitioners Together Against AIDS and Other Diseases
Title II PL 480	US Title II of Agricultural Trade, Development, and Assistance Act of the 1954 Public Law 480
UAC	Uganda AIDS Commission
UDHS	Uganda Demographic and Health Survey
UFSI	Uganda Food Security Initiative (Africare)
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Program
UNHS	Uganda National Household Survey
USAID	US Agency for International Development
USDOC	US Department of Commerce
Ush	Uganda shillings
UWESO	Ugandan Women's Effort to Save Orphans
VCT	Voluntary counseling and testing
WFP	World Food Program
WHO	World Health Organization
WVI	World Vision International

ANNEX E

1. Expanded Executive Summary

ANNEX E

1. Expanded Executive Summary

The rich natural resource base, the success of smallholder agricultural production, and the rising incomes of the population of Uganda create the expectation that Uganda could be “the breadbasket” for the Horn of Africa. However, that expectation has not come to fruition. Uganda continues to be plagued by internal social conflict, as well as spillover from warring neighboring countries. While the Lake Victoria Crescent has returned to relative civil stability and dynamic economic growth, civil disruption continues across the north and along the western border, resulting in approximately one million displaced persons who are particularly vulnerable to food insecurity. This dynamic, coupled with national statistics of poor nutritional status and the steady prevalence of HIV/AIDS, has negatively impacted the food security situation in Uganda and continues to disrupt the pursuit of livelihoods in some of Uganda’s most productive areas.

The U.S. Agency for International Development (USAID, 1995) defines food security as when people have regular access—either through production or purchasing power—to sufficient food to meet their dietary needs for a healthy and productive life. This paper uses a resource framework in which particular attention is paid to the *availability*, *access to*, and *utilization* of food resources. Food security considerations are somewhat different at the national, regional, and household level; this paper attempts to comment on all three. At the household level, food must be *available* and the combination of food produced and income resources must be sufficient to *access* enough food to meet at least the minimum per capita daily energy requirements. In addition, those food resources must be *utilized* in such a manner to meet the needs of each and every household member.

Aggregated to the regional and national levels, to be food secure, the region or country must produce adequate food (*availability*) or have the financial resources (foreign exchange at the national level) to *access* food sufficient to meet the needs of the population. Strictly speaking, to be food secure, food resources in the region or country should be distributed such that the needs of each and every member of the population are met. This last requirement is not usually adhered to in the aggregate, and a region or country is said to be generally food secure if they meet the availability and access criteria (Otherwise, in the real world, no region or country would ever be considered food secure.)

The primary causes of food insecurity in Uganda are poverty, low agricultural productivity, conflict, HIV/AIDS, and the occasional natural disaster (droughts, floods). Poor food utilization, particularly as it relates to the nutrition of young children, is also a food security issue. All of these causes except the natural disasters are chronic situations. Resolving problems of chronic food insecurity requires development solutions, not temporary food relief. Food relief may be required to prevent famine, but it largely treats the symptoms, not the causes of food insecurity.

While many poor households do not the resources, either from agricultural production or income to feed their members adequately, at the national level, food *availability* is typically not the cause of food insecurity in Uganda. Rough calculations indicate that the production of basic food crops is sufficient to meet the minimum energy requirements of the population. Uganda has been blessed with a rich natural resource base and two rainy seasons per year over much of the country. If one harvest fails, the next harvest is only 3-4 months away. In addition, crops that have definite harvest periods constitute only

about 40% of the supply of basic food crops. Bananas, which supply 53% of Uganda's basic food crop production by weight, are not seasonal but produce all year round. Cassava, which supplies another 7.5% of basic food crop production, can be harvested over a number of months and stored in the ground until needed.

This is not to say that every corner of the country has all the food it needs all of the time. There are constantly reports of drought, floods, armyworm attacks or other localized problems. However, these problems are generally localized and do not cause the nationwide famines that have plagued neighboring countries. Two of the four major regions of Uganda, the West and the East, produce more than enough food to feed their populations. The North is borderline, producing only slightly less than the minimum energy requirements of the population. The only region seriously deficit in the production of basic food crops per capita is the Central Region, which by most accounts is the best fed region of the country. The Central Region's focus on cash crops and expansion into high value specialty crops for urban and export markets provide the region's rural population with incomes that are 24% above the national average for rural populations and the possibility of being relatively food secure. This performance confirms the notion that self-sufficiency is not necessary for food security, even in a very poor country, and makes the Central Region the model or "poster boy" for high-value and export-led growth in the agricultural sector.

This does not mean to imply that because food is produced in a region, that it is consumed there. Approximately 53% of agricultural production is marketed and about 40% of food crops is marketed outside the immediate production area. The urban areas and Central Region have to get their food from somewhere. Transport and marketing infrastructure are primarily oriented to sending marketed foods to the urban areas. Food commodities may well have to transit through urban commodity dealers and be sent back to a deficit locality in the rural area, if the people have the means to pay the urban commodity dealers a price that is competitive with urban food prices.

Rather than *availability*, the primary cause of food insecurity in Uganda is poverty, which limits *access* to an adequate supply of food to meet minimum nutritional requirements. Calculations made during the development of the Food Poverty Line for Uganda indicate that the poorest 50% of the population consume only about 1,373 calories per capita per day. This is far below the 2,200-2,300 calories per capita per day estimated to be necessary to meet minimum nutritional requirements. The approximately 20% of the population below the Food Poverty Line are by definition food insecure, and the 35% below the Poverty Line are probably food insecure as well.

The Poverty Rate in Uganda has declined from 56% in 1992 to 44% in 1997 and 35% in 1999. This is one of the most remarkable successes of economic growth in Africa. However, this still implies that 35% of the population have insufficient income to provide minimum family consumption requirements in addition to other non-food necessities. Nearly 20% of the population do not have sufficient home production and income to provide minimum family consumption requirements alone. This last factor is important because poverty in Uganda is almost entirely a rural phenomenon. While less than 10% of the urban population is below the Poverty Line and even fewer are below the Food Poverty Line, 39% of the rural population are below the Poverty Line and a little more than 20% are below the Food Poverty Line. Rural poverty has also declined sharply from 60% in 1992 to 39% in 1999. Cash crop farmers have seen poverty rates decline more rapidly than have non-crop (livestock, fishing) and food crop producers.

Economic growth is responsible for the entire reduction in poverty indicated above. The very modest redistribution impacts have had a negative impact rather than helping to reduce poverty. Since poverty is the primary cause of food insecurity, poverty alleviation through economic growth is the primary solution. However, prospects for economic growth will also be compromised if large portions of the population such as single parent households and those households whose livelihoods are disrupted by conflict, poverty, or AIDS remain disenfranchised and neither contribute to nor benefit from economic growth. Furthermore, economic growth will not result in an enhanced quality of life for the people of Uganda if large portions of the populations remain excluded from its benefits.

Smallholders are responsible for 95% of the agricultural production in Uganda and are generally characterized as low-input, low-output consumption oriented producers. While low agricultural productivity has not prevented Uganda from producing enough food to feed its population, it does constrain the ability of rural households to produce adequate food and income to provide proper nutrition for their members. It also constrains the competitiveness of Ugandan agricultural products in international trade, which further limits opportunities to earn income.

Another chronic food security issue is the poor nutritional status of young children in Uganda. Nationally, 33% of children ages 0 to 5 years have their growth stunted because of inadequate food intake/nutrition and healthcare. While stunting is highly correlated with poverty, it is not clear that reducing poverty alone will solve this problem. There is concern that many mothers may not have proper nutrition and health care to bear healthy babies and provide adequate breast milk for exclusive breastfeeding; that economic responsibilities may constrain mothers from providing adequate feedings; and that cultural traditions and poor education may prevent mothers from providing nutrient-rich weaning foods and initiating supplemental feeding at the appropriate age. There is also concern that inadequate healthcare may prevent young children from absorbing adequate nutrition or otherwise compromise their bodies' use of the food intake provided. Pre- and post-natal programs focused on nutrition and healthcare of the mother and child have helped address these concerns in other countries.

HIV/AIDS is another very significant problem with regard to food security, economic growth, and poverty alleviation. At a minimum, some 1.8 million people are HIV positive, and the epidemic has already resulted in 1.7 million orphans (and the number is growing). Since many of the 1.8 million HIV-positive people are adults with families, millions of additional family members are living with HIV/AIDS. One might hazard a guess that the number approaches 20-30% of the population. If this large a segment of the population is excluded from participating in and contributing to economic growth, it would negatively impact future rates of economic growth, and there would be little chance that the national poverty alleviation objectives could be attained.

Many of the individuals who are living with HIV/AIDS have special needs for nutrient-rich food that will help them maintain their health and productivity as long as possible. Families that lose the labor and income contribution of an adult member, often the husband/father, suffer income and productivity losses that greatly increase their risk of food insecurity. The remaining family labor may not be sufficient to grow enough food crops to feed the family, and cash crops are often left unattended. These families have a particular need for income-generating activities that fit their reduced labor profile.

In Uganda, conflicts, both internal civil unrest and warfare in neighboring countries, have caused some 800,000-900,000 citizens to be displaced from their lands and located in protected camps, along with another 200,000 refugees from neighboring countries. While some IDPs may be able to walk to their farms or borrow land that they can walk to and return to the protected environment of the camp at night, many cannot. But particularly in the North, when an attack does come, people die, children are abducted, women and girls are raped, and homes and other assets are destroyed. Under such conditions farmers have little means or incentive to invest in improving agricultural production and incomes. The North, the area most affected by conflict, is the region that has seen the least progress on reducing poverty and food security, and the only region where rural incomes and consumption actually declined (poverty incidence among rural populations rose from 62% to 67%) between 1997/98 and 1999/2000. Some of the areas most affected, particularly Gulu and Kitgum, have been (and potentially are) among the most productive regions of the country in the past. Conflict is a major constraint to national food security, economic growth, and poverty alleviation. Since many of the camp dwellers have been displaced two or three times over the last 15 years, the problems of income and food security are chronic and not amenable to solution by food relief alone.

1.1 Economic/Agricultural Component

The national policy framework in Uganda is considered to be very good. The international donor community, and USAID in particular, is pleased with the growth-oriented policies and the success of the Ugandan government in achieving a 6-7% annual rate of GDP growth. It is for this reason that USAID has determined it appropriate to align their new Integrated Strategic Plan (ISP) with the overarching Ugandan policy of poverty eradication based on economic growth.

The institutional setting for the agricultural sector is in a stage of transition. The roles and functions of public institutions are changing as a consequence of structural adjustment, movement toward a more market-oriented economy and decentralization. Extension services in particular are being reorganized to be funded and controlled at the local level. It is expected that individuals and organizations in the private sector will provide an important part of these extension services. It is likely to be some time before it becomes clear if this transition is working and how effective extension services will be under this new system.

Although Uganda remains one of the poorest countries in the world with 1999 per capita GDP of \$320, economic growth rates for the last decade have been among the highest in sub-Saharan Africa. Poverty rates have declined significantly and the rate of growth in food production exceeds the population rate of growth. Agriculture remains the largest economic sector, and while it continues to grow, its contribution to GDP is declining. Rapid growth in the service sector and the industrial sector are the cause of this decline. The agricultural sector accounts for 44% of GDP, 80% of employment, and nearly 90% of merchandise exports, of which coffee provides 55%. The five-year average total production of basic food crops (by weight) increased 35% between 1981-85 and 1995-99, or at a rate of approximately 3.4 % per year. Total area planted to these basic food crops grew by about 46% during this same period. With land area increasing more rapidly than production, productivity in food crops overall has apparently declined slightly over the last 20 years.

Although it is known that the general flow of food commodities is towards the urban and export markets, very little information seems to be available concerning marketing channels, quantities marketed,

marketing margins, and how the system really functions. Although there is substantial informal export of food products from border areas, the quantities would appear to be relatively modest in relationship to national production for most products, except fish. While Uganda and neighboring countries have often tried to ban food exports when food security was threatened, these efforts were often unsuccessful at controlling the majority of informal trade. Furthermore, these efforts may do more harm than good in the long run. Once disrupted, it may take years for a market to redevelop and function effectively. Such bans are an impediment to regional (multi-country) trade and integration.

The stocking and storing of food commodities in Uganda is very limited. The GOU does not control much in the way of food stocks and is privatizing the facilities where such stocks might be stored. On-farm storage is very limited in the humid, high rainfall areas because it is technically difficult and because the majority of staple crops like banana, cassava and other root crops do not lend themselves to being stored for any substantial period of time. Commercial food stocks are also very limited. Traders cite both the lack of access to the ex-government facilities and the high expense of building new facilities with interest rates over 20%. The high interest rates also require a rapid turnover in stocks, because it is too expensive to keep them for any amount of time given relatively thin marketing margins. Improved regional market information might serve as a catalyst to increase regional trade volumes, which in turn would stimulate an increase in commercial food stocks.

Uganda is blessed with a host of agro-ecological zones with different farming systems. These differences in natural resource base and climate are the basis for the initial disparities in food availability between regions. However, history, location and other aspects of human settlement such as poverty and conflict have an even larger role in the disparities in food security. The Northern Region, particularly the sub-regions of Gulu-Kitgum, West Nile, and Karamoja, and a portion of the Western Region, particularly the Bundibugyo area, are chronically food insecure. They will periodically require food relief to avoid famine: 1) as long as civil insecurity exists; 2) until production and income systems are reestablished; and 3) until households are able to accumulate assets that help them to withstand the normal cyclical declines in agricultural production.

The key to addressing food security in Uganda is poverty alleviation through economic growth. Economic growth and increasing incomes will do more to reduce food insecurity for a larger number of people than any other strategy. Addressing conflicts, HIV/AIDS, and the poor nutritional status of young children are other necessary aspects of an overall food security strategy that also begins to address the issues of groups marginalized by the typical economic growth process. Addressing these issues will both contribute to poverty alleviation and helping maintain high levels of economic growth. In addition, several approaches should be considered to help alleviate food insecurity and contribute to economic growth and poverty alleviation.

Improved Agricultural Productivity: The most basic approach to achieving economic growth in agriculture and improving food security is through improved agricultural productivity. This is an important aspect of the PMA strategy of facilitating a transition from “subsistence” (more correctly, low-input, low-output, consumption oriented) production to commercial agriculture. Many things may stimulate improved agricultural productivity, including improved technology and practices, technology transfer, facilitating access to agricultural inputs, marketing services, improved transportation, improved post-harvest handling and processing, and secure land tenure. However, there is no certainty that

agricultural production and productivity will improve until all of the necessary enabling conditions for productive and profitable agricultural production are provided. As each of the constraints is overcome, another of these necessary conditions will limit the advance in agricultural productivity until it too is overcome. However, as each constraint is eliminated, agricultural production in general, or some aspect of agricultural production in particular, will move to a higher level. For example, if one resolves a commodity marketing constraint, production will typically increase but perhaps less than one might hope if lack of access to basic input supply, credit, or improved production technologies still constrains production and productivity.

Income Diversification: While there may be adequate food nationally, many—particularly rural households—do not have either the home production or the income to *access* the food they need. Increasing food crop production is one way to resolve this problem, but only one of several. A massive campaign to increase production of a given crop, if successful, usually results in a sharp fall in the price of the commodity. A focus on income diversification has the advantage that it provides an opportunity for farmers to achieve food security through cash crops, livestock production, and a variety of other methods that may better fit their systems of production, and with less risk of a crop failure or a price decline producing a national or regional disaster. Off-farm employment and other non-farm income-generating activities should definitely be included among the options considered. At the sector level, diversification into new high-value crops and export markets has better potential than traditional crops of resulting in rapid economic growth and opportunities for employment generation.

Asset Accumulation: Agriculture tends to be cyclical in nature, and most farmers have to expect that there will be bad seasons or years. Farmers need to set aside assets that they can draw upon to help ensure food security in those bad years. Any income-generating activity can serve this role, if some of the income is saved. Enterprises like livestock production that build income-generating assets, some of which can be sold in hard times, may provide a better buffer against food insecurity than some other forms of income. Off-farm income may serve a similar purpose by helping maintain household income when the farm income is down.

Addressing Groups with Special Needs: A variety of groups with special needs are at risk of food insecurity and of neither benefiting from nor contributing to economic growth. These include the very poor, internally displaced persons (IDPs), women- and child-headed households, orphans, and families living with HIV/AIDS. Families with one or more of these disadvantages would perhaps constitute 25-35% of the total population. It seems unlikely that the economy can maintain a high rate of economic growth if this large a segment of the population is not benefiting from and contributing to that growth. To the extent that the very poor, IDPs, women- and child-headed households, orphans, and families living with HIV/AIDS have chronic income and food security problems, then these are development problems and not just transitory problems that can be adequately addressed by relief.

In some cases, food relief will be necessary, particularly in the form of nutritionally dense food products for small children and persons with HIV/AIDS. However, many of these families are capable of fully participating in growth oriented and income-generating activities, and more will be able to do so if they receive a minimum of strategically targeted assistance with some of their special needs. Many of these families are greatly in need of income-generating activities appropriate to the reduced labor status that many of them have experienced.

Multi-Sectoral Development Approaches: Activities that use a multi-sectoral approach seem likely to have the best chance of addressing the development needs of vulnerable populations. Programs that have a local level geographic focus (district, county, sub-county) should look at ways of providing, or partnering with other programs to provide, responses to the population's needs with regard to food production (*availability*), income generation (*access*), and nutrition and health (*utilization*).

In a country where 33% of the children are stunted, locally focused agricultural programs need to address food consumption and nutrition, as well as production, or partner with other programs that will. A child's nutritional status is primarily a function of food intake, adequate health, and maternal care. Locally focused programs need to integrate activities focused on nutrition education and pre-and post-natal healthcare and maintenance to help ensure that mothers know how and have adequate means to feed young children. Addressing nutrition (particularly adequate sources of nutrient-rich foods) and healthcare and maintenance will also address many of the immediate needs of families living with HIV/AIDS. Many of these families are capable of fully participating in growth oriented and income-generating activities, and even more will be able to do so if they also receive some help with these basic needs. Economic growth and poverty alleviation have a much better chance of achieving their quality of life objectives if a substantial portion of these disadvantaged households can be maintained in the mainstream of families with growing incomes, which will have a positive impact on food security.

Relief to Development Transition: Most people experiencing food insecurity in Uganda are suffering from a chronic situation of poverty, conflict, limited household labor, etc. rather than the loss of a season's food supply because of a natural disaster. These people need development activities to address the chronic nature of their problem rather than just short-term relief. Even IDPs who have often been living in a camp for 5-10 years manage to produce much of their own food, but need opportunities to generate income to meet their families needs.

A transition from relief to development is very welcome but difficult to accomplish. Although it keeps people alive in a famine situation, relief often has a tendency to inhibit people from taking control of their own lives, community, and development. There is often little incentive to do those things when their needs are being met. Programs like food-for-work (FFW) and cash-for-work (CFW) are meant to allow the recipients to feel like they are earning what the relief organization is providing, rather than receiving charity. CFW is typically more successful in this respect, because FFW is usually not sufficient to be considered an honest wage. But both often result in participants not taking ownership of the development activity that the FFW or CFW are meant to support, people regard the food or cash as a wage, and lose interest in the activity when the wage ends. These incentives may work for short-term discrete activities such as building roads, assuming the government, local or national, is going to maintain them. If it is a development activity that requires additional work, investment, maintenance, or upkeep, it often is not completed or maintained, such that the negative incentives of FFW or CFW render it unsustainable. It is difficult to find methods that allow relief work to support development rather than hinder it. The new approach of using vouchers rather than distributing seeds and tools is a step in the right direction in the sense that it supports the markets that local residents require to meet their needs in the aftermath of relief. Unless ways can be found to reduce these disincentives from relief actions, it may be better to find some approach that separates relief and development activities. School feeding may provide a focus for meeting some of a community's food needs and allow relief to be separated from other development activities.

1.2 Nutrition Component

While the poverty rate has decreased from 56% in 1992/93 to 35% in 1999/2000, the data shows a continued high percentage of preschool age children who exhibit stunted growth as well as a continued prevalence of wasting and underweight children. Some of these statistics are specific to the Northern Region of Uganda with its problems of continuing civil disturbance, but it has been found that poor nutritional status among Ugandans is widespread with the highest stunting rate reported in the Western Region of the country. These statistics relate to a variety of factors such as childhood illnesses, lack of micronutrients, food consumption patterns, and the distribution of resources within the household. Therefore, to achieve effective food security programming, interventions need to pay more attention to incorporating activities that address these factors, while continuing to stimulate increased household income. This more integrative approach involves not only the *availability* and *access* of food, but its *utilization* by the population as well.

Food consumption of the poor is often insufficient to meet minimum nutritional requirements, particularly in terms of calories per capita per day. As stated earlier, those in the population who fall below the Food Poverty Line, by definition fail to meet these requirements. The 35% of the population that falls below the Poverty Line, probably do not receive the 2200-2300 calories per capita per day estimated necessary to meet these requirements. Since incomes are higher in urban areas, urban populations have higher average consumption than do the rural populations. Food and related products constitute nearly 60% of rural expenditures (treating home grown food as if it were an expenditure) and about 40% of urban expenditures.

Interpretation of the results of and comparisons between the 1988/89 UDHS, 1995 UDHS, and 1999 UNHS national-wide surveys need to be done with caution. For the most part, comparisons do show a declining trend in stunting, wasting, and underweight over the years. But comparing individual statistics is not a straightforward affair. For example, the 1995 survey included only children age 0 to 48 months, rather than 0-60 months in the 1988/89 survey and 6-60 months in the 1999 survey. Since older children in this age group tend to have the highest stunting rates, the stunting rate for 1995 would be higher if the broader age group had been used. Also in each of the surveys a different groups of districts was excluded for security reasons. Since children in areas affected by civil insecurity tend to have worse nutritional status than those that do not have conflict, one must assume that all of the surveys would show somewhat higher rates of stunting, wasting, and underweight, if it had been possible to include these areas. The fact that each survey excludes a different set of districts makes comparisons between them less accurate. The 1988/89 survey excluded the most districts, so it probably also understates stunting, wasting, and underweight more than the others with regard to that consideration alone. There is little basis to decide whether the exclusion of districts with conflict or the exclusion of the children age 49-60 months of age, causes the greater under reporting. Fortunately, the 1999 UNHS survey seems to generally indicate both better nutritional status and the least bias towards under reporting.

The percentage of children affected by wasting remains low with the exception of the North, where conflict and disruption of access to food apparently have had a significant impact. While the national average in 1999 is 4.7%, the average for the North is 7.1 %, more than 50 percent above the national average.

Another regional disparity is that in the 1999 UNHS, the Western region has the highest prevalence of stunting at 39.3%, even though it has the second highest income and the highest food production per capita of the four regions. This contradicts a large body of literature based on many such surveys that would lead one to expect that higher income and food production should be associated with lower rates of stunting. There is no obvious answer to this anomaly.

Another interesting observation is the gender bias contained in the anthropometric data presented by the three national surveys. In all of the surveys, the statistics show that boys have a poorer anthropometric performance than girls, particularly with regard to stunting. However, several studies indicate that it is not the lack of food intake that creates this phenomenon, but rather that morbidity is higher among young boys than girls. Young boys are reported to be more biologically fragile than young girls, as manifested in higher morbidity and mortality rates. The poor nutritional status of boys relative to girls may reflect this tendency of boys to be ill more often than girls.

If poor health and childcare practices persist, even among higher-income groups, improvements in household income and food production may not automatically translate in improved nutritional status among children. There is a higher prevalence of stunting among children 6-23 months of age in cultures that delay supplemental feeding beyond the 4-6 month age. There is also an indication that economically active mothers may not breastfeed young children as often as would be desirable.

The PEAP identifies poor health as a fundamental cause of poverty in Uganda and includes improving the provision of primary health care as one of its four pillars. The 1999 UNHS survey reports that 28% of the survey population nationally and 24% in the Western Region reported being sick in the 30 days before the survey was conducted. In contrast, the Africare baseline survey for the Kabale District in the Western Region found that 82.4% of the children in the survey population were ill in the 15 days prior to the survey. One can only speculate that this difference might be related to a variety of factors, including the time of year or the occurrence of a cold/flu or malaria epidemic during the period in question, the manner in which the question was asked or respondents' expectations about what might result from the survey.

Nutritional status is traditionally viewed as a feedback indicator that provides information about how well children are surviving the food security and health conditions that existed over the previous 5 years (when surveying children 0 to 60 months). If growth-monitoring data can be made available on a monthly or periodic basis, it can potentially be used to monitor current changes in food security. Fluctuations from month to month in the weight of a particular age group would reflect food intake and health conditions during that period. A declining trend in weight-for-age would indicate reduced nutrition (or a health epidemic of some sort) that would likely be associated with reduced food intake.

Improvements in access to micronutrients, particularly Vitamin A, iodine, iron, and zinc, need to be targeted among nutrition-related interventions. Wasting, as a measurement of acute nutritional (or health related) distress, should be used in conjunction with mortality data, particularly in refugee or IDP camp populations.

The Luwero Rabbit Project and the Africare Uganda Food Security Initiative are examples of successful projects that increase food security both through increased production and diversification of food products as well as the integration of nutrition education. Such educational programs associated with agricultural

activities can help translate the improved availability and access to food into better nutritional status results at the household level.

1.3 HIV/AIDS Component

Uganda is one of the African countries where HIV/AIDS was first recognized and where its impacts have been most severe. In the mid-1980s, the government responded early to the epidemic after realizing the potential magnitude of its impact on the country. It has achieved notable success in fighting HIV/AIDS after developing one of the most vigorous and comprehensive HIV prevention and AIDS mitigation efforts in sub-Saharan Africa.

The number of people living with HIV/AIDS (PLWHA) in Uganda is approximately 1.8 million out of a total population of 21.4 million. The national HIV prevalence was 8.3% in 1999, a remarkable decline in new HIV cases in comparison to the previous decade where HIV prevalence was as high as 30% in some areas. Information from voluntary testing programs indicate that prevalence rates among young women remain 2 to 2.5 times higher than for young men of the same age group. However, knowledge of HIV prevalence for the country's 56 districts is far from complete, especially in the rural areas, and the Northern and Western regions that have been embroiled in prolonged civil conflicts. The decline in HIV prevalence, though significant, needs to be viewed as a vulnerable success.

AIDS is presently the leading cause of death among Ugandan adults. The extent of sustained behavior change with regard to preventing the transmission of HIV is not entirely clear. The rate of HIV infection is highest among 15- to 49-year-olds, who constitute the most productive members of society. More than one-half of Uganda's population is below 15 years of age and will soon enter the age range of highest risk for HIV transmission. These demographics suggest that a second wave of the HIV epidemic could occur, could affect even more people than the first wave, and has the potential to produce an even larger impact on the economy. Coupled with these demographics is a growing orphan burden that is currently estimated at 1.7 million and expected to reach 2.1 million by 2010. These statistics suggest that the AIDS epidemic significantly affects the economic and social fabric of Ugandan society and could have even greater impact in the future. The potential ramifications need to be acknowledged when considering development strategies, as HIV/AIDS will likely affect practically every sector of the economy and society.

It is doubtful that PLWHA can obtain sufficient amounts of high-quality food that provide the nutrients needed to maintain their health from the typical starch-based diet, especially if they eat only one or two meals a day. If food intake and nutrition are inadequate or inappropriate, it will hasten the demise of PLWHA. So, for PLWHA, health-related utilization problems might well cause them to be food insecure, even if food is available and accessible.

With 80% of the population involved in agriculture, the primary impact of HIV/AIDS on food security is the loss of labor to produce food or to earn income with which to purchase food. If the male head of a household is debilitated or dies, the family loses perhaps 25% of its food production capacity and much of its capacity to generate cash income. If the female spouse is debilitated or dies, the family loses the majority of its capacity for food crop production and childcare. In fact, the labor loss is often exacerbated by the need for able-bodied family members to care for the person who is sick, thereby diverting their labor. Since women are the traditional care providers in Uganda, a significant portion of their food production capacity may be lost if the husband is sick. Families are often forced to take one or more

children out of school either to provide care for a sick family member, to help compensate for the labor lost, or because there are no longer sufficient resources to keep them in school. Depending on the age, skills, and farming knowledge of the child or children, this situation will probably not allow the family to maintain its previous level of food production and income.

If income and/or assets are adequate, families may be able to hire labor to maintain their food production and income-generating activities. But for a typical rural family engaged in smallholder agriculture, income and assets would not be sufficient to hire labor or would not remain sufficient for very long. As the family's standard of living declines, it is increasingly difficult to meet the special food needs of the PLWHA in addition to the needs of other family members. Medical expenses for HIV/AIDS that are four times greater than for other diseases stretch the resources available even thinner. Furthermore, if the husband/father dies and there is no adult (or nearly adult) male child, the land may be inherited by other male members of the husband's extended family, leaving his nuclear family destitute or dependent on the husband's extended family for their food and maintenance.

Poor families have fewer means to provide adequate nutrition and healthcare to a PLWHA, implying that the PLWHA would probably not remain productive and live as long as where the means are not a constraint. Families living in poverty are likely to be subject to conditions such as the lack of clean drinking water, sufficient food, basic healthcare, nutrition and health education, and adequate housing that increase their exposure to and the impact of HIV/AIDS. This problem is particularly severe for people living in IDP camps. A "camp culture" has developed that is characterized by overcrowded living conditions, dependency, idleness, unemployment, poverty, and a breakdown in cultural values. Given the lack of other income-generating opportunities, many young women participate in transactional sex with soldiers and older men who have resources to obtain food and other basic needs for their families.

In the aggregate, the loss of production and income due to HIV/AIDS by 8-10% of households will impact performance of the agricultural sector and even national level economic growth. In effect, the impact does not stop with the original families affected by HIV/AIDS but also affects the extended families that care for the surviving members. As the dependency ratio increases, families have fewer resources for investment in modernizing and improving agriculture or for diversification into non-farm income-generating activities. Large-scale disintegration of extended family networks and social structures, an increased pressure for communities to care for needy orphans, as well as the psychological burden of stigmatization and grieving constitute some of the social costs of HIV/AIDS.

Household coping mechanisms are adopted sequentially or in stages that include: 1) reversible mechanisms and disposal of self-insuring assets; 2) disposal of productive assets; and 3) finally destitution. Over several years, bouts of consecutive illnesses may gradually deplete the resources and labor supply of one or more interdependent households. The coping strategies not requiring cash, such as intra-household labor reallocation, withdrawing children from school, diversifying household crop production, and decreasing the area of land cultivated, are the ones most frequently used. While some of the coping responses can be reversed, others, such as the withdrawal of children from school, are often irreversible and represent a short-term survival strategy with long-term consequences.

Positive coping responses have been observed within hard-hit communities and represent a way of responding more effectively to the multiple challenges of HIV/AIDS. These include the re-emergence of

communal agriculture in the north, mutual assistance for the collective care of orphans, secession planning for AIDS-afflicted families, and comprehensive home-based care programs that provide a range of services from voluntary counseling and testing to food assistance, vocational training, and primary health care. Even with these efforts, AIDS stigma remains a problem for PLWHA and their households in Uganda in spite of widespread community sensitization that impacts the desire and ability of PLWHA to seek early treatment and care.

To strengthen a household's coping capacity, it will be important to identify indicators of coping and critical points in time to strategically target short-term assistance combined with longer-term income-generating capacities. Special targeting considerations should be made for AIDS-afflicted households experiencing adult deaths, a high dependency ratio, and those headed by single women, grandparents, older children, and foster families that provide care for multiple orphans.

The recent Leadership and Investment in Fighting an Epidemic (LIFE) funds awarded to Uganda in 2001 will provide \$20 million over the next five years to establish 10 model district programs throughout the country. Through USAID's integrated Strategic Objective 8, the LIFE initiative will support Uganda's continued progress in HIV prevention and AIDS care by developing "one stop" integrated HIV/AIDS service delivery centers offering a continuum of HIV/AIDS care. LIFE can potentially provide an array of services for PLWHA and AIDS-afflicted and -affected households in selected districts.

USAID's Office of Food for Peace has agreed to a one-year amendment to ACDI/VOCA's DAP to provide approximately \$5 million in FY 2001 food aid resources, both direct distribution commodities and foodstuffs for monetization, with the objective of improving the quality of life of PLWHAs and their dependents. ACDI/VOCA will receive and review proposals submitted by NGOs already implementing HIV/AIDS programs and make awards of food and cash resources to provide food assistance to needy households and to strengthen household coping responses. The program will improve the household food security of the beneficiaries, and also give them access to the HIV/AIDS prevention, care, and support services provided by these NGO partners. The Mission anticipates that the program will continue under its Integrated Strategic Plan 2002-2007, again in collaboration with ACDI/VOCA and local partners.

Strategies for working with AIDS-afflicted and -affected households may require elements of triage, as well as strategic targeting of limited resources to groups with special needs. Many of the AIDS-affected households have become single parent households. Mainstream economic growth and food security programs (such as those supported by USAID's integrated Strategic Objective 7) have had great success in recent years working with or incorporating women and women's groups and have not found it necessary to exclude women headed households from participation. The local groups developed under these programs should be encouraged to include adults who have lost their partners but do not show symptoms of HIV/AIDS. While there may be a perceived risk with regard to the ability of these households to repay loans, the timeframe of most loans is so short (usually 4-6 months) that if the individual does not show symptoms of HIV/AIDS, the risk of that person defaulting on a loan because of HIV/AIDS is very small. This strategy would allow the majority of AIDS-affected household members to continue to participate in and benefit from mainstream agricultural production, food security and economic growth programs. In particular, it would allow the majority of the AIDS-affected households access to income-generating activities (IGA) and microfinance opportunities with the goal of asset creation to improve the resilience of these households to cope with the food security challenges imposed by poverty and HIV/AIDS.

What the majority of AIDS-affected families need most, like many other woman-headed households, are IGA that are consistent with their family's reduced labor status. Mainstream food security and economic growth programs should seek out and offer IGA consistent with this reduced labor availability, even if these activities produce somewhat less income than some others do. Moreover, these families need an opportunity to rebuild their family assets and social capital.

Addressing the needs of AIDS-afflicted households will be more difficult. These families include households with a high dependency ratio, usually headed by a single parent, grandparent, older children, or families with multiple foster children. Their circumstances will vary, but many will have very limited income and few assets. In some cases, transfers from other family members or charitable organizations may be all that permits the family to remain intact. Some may benefit from short-term relief combined with vocational and livelihood skills training and expanded income-generating activities and opportunities for longer-term self-reliance.

The LIFE initiative can provide the short-term nutrition and health care support that these families require. Others may require some form of relief until the children are old enough to care for themselves or other homes are found for the children. One of the difficult questions will be whether or not these families will continue to receive support so that the children may remain in school or if the children will be withdrawn from school to help support their family at an early age. Many of these families will need support mechanisms, both for economic and psychosocial considerations. Most commercial financial organizations may not provide loans to these families because they are viewed as poor credit risks. It will be necessary to develop creative strategies to help these AIDS-afflicted groups develop income-generating activities.

One approach may be modeled after the Ugandan Women's Effort to Save Orphans (UWESO), which organizes groups of five foster families into a support unit. They are provided with 10 weeks of training, particularly oriented towards business and credit. Loans are paid back in small installments over a period of a few months. The participating families help each other meet the material needs of the foster children in the group, particularly when there is a large expenditure (medical expenses, school fees). The NGO and relief organizations, particularly those working through the LIFE initiative, are an important mechanism to: 1) develop groups that might collaborate on a group IGA or share the responsibility for repayment of loans related to individual IGA; 2) organize community groups that can provide accounting and other business services and/or literacy and numeracy training; and/or, 3) provide loan guarantees on a group or community basis so that PLWHA and AIDS-afflicted households can gradually expand their incomes and rebuild assets that have been drawn upon or lost as a result of HIV/AIDS.

PLWHA and AIDS-afflicted households in conflict areas that are supported through the integrated Strategic Objective 9 face unique circumstances that will require a combination of short-term relief (food aid provided by organizations such as the World Food Program) and longer-term livelihood skills training and income-generating opportunities. The transition from relief to development in conflict areas is extremely complicated. The short-term relief often drags on longer than anticipated without any exit strategy, or relief provisions of one organization may undermine the ability of other organizations to create incentives for communities to take charge of their own development. There is a need for NGOs to collaborate more effectively and promote capacity building and civic engagement among local

stakeholders to gain a deeper understanding and personal investment in food security problems within conflict areas.

In conclusion, the cross-sectoral nature of HIV/AIDS requires a well-coordinated and multi-sectoral response that has been characteristic of the Government of Uganda—coordinated for nearly a decade through the Uganda AIDS Commission. The continuation of an expanded response is essential so sectors can identify and address specific factors predisposing groups to the vulnerability of HIV risks and the myriad impacts of AIDS. HIV/AIDS must be placed in the broader context of development planning if sustainable economic growth and gains in human development are to be achieved for all Ugandans.

ANNEX F

2. Economic/Agricultural Component

CHEMONICS INTERNATIONAL INC.

ANNEX F

2. Economic/Agricultural Component

Uganda, a small, landlocked country that mostly is in the East Africa Plateau, lies astride the equator. Much of the Lake Victoria Crescent and areas to the north lie at an altitude between 1000 and 1200 meters. Highland areas in the east and west lie above 1500 meters, with peaks rising above 4000 meters. The area along the western border (part of the East African Rift system) is particularly rugged. Much of the land around Lake Kyoga, the Nile River, and its tributaries is swampy.

The total land area of the country is about 241,000 sq. km (roughly the size of the United Kingdom) but approximately 18% of this area consists of inland water and permanent wetlands (Lakes Victoria, Albert, Edward Kyoga). More than 75% of the country, which has an equatorial climate, modified by altitude, is arable. The southern three-quarters of the country receives 1000 to 1500 mm of rainfall with two rainy or cropping seasons per year. The drier northern quarter of the country typically receives about 600 to 1000 mm of rain in a single season. The northern region is more prone to dry spells that disrupt crop production, and these disruptions have greater effect on food availability because there is only one cropping season a year. Livestock production is particularly important in these drier areas of the north and northeast.

This rich natural resource base and the success of smallholder agricultural production during the colonial era create the expectation that Uganda could be “the breadbasket” for the Horn of Africa. However, that expectation has not come to fruition. Uganda has been plagued by nearly 30 years of civil war and continuing social conflict internally, as well as spillover from conflict in neighboring countries. This civil disruption has destroyed much of the country’s economic and social infrastructure, as well as resulting in approximately 1 million displaced persons who are particularly vulnerable to food insecurity. Insecurity continues to disrupt agricultural production and the pursuit of livelihoods in some of Uganda’s historically most productive areas.

Uganda suffered a prolonged period of intense civil disruption from 1972 to 1986, which included gross mismanagement of the economy by the governments in power, civil war, mass emigration of the skilled and education population, and mass murder. The Lake Victoria Crescent has returned to relative civil stability and dynamic economic growth, but was deviated by the war of liberation. Civil disruption continues across the north and along the western border. More than 800,000 people have been displaced by the ensuing conflict, and many of these continue to live in camps for internally displaced persons (IDP) along with perhaps another 200,000 foreign refugees from Sudan, Rwanda, and the Democratic Republic of the Congo. While the districts of Gulu and Kitgum have historically been among Uganda most productive, 450,000 people in those districts now live in IDP camps for fear of terrorist assaults by the Lord’s Resistance Army (LRA). A majority of this population has been displaced two or more times over the last 20 years and is still displaced. A second rebel group, the Allied democratic Forces (ADF), operates in the difficult terrain along the DRC border and has displaced 130,000 people. The Karamoja, the northeast region bordering Kenya, is populated by 300,000 transhumant pastoralists and is perennially disrupted by traditions of inter-tribal raiding on both sides of the border. Due to the recent turbulent

history of Uganda, these “cattle rustlers” are now armed with automatic rifles. A combination of drought and the use of raiding as a coping mechanism have displaced 100,000 people in the region and along the border between the Karamoja and more settled farming communities. The West Nile region along the Sudan border also has a turbulent history. The region was the power base of Idi Amin, and it continued to resist the governments that replaced him. Many residents crossed into southern Sudan to escape the conflict. Many have returned along with 200,000 refugees from the conflict in Sudan. Many of the Sudanese refugees have been living in Uganda for nearly 15 years.

The Gulu and Kitgum Districts are considered among the most productive areas of the country. Kitgum in particular, which had a farming system based on the use of animal traction was the base for cotton production. Since both rebels and the Karamojong target livestock in raiding, farmers no longer keep oxen or other livestock. Farmers are also afraid to build granaries to store food crops (cereals) on-farm for fear that raiders will target their households.

While natural disasters are often the focus of food security activities, they play a lesser role in Uganda. The rich resource base and relatively reliable rainfall over much of the country have left Uganda somewhat less susceptible to natural disasters. Drought may be a part of the complex of factors causing food insecurity in Karamoja. The other primary sources of food insecurity in Uganda are poverty, inadequate nutrition (food utilization), and health care, and the high prevalence of HIV/AIDS. These will be addressed below and in the other components of this Food Security Assessment.

2.1 POLICY SETTING: POVERTY ERADICATION

2.1.1 Poverty Eradication Action Plan

Uganda’s overarching national policy and Comprehensive Development Framework is expressed in the Poverty Eradication Action Plan (PEAP).¹ The World Bank recognizes the PEAP as a full-blown Poverty Reduction Strategy and Uganda as the first country to present such a strategy to the World Bank and IMF. The PEAP starts from the premise that “poverty eradication will depend on economic growth.” Income redistribution may make a contribution, but poverty cannot be eliminated without raising incomes. The target of the PEAP is to reduce poverty in Uganda from the present level of 35% to below 10% by 2017. It cites three conditions necessary for economic growth to reduce poverty:

1. The necessary structural transformation (including agricultural modernization, industrialization, institutional reforms, and capacity development) to support economic growth must occur. This means that agriculture must be modernized and that the increased incomes from agriculture must lead to the creation of rural non-farm enterprises and the development of modern industrial and service sectors. In international market, the country must make use of its comparative advantages.
2. The growth must take a form in which the poor can participate. To maximize growth and prevent increased inequality it is essential that the poor participate in economic growth.
3. Economic growth must be sustainable. The modernization of agriculture will need to ensure that renewable natural resource assets are conserved and not “mined” in pursuit of short-term gain. Judicious management of land, forests, wetlands, rangelands, rivers and

¹ Ministry of Finance, Planning and Economic Development, 2000.

lakes are essential to sustain any contributions from economic growth towards achieving poverty eradication.

The PEAP summarizes the contributions of economic growth to the poor as:

1. Incomes of the poor from self-employment (farming) will rise as productivity increases and marketing opportunities improve. In Uganda this is central because the poorest households are those of self-employed small-scale farmers with limited access to markets.
2. Incomes available from wage employment rise as the volumes of wage employment and wage levels rise. This is particularly important as people diversify their activities out of agriculture into (rural) non-farm enterprises as well as move into industrial and service activities.
3. The services provided by the public sector (state or community) would improve because more resources are available. For example, the quality of education will improve faster as more resources are available to pay teachers, build classrooms, and provide other quality-enhancing inputs such as textbooks.
4. As incomes rise, people are more willing to help the weak within their own communities.

For economic growth to be effective in reducing poverty these additional conditions must be met:

1. To include the poor, economic transformation must include small-scale farmers. These people are poor because they lack modern technology and have inadequate access to markets.
2. To promote the growth of wage employment, labor-intensive activities need to expand in both agriculture and industry. The promotion of employment implies a stance of economic openness because where countries have protected their industries, these industries have used too little labor for each unit of investment and as a result the expansion of employment has been disappointing.
3. To deliver better services to the poor, the extra fiscal resources that are made available from economic growth must be targeted on the delivery of directly poverty-reducing public services.

The PEAP is structured around four overarching goals:

1. Rapid and sustainable economic growth and structural transformation
 - Poverty cannot decline unless the economy as a whole grows;
 - Economic growth requires structural transformation in the context of economic openness: agriculture must modernize and competitive modern manufacturing and services must develop.
2. Good governance and security
 - Security, accountability, transparency of public actions, respect for human rights, and zero tolerance for corruption are dimensions of and conditions for poverty eradication.
3. Increased ability of the poor to raise their incomes
 - Maximization of economic growth requires the participation of the poor, which in turn requires access to services and information so they may develop skills and increase their returns to assets.
 - Poor people derive their incomes mainly from self-employment and wage employment. Raising the incomes of the poor implies promotion of employment.
 - This goal includes provision for the livelihoods of those who are disadvantaged, including orphans, and internally displaced people.

4. Enhanced quality of life of the poor
 - Health, education, and housing are basic requirements of a full life in the modern world.
 - Achieving these goals requires tackling the crosscutting issues of AIDS and large family size. AIDS has caused a drastic worsening in all aspects of the quality of life in Uganda and, although Uganda has done better in responding to the epidemic than most highly afflicted countries, more remains to be done.
 - Achievement of these goals requires improved service delivery as well as much better public information.

Modernizing agriculture is one of the key themes of the PEAP. Agriculture employs 80% of the population and is currently the most important source of livelihood of the poor. But giving priority to modernizing agriculture speeds up the process of transforming the economy away from agriculture toward non-agricultural sectors. Since most of the population depends on agriculture for income, increasing domestic demand for non-agricultural goods and services depends critically on rising agricultural income. Increasing household income through modernizing agriculture is the fastest way to generate demand for manufacturing and service industries.

As agricultural productivity increases through modernization, less labor will be required in agriculture, and income generated demand for industrial goods and services will create employment in those sectors. Increased productivity should cause the costs of production to fall, benefiting urban workers with lower food prices at the same time that rural producers benefit directly from declining costs, increased demand, and increased output. Low and stable food prices benefit urban workers and enable the manufacturing and service industries to keep wage costs down, encouraging labor intensive industrialization and services. Modest wage and production costs allow manufactured goods and services to be sold at modest prices, which in turn leads to increased demand from the rural population and improved competitiveness in regional or international marketing.

2.1.2 Plan for Modernizing Agriculture²

A second critical policy is the Plan for Modernization of Agriculture (PMA). The PMA provides the strategy and operational framework for modernizing the agricultural sector. It delineates the appropriate roles of the different stakeholders and defines priority intervention areas that are consistent with international best practices. The vision of the PMA for the agricultural sector “*is a profitable, competitive, dynamic, and sustainable agricultural and agro-industrial sector.*” The mission of the PMA and the agricultural sector is “*to transform subsistence agriculture to commercial agriculture.*”

The objectives of the PMA are to

- Eradicate poverty
- Ensure food security
- Create gainful employment
- Manage the resource base on a sustainable basis

² Ministry of Agriculture, Animal Industry and Fisheries, 1999.

To achieve the PMA objectives, the following strategies have been agreed upon by stakeholders in a participatory and consensus building process:

- Deepening decentralization of public service provision
- Increasing stakeholder involvement and ownership of the planning, implementation, and evaluation of programs
- Reducing public sector activities and supporting development of the private sector in all commercial activities
- Supporting the spread and uptake of profound technologies
- Addressing food security issues through the market rather than through self-sufficiency
- Addressing the gender issues in the public service design and delivery

Other key roles identified in the PMA strategy:

The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF): The MAAIF will concentrate on policy, regulation, and enforcement functions. It will focus more on strategic planning and policy analysis while the provision of public services (e.g. Extension) will be decentralized and operations like marketing left to the private sector. Statistical and early warning capacity will support the policy and planning functions of the Ministry.

Districts and sub-counties: will also be responsible for the delivery of advisory services including agricultural extension and will spearhead implementation of the PMA. The National Agricultural Advisory Services Program (NAADS) will encourage the decentralization of extension responsibilities to the sub-county level and look to contract out extension services to private sector individuals or entities, provide more local and stakeholder input into the planning of agricultural research, and focus on the management of the farm as a business enterprise.

The National Agricultural Research Organization (NARO): will formulate a strategic plan for agricultural research in Uganda to ensure research responds to the needs of the farmers and generates problem-solving, profitable, gender sensitive, and environmentally sound technologies. Agricultural research will be decentralized to agro-ecological zones and technologies demonstrated on-farm within reach of the majority of smallholders through the development of Agricultural Research and Development Centers (ARDCs). The provision of most agricultural inputs has already been privatized. However, NARO will expand the capacity for production of breeder's seed and strengthen linkages with the private sector for the multiplication and distribution of planting and stocking materials. The socioeconomic capacity of NARO will be strengthened to address farming as a business.

Rural financial services institutions: Rural financial services that integrate savings, credit, financial transfer, and insurance services will constitute a key priority intervention area in the PMA. Government will withdraw from direct provision of credit to agriculture and limit its role to provision of a legal/regulatory framework, capacity building and promotion of rural financial intermediaries. Existing government credit programs will be restructured to eventually transfer their activities to the private sector.

The private sector: will play a greater role in the implementation of the PMA by undertaking all commercial activities, including:

- Production processing and marketing of agricultural produce and inputs
- Delivery of credit and other financial services
- Production and distribution of seed, planting, and stocking materials, including fish fry and artificial insemination
- Investment in irrigation and water harvesting technologies

2.1.3 Medium-Term Competitive Strategy for the Private Sector (2000-20005)³

A third crucial policy guiding poverty alleviation through private sector development is the Medium-Term Competitive Strategy for the Private Sector. The objective of the medium-term actions proposed under this strategy is to improve the business environment for the private sector to be able to compete, boost domestic economic activity, and increase Uganda's exports to the global market place. The immediate objective is to support the private sector to become a powerful "engine of growth" and a central pillar for increasing incomes and consequently poverty reduction on a sustainable basis. This entails increasing productivity and enterprise profitability by reducing the cost of doing business and creating an environment where private investment is viable.

It is envisaged that this reform program will remove constraints at the micro/sectoral level of the economy, resulting in increased private sector investment and employment creation. Key elements of the strategy include: reforms in infrastructure provision (particularly utilities); strengthening the financial sector and improving access to credit; reforms in the commercial justice sector; institutional reforms (dealing with corruption, reforms in public procurement, simplifying administrative procedures, and improving tax administration); and strengthening the export sector.

2.2 AGRICULTURAL INSTITUTIONS

The institutional setting for the agricultural sector is in a stage of transition. Institutional roles are being changed as a consequence of structural adjustment, market liberalization, and decentralization. The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) is withdrawing from an implementation role to focus on policy-making, regulation, and enforcement functions. Responsibility for the provision of public sector services, such as extension, is being devolved to the district and sub-county level governments. Operations like marketing are being left to the private sector. The National Agricultural Research Organization (NARO) is decentralizing its agricultural research on the basis of agro-ecological zones and the establishment of Agricultural Research and Development Centers (ARDCs). NARO will also serve a new role in the guidance of extension activities. Local governments will be encouraged to contract out extension services to private sector individuals or entities. An initial pilot project to decentralize extension functions supported by the World Bank was not very successful and has since been redesigned as the National Agricultural Advisory Services (NAADS) Program. NAADS will support this privatization of extension services and the management of farms as business enterprises as well as provide more local and stakeholder input into planning agricultural research.

The problem is, of course, that with the entire range of agricultural institutions taking on new roles and functions, there is no information on how effective the system might be. The system being put in place is based on international "best practices", but until it is up and running, it is difficult to know whether

³ Ministry of finance, Planning and Economic Development, 2000.

farmers will receive the support they need and whether the system will provide an enabling environment that makes agricultural sector activities productive and profitable. In other words, whether or when it will provide the support needed for economic growth is uncertain.

2.3 MACRO-ECONOMIC OVERVIEW

President Yoweri Museveni's National Resistance Movement (NRM) came to power in 1986 and began an ambitious program of economic reconstruction to rebuild Uganda's economy, infrastructure, and political systems. The NRM reluctantly accepted structural adjustment and, under the tutelage of the IMF, became a model of success for such policies. The Economic Recovery Program focused on the rehabilitation of production sectors and the infrastructure on which they depended. Imposing strict controls on budget spending and curbing monetary expansion addressed inflation (over 200% in 1987). The balance of payments crisis was resolved with the help of foreign assistance. The Uganda shilling was devalued by 77% in 1987, followed by other devaluations and a gradual relaxing of exchange controls until the exchange rate became market-determined in 1993. Import restrictions were progressively removed, as was the anti-export bias in the taxation system. The commodity markets were liberalized and state enterprises privatized. Efforts have been made to attract foreign private investment, which is seen as crucial to the continuation of economic growth. The low level of domestic tax revenues (11 to 12% compared to 20% typical in sub-Saharan Africa) remains a constraint on government programs.

2.3.1 National Economic Performance

Uganda remains one of the poorest countries in the world. Its 1999 per capita gross domestic product (GDP) was \$320, compared with an average of \$500 for sub-Saharan Africa. However, the average rate of economic growth for the last decade has been among the highest in sub-Saharan Africa. From 1990/91 to 1998/99 the GDP grew at an average annual rate of 6.9 percent, resulting in an annual 3.7 percent increase in real GDP per capita. Uganda has achieved its 7% target growth rate in only two of the five years from 1995/96 and 1999/2000. The average annual rate of consumer price inflation fell from more than 24 percent in 1990/91 to near zero by 1998/99. However, in 1999 inflation spiked to 10 percent as a drought caused food prices to rise in conjunction with rising fuel costs and a European Union ban on importing Ugandan fish. The inflation rate returned to approximately 2.4% per annum in 2000. Interest rates in the financial sector remain over 20% for commercial loans and closer to 48% for micro-finance loans. (World Bank, 2000 and Ministry of Finance, Planning, and Economic Development, 2000).

One of the really important facets of national economic performance has been a significant decline in the poverty rate. From 1992/93 to 1999/2000, the poverty rate has declined from 56% to 35%. Analysis by Appleton (1999, 2000) and others indicates that this decline is entirely attributable to economic growth. The relatively minor distribution effects that have occurred during this period have been in the direction of greater inequality.

2.3.2 Agricultural Sector Performance

Agriculture is the largest economic sector, accounting for 44 percent of GDP and 80 percent of employment. Coffee is the largest single export accounting for 55% of the country's total exports. Approximately 90% of total merchandise exports consist of agricultural products. This situation leaves the Ugandan economy highly vulnerable to shocks to the agricultural sector, whether due to drought and

plant diseases domestically, or changing world prices and terms of trade for agricultural commodities and products (particularly coffee). Other traditional exports include tea, tobacco, sugar, cotton, and cocoa. Expanding “non-traditional” exports produced by an emerging class of commercial farmers includes maize, beans, fish, cattle hides, sesame seed, and soybeans.

Agricultural sector growth has lagged the rest of the economy. Agricultural production grew an average of 2.7% per annum from 1979 to 1989 and 3.7% from 1989 to 1999 (compared to 2.5% per annum population growth). For the last half of the decade (from 1995/96 to 1999/2000), the growth rate appears to have decreased slightly to 3.4%. While numerous sources indicate that per capita food production has been in a long-term declining trend; it would appear that growth in the agricultural sector has more than kept pace with population over the decade of the 1990s.

Since 1989, the agricultural sector’s contribution to GDP has declined from 57% to 44%, while industry has increased from 11% to 18% and the service sector from 32% to 38% of the economy.

Food crop production has an important influence on agricultural sector performance because it accounts for 65% of total agricultural production. Uganda is usually self-sufficient or produces a surplus of its main staples: bananas (plantain), cassava, sweet potatoes, beans, millet, maize, sorghum, and groundnuts. Oilseeds account for a relatively minor but growing portion of crop production.

2.3.3 Food Crop Production

Production trends for bananas (plantain), cereals, root crops, pulses, and oilseeds are shown in Table 1.⁴ The share of average annual food crop production tonnage attributed to bananas has increased from 50% to 53% for 5-year averages calculated for 1981-85 and 1995-99. National production of bananas has increased 44% between the two 5-year time periods. Table 2 shows that banana area has increased 28% during this period when banana production increased 44%, indicating a modest increase in yields. While the Central Region including the Kampala-Entebbe-Jinja urban triangle is reported to be the primary consumption area for *matoke*, the West Region now produces nearly 49% of the bananas.

Cereal production has increased 65% between the two time periods; however, share of total (selected) food crop production has increased only 2% from 9% to 11% — despite maize production increasing 3.5 times between the 5-year periods. Although production in the North has been constrained by conflict, it still produces more than 55% of total national cereal production. Cereal area has increased 59% during the period in which production increased 65%, so increased production is almost entirely due to increases in area planted.

While the share of root crops in average annual food crop production has declined from 37% to 31% between the two periods, root crops remain the second most important category of food crops in terms of

⁴ These data should be interpreted as indicating an appropriate order of magnitude. These and other agricultural data collected and published by government agencies are generally regarded as being of questionable reliability. However, no other data are readily available at the national and regional level, so most documents and analyses are based on this same data.

production tonnage. Production of root crops increased only 13% between the two periods even though area devoted to root crops increased by 33 percent. This would suggest a yield decline of approximately 5% per year during the interval between the two periods. As the leading producer of sweet potatoes and cassava, the East is the dominant source of root crop production.

Average annual production of beans and other pulses has increased 35% between the two periods, but remain only 3% of total food crop tonnage. During this period, area planted to pulses has increased 64%, suggesting a decline in yields of approximately 4% per year during the period. The East Region is the dominant producer of pulses with 34% of production, followed by the North and West Regions at 27 and 26%, respectively.

Oil seed production has increased more than 2.5 times between the two time periods, but from a very small base. Oil seed production was 1% of average annual food production tonnage during the 1981-85 period and increased to 2% for the 1995-99 period. The area planted to oil seed crops also increased by 2.35 times, explaining nearly the entire increase in oil seed production. The North and East Regions are the leading producers of oil seed crops.

2.3.4 Livestock Production

Livestock production contributes about 15% of agricultural GDP, or about 6.6% of total GDP. Livestock production grew about 3% per annum from 1989 to 1998. The current estimated livestock population consists of 5.6 million cattle, 6.6 million goats, 1.29 million sheep, 1.8 million pigs, and 25.12 million poultry. Rabbits and donkeys also contribute to the livestock population, but no statistics are available. Contributions to national animal protein consumption are 37% for milk, 24% for beef, 11% for goat, sheep, and pigs, and 7% for eggs.

2.4 AGRICULTURAL SECTOR COMPONENTS

The perception that Uganda's agricultural potential is excellent and perhaps among the best in sub-Saharan Africa is widespread, as well as that Uganda's food production is adequate for its population and the country has the potential to be the bread-basket of the Greater Horn of Africa. These notions are rooted in comparative advantages:

- Reasonably fertile soils, satisfactory and (reliable) rainfall that permits two harvests per year of most crops, in much of the country
- A combination of satisfactory weather and good soils that provides a good agro-ecological environment with a wide diversity of agro-ecological zones, allowing the production of a wide range of crops and livestock
- A reasonable core of fresh water lakes, rivers, and wetlands rich in fisheries and other aquatic resources
- Low costs of production of crops and livestock: low labor cost, low usage of (expensive) chemicals, fertilizers

Several factors, however, considerably reduce these comparative advantages:

- Inability, over the past many decades, to really breakout of the circle of low input, output, and income (mainly because of an absence of a real technological breakthrough in smallholder production)
- Limitations in the domestic and external markets arising from poor infrastructure, high transportation costs, inefficient and non-competitive processing and marketing of agricultural products, weak linkages between small farmers and markets, and many hidden barriers in the marketing system
- Weak institutional support of farmers, lack of agricultural credit, weak extension services, inadequate market information, weak farmers' organizations
- Long-term armed conflicts (internal and external)
- The number of small-scale farmers (households) involved in agricultural production has increased from 2.5 million to 3.5 million in two decades, reflecting increased population pressure on land and natural resources

2.4.1 Food Crops

Food crop production is the most widespread economic activity in Uganda, involving many million Ugandan farmers across the country and contributing, on average, 29% of total GDP and 66% of agricultural GDP.

Although a very wide variety of food crops are grown in Uganda, reflecting not only the suitability of soils and climate but also the diversity of the environment within the tropical and sub-tropical zones of Uganda, documented information is available for only a few of them. Even where available, data reliability is contested, and there have moreover been no comprehensive systematic studies in recent years on the key crops.

Table 2-1: Food crop production performance-1995-1999

Category	% of Monetary Agriculture	% of Subsistence Agriculture	% of All Food Crops	% of Agricultural GDP	% of Total GDP	Change in % of Ag GDP 1995-99
Monetary food crops	49.7		40.1	26.3	11.5	-3.73
Subsistence food crops		83.4	59.9	39.4	17.2	-3.83
All food crops			100.0	65.6	28.7	-7.55
Agriculture				100.0	43.7	-4.60

Note: Based on GDP at Constant (1991) Prices
Source: Statistical Abstract, 2000, Uganda Bureau of Statistics

Food crops assume a particular significance not only for farmers but also policy makers, for two key reasons. Firstly, food crop production uses considerable labor and resources of the farmers. More than 60% of agricultural labor is devoted to food crops, and in most households over 75% of the family labor is devoted to food crop production. More than 80% this labor is contributed by women. About 90% of the total national planted area is devoted to food crops. A broad breakdown of the national food crop planted area shows that bananas take up 30% of the total area planted with food crops, cereals 26%, root crops 18%, pulses 16%, and oilseeds 10%.

Secondly, the food crops sub-sector is important to national food security and nutrition. Although some incidences of food shortages occur in some parts of the country, the country as a whole is almost self-sufficient in food and not heavily dependent on the import of grain staples (rice, wheat) to ensure food security. Nevertheless, there is significant importation of cereals and cereal preparations, vegetable products, animal/vegetable fats, and oils.

2.4.2 Cash Crops and Exports

The cash crop sub-sector includes the traditional export/cash crops and some of the new non-traditional export crops that assumed status after liberalization of the export sector and encouragement of private sector. Although these crops occupy about 8 to 10% of the total crop area cultivated in Uganda, they contribute significantly to the health of Uganda's balance of payments and economic growth. During 1995-99, food and agricultural related exports were 81.2% of the value of exports. Coffee, tea, cocoa, cotton, and tobacco together contributed 66.6% of total exports and 82% of agricultural exports.

Among the more significant food and food related items exported from Uganda in recent years have been fish products, maize, beans, horticultural products, oilseed, and fixed vegetable fats and oils. The value of the products averaged US\$ 87.4 million per year during 1995-99. This represented 18.6% of agricultural exports and 15.1% of total national exports. Fish contributed 40% of these exports and cereals (maize) 21%.

Uganda imports significant amounts of cereals and cereal products (wheat, rice) whose value in 1999 was more than twice of cereals exports from Uganda. In terms of total food exports and imports, and exports of cereal products, Uganda has consistently had a negative balance.

Table 2-2: Total Food and Cereals Exports and Imports (US\$000)

Item	1995	1996	1997	1998	1999	Average
Total food exports	96,108	138,638	79,380	100,249	57,689	94,359
Total food imports	142,016	138,085	168,561	193,996	146,035	157,739
Balance + (-)	(45,908)	203	(89,181)	(93,747)	(88,346)	(63,380)
Cereals exports	26,603	19,272	21,161	18,346	72,203	18,517
Cereals imports	39,741	48,448	77,735	72,383	58,089	59,279
Balance + (-)	(13,138)	(29,176)	(56,574)	(54,037)	(50,886)	(40,762)

Note: Food exports and imports exclude coffee, tea, cocoa, spices, tobacco, but include beverages.

Source: Uganda Bureau of Statistics

Many agricultural sector policy reforms in the past ten years were directed at the cash crops. These reforms have resulted in substantive changes especially in the coffee, cotton, tea, tobacco, and sugar industries where improvements in production have occurred. Despite this, the contribution of this sub-sector to gross domestic product has stagnated at an average of 3.5% in the past ten years. Its share of monetary agriculture remained at an average of 13.4% up to 1995, increasing to 16.6% in 1997-99. The following points can be made in respect of the crops:

- a) Coffee remains the dominant export commodity for the whole economy (54.8% of total export in 1995/99)
- b) As of 1999, cotton production has not recovered in any appreciable way (however, early projections indicate a substantial recovery in 2000)
- c) Although tea, tobacco, and sugar production have increased in the past ten years, these increases have been more of recoveries of previously lost capacities rather than new expansions; moreover, these increases have not been able to offset the significant decline in cotton
- d) Overall national production levels of these crops is low, compared to what should be expected given the size of Uganda and the potentials of its soils and climate

Non-traditional export/cash crops (NATAEs) have been promoted consistently following the liberalization of exports, and consist of a broad range of crops includes some of the traditional staples such as maize, beans, sim-sim and other grains, and fruits and vegetables. The Agribusiness Development Centre (ADC), sponsored by the Uganda Investment in Developing Export Agriculture (IDEA) project, has classified the NTAEs into low value (LV) and high value (HV) export crops. Maize and beans comprise the former group, but other crops with a potential for export (especially in the regional markets) can be incorporated. The HV crops, on the other hand, are mainly horticultural crops and specialized commodities: high-value fruits and vegetables, flowers (roses, cut flowers), spices and essential oils, nuts. In 1996 and 1999, NTAEs contributed 8.5% and 7.9% respectively to nation exports.

2.4.3 Farming Systems

Table 2-3: Uganda Regions and Sub-regions

Regions	Sub-regions	District Coverage
1. Northern	Northwest North Mid-North Northeast Total	Adjumani, Arua, Moyo, Nebbi, Yumbe Gulu, Kitgum, Pader Apac, Lira Kotido, Moroto, Nakapiripirit 13 Districts
2. Eastern	Eastern Highlands East Southeast Total	Kapachorwa, Mbale, Sironko Kaberamaido, Katakwi, Kumi, Pallisa, Soroti, Tororo Bugiri, Busia, Iganga, Jinja, Kamuli, Mayuge 15 Districts
3. Central	Lake Victoria Crescent Total	- Kalangala, Kampala, Masaka, Mpigi, Mukono, W Wakiso, Kayunga, Kiboga, Mubende, Nakasongola, Luwero 11 Districts
4. Western	Lake Albert Crescent Western Highlands Southern Highlands Southern Dry lands Total	Hoima, Kibaale, Masindi Bundibudgyo, Bushenyi, Kabarole, Kamwenge, Kyenjojo, Kasese. Kabale, Kanungu, Kisoro, Rukungiri Mbarara, Ntungamo, Sembabule, Rakai 17 Districts

Source: NARO ARDCs District Coverage/Outreach Programme.

To study and analyze the potentials and prospects of different agricultural systems, agro-ecological zones have been delineated during an ongoing process started as early as the 1950s. The CIAT study of 1999 (Uganda's Agro-ecological Zones — A Guide for planners and policy makers) continues this work and identifies 33 agro-ecological zones from which NARO has carved out 12 sub-regions to locate and develop its outreach program. Relevant technologies for increasing food production and productivity in the different systems will, through participatory processes, be developed and promoted.

The framework of the agro-ecosystems serves several other purposes, one of which is to target programs of economic and social growth that address the needs of different areas and communities. The concept recognizes the resource endowments and potential of the different sub-regions and therefore provides a framework to organize and guide the analysis as well as the affiliated data collection that combines economic, social, and natural resource parameters. It also facilitates the identification of needs and constraints that need to be addressed within the activities or interventions to ensure success.

For the purpose and convenience of this food security assessment study, we have taken the NARO 12 ARDC sub-regions and minimally modified them in some parts to link them to Uganda's four traditional regions. A brief description of the key features of the sub-regions is given (based on the CIAT study and other sources), highlighting only those relevant to food security assessment.

2.4.3.1 Northern Region

This region comprises thirteen districts occupying 82,802 km² of land (approximately 42% of Uganda's land area) stretching from West Nile in the northwest to Karamoja in the northeast. CIAT has identified at least 10 agro-ecological zones in this region but basically three broad agricultural systems are described here.

Northwestern

This sub-region, which comprises five districts, suffered massive civil strife and population displacements mainly to neighboring Sudan and the DRC in the early 1980s. With the return of the exiled refugees in the mid to late 1980s, agricultural production has increased. Tobacco production has expanded substantially to levels previously achieved in the early 1970s. This sub-region, like others in the north, suffers the main disadvantage of economic isolation from the main commercial and economic (industrial) centers in the south and southeast. In the past, it was the main source of cheap labor for the sugar and tea plantations in these regions. Apart from tobacco, cotton, and some coffee in small highland areas, there is little agricultural and economic diversification. This is largely the result of poor infrastructure and communications, lack of industrial development, lack of electricity, and the high cost of doing business.

The food and agricultural production potential of the sub-region is good, provided a strategy is developed that broadens the range and increases the production of food and cash crops that can be competitively marketed in neighboring countries and other parts of Uganda, and high value cash crops that can pay their way over long hauls to the export outlets. Presently, development prospects of the sub-region are hindered by prolonged rebel activities, especially the activities of the West Nile Bank Front (WNBF), the Sudan Peoples Liberation Army (SPLA), and the Lords Resistance Army (LRA). The activities of these forces, especially the SPLA, have resulted in large populations of refugees, now numbering 100,000 to 150,000.

North Central

This north central sub-region comprises five districts, namely Gulu, Kitgum, Pader, Lira, and Apac. Although Gulu, Kitgum, and Pader could comprise a separate sub-system, they are treated together because they share a broadly similar system of farming (labor sharing) that is predominant strategy for the use of scarce resources. Groups of men and women work together to complete tasks in return for food, refreshment, or other forms of rewards. Tight social cohesion and hard work characterize the system. The amount of land that the group can cultivate exceeds the aggregate they would accomplish as individuals.

Land is not a constraint in the north, and most areas have enormous potential carrying capacity with good prospects for extensive agriculture. In the eastern parts (Kitgum, Pader, and Lira) cattle rustling has reduced the cattle population and led to the decline of the once widely practiced ox-cultivation. In Gulu, Kitgum, and Pader districts military conflicts between the government army and the LRA have reduced agricultural activity in rural areas and resulted in large numbers being internally displaced while others have fled to safer districts in Uganda. The phenomenon of internally displaced people (IDPs) is an experience whose long term impacts on the future of agricultural development cannot be immediately measured, but it is clear that the immediate impact has been to considerably reduce the agricultural potential of the sub-region.

Northeastern

With a population of 517,000 (1999), this sub-region (also known as Karamoja) is the least populated in Uganda, with an average density of 19 persons per km². The number of farms is not clearly known since the common form of living is in *Manyattas* that may contain 20 to 30 households. Average farm holdings are not known but it is clear that on a per capita or per household basis land availability is not a constraint in Karamoja. However, less than 6% of the land is utilized, thus making this sub-region the least important agriculturally.

Nearly 40% of the land in Karamoja is reserved for forestry, game, and parks. Areas of permanent settlements, situated mainly in the central and eastern sectors that receive 550 - 750mm of rainfall, are less than a quarter of the total land area. These areas are fully utilized and some sections are overstocked by as much as 35 – 40%. There is little settlement, on the other hand, in the western and southwestern sections that receive more rainfall (875mm – 1000mm) and are relatively fertile. Under the present system, the western areas are used for a few months in the dry season (grazing), but during the rainy season they are little exploited. This seems a paradox from an agricultural view point, but it is worth noting that the Karamojong are more concerned and involved with livestock herding than crop production. Under the present circumstances, crop production is limited to a few areas.

The Karamojong are both pastoralists and transhumants, and the young are mostly with herds of cattle while the women and old men are in *manyattas*. Over the years, Karamoja has seen little, if any, real agricultural or social progress. Soil erosion and exhaustion of vegetation cover in certain parts, recurring famines, low standards of living and insecurity of life, and property are in part a reflection of the current utilization of land, livestock, and human resources. The population of Karamoja is low due partly to high rates of death from rustling and gunrunning. The outflow of population would also appear to be considerable though not recorded.

2.4.3.2 Eastern Region

Up to seven agro-ecological zones have been identified by CIAT in this region, which comprises 15 districts. However, four agricultural systems are distinguishable. These vary from the millet-cotton-cattle systems practiced in the low-lying plains of the northern sections, to the montane systems of Mt. Elgon zone and to the banana and coffee system in the extreme southwest of the region. Unlike the northeastern and north-central sub-regions, population ethnicities are highly varied.

Eastern Highlands

This comprises the Kapchorwa Farm-Forest AEZ and the Mt. Elgon High Farmlands (CIAT), consisting of two districts occupying 4,120 sq. km of land. Population densities are quite high, averaging 263 persons per km² but rising to 350+ in some areas. This has given rise to extreme shortages of land in some parts of the sub-region. Fertile volcanic soils and high and effective rainfall, however, make intensive cultivation possible and two harvests are normally obtained on the same plot of land. Bananas and arabica coffee are important cash perennials. Maize is also a major cash crop, with Kapchorwa and the lowlands of Mbale district being among the main commercial growing and supply areas in the country.

East-Central

Generally a flat sub-region, with gently rolling landscape and wide valleys draining into Lake Kyoga, the total land area of the sub-region is 13,776 Km² supporting an estimated population of approximately 2 million. Population densities are moderate to high, averaging 140 – 150 persons per km² in most areas, being denser in the south and lighter in the north. The sub-region is distinguished by a unique agricultural system characterized by large cattle populations and the use of the ox-plough as the primary tillage tool, allowing larger acreages to be cultivated by households than in most farming systems in Uganda. The universal use of the ox-plough was due to the parallel significance of livestock and crop production in the farming system and to the nature of the soils (light textured sandy loams), which permits the use of the ox-plough. The sub-region enjoys medium rainfall, with peak precipitation in April/May and September/October.

Levels of crop and livestock production have declined markedly since the mid-1980s, following widespread civil strife of which massive cattle rustling and rebel activities were the most brutal. Consequently, there were dramatic falls in cotton and cereals production, closely associated with the decline in cattle numbers and ox-cultivation. Low levels of production would imply high levels of poverty. In the farming system, cotton is mainly used to open new land, and is followed by finger millet which benefits from the clean fields and residues left from the cotton crop. A large crop of millet also represents both good food security and improved wealth for the family.

Southeastern

This sub-region is traditionally known as Busoga but now includes Busia district, which was carved out of Tororo district in 1998. The sub-region forms the eastern section of the middle millet-banana-cotton belt of medium rainfall (1000 – 1250 mm), which is intermediate between the banana-coffee systems of the Lake Victoria Crescent and the Mt. Elgon Highlands on the one hand, and the millet-cotton-cattle

system of the north and north-east on the other. The general topography is mainly undulating or flat plateau of middle altitudes, whilst the major vegetation consists of varied savanna.

The total area of the sub-region is 9,693 km², a large proportion of which is suitable for agricultural use. The sub-region has experienced rapid population growth. The population is estimated at 2.4 million in 1999 but out-migration to other parts of Uganda has been low, and consequently, there is population pressure in some areas.

Previous agricultural development centered on cotton and coffee production, but cotton production has declined considerably during the last two decades while coffee output has not materially increased. Maize has become a major cash crop in the sub-region and is commercially grown on a large scale by most farmers. Rice is also traditionally grown in most areas of Iganga and is another source of cash income.

The sub-region is well served with infrastructure, including rural roads and trunk roads. There are also major industries-sugar plantations and processing, textiles, fishing, steel, etc.

2.4.3.3 Central Region

This region constitutes one ARDC Zone but up to five sub-systems (AEZs) have been identified by CIAT. It can, however, be defined into two farming systems, one to the south around Lake Victoria and one further north and north-west of the region which forms a part of the middle banana-millet-cotton belt, an area with significant annual cropping.

The Lake Victoria Crescent forms the central core of the banana-robusta coffee farming system which stretches right around the northern shores of Lake Victoria, in a crescent extending from 50 km to 80 km or more into the hinterland. The system is characterized by a pre-dominance of estate-type perennial crops rather than annual crop production. Over the whole system perennials occupy about 50% of cultivated land and in some places this rises to 70%. Rainfall is high (1000 – 1300 mm) and bimodally distributed with only short dry spells.

In terms of land use and prospects for agricultural diversification the pattern of farming contrasts greatly with farming systems in the north and a greater part of the east where only a very small percentage of land is under perennial crops. A notable feature of the sub-region is the decline in cotton production and cereal crops, with the exception of maize that has begun to be taken up in the system. Banana production has also shifted out of the center to other sub-regions, so that much of what is consumed in the central region is imported from other regions, especially from the southwest.

Potentially, this is a rich agricultural region. Farmers enjoy high and stable incomes, and from time to time economic booms from coffee, which is not experienced in other regions. Coffee production has, however, neither increased nor decreased. The region has also the most developed infrastructure in the whole of Uganda and almost all the major industries and important socioeconomic facilities are located here. A pattern of urban-to-urban corridors has also developed which has further attracted more economic and social developments in the region – for instance the Kampala – Entebbe, Kampala – Jinja, Kampala – Masaka, and Kampala - Wobulenzi corridors. This has increased demand for high value agricultural products – fruit and vegetables, dairy, poultry, pork, etc. – which has in turn led to the changing pattern of

agriculture along these corridors. Proximity to the international airport has encouraged expansion and export of horticultural products and cut flowers.

2.4.3.4 Western Region

This region, which comprises 15 districts and occupies a total land area of 49,638km², stretches from Masindi district in its northern end to Kabale district in its southern end. Such a vast area has very varied topographic, climatic, soil, and vegetative features so that over 13 agro-climatic systems have been identified. There is also a wide variety of land use patterns with varying population distributions. The region can be divided into the southwestern and western sub-regions.

Southwestern

This sub-region comprises 7 districts but four of these (Kabale, Kisoro, Kanungu, and Rukungiri) may be grouped together as the Southern Highlands while the rest are grouped into the Southern Dry lands. The southern highlands are characterized by two main topographical features: very steep hills ranging between 1500 – 2500 meters above sea level with temperate climate and extensive swamps in the main valley bottoms in the south, and gently rolling plains in the north. The whole zone is densely populated and large portions of it are grossly overpopulated. It is common, for instance, to find areas where densities are as high as 400 people to a square kilometer. In such circumstances, a high rate of land fragmentation is found in this zone leading to a pattern of farming which cannot be expected to support an increasing population. Thus, in terms of exploitable natural resources, especially land, the zone is limited by population pressure. In the past government planners considered that a prerequisite for real development of the zone must be a more positive population policy, to encourage an outflow of people to less dense areas of Uganda, and population planning amongst those who remain. Thus in the 1960s and early 1970s government encouraged the outflow of population through planned resettlement of the Bakiga to other areas of Western Uganda, notably in the Bunyoro sub-region. In addition, government encouraged free outflow to any other regions.

The Southern dry lands cover what was traditionally Ankole. The Zone exhibits marked variations in physical features, climate, soils, vegetation, and economic activities from north to south and from east to west. The east and southwest parts are generally dry and flat with cattle keeping as the biggest single economic activity. The central parts have gently rolling flats with flat-topped hills and valley bottoms with papyrus swamps. However, the Rwampara and Isingiro areas are characterized by highland plateau with rich, deep valleys. The north – northwestern parts which border on the Western Rift Valley are characterized by escarpments and crater lakes which have formed as a result of volcanic activity. They have more fertile soils, are wetter and have thick tropical forests as part of the vegetation. Generally Arabica Coffee and Beer Bananas form the major economic activities of the areas.

The zone as a whole has been marked by above average growth over the past two decades, which is attributable to massive inputs of capital into the livestock industry, the growth of coffee and tea production and the growth of commercial banana production. The zone also has been subject to an above average population increase partly as a result of the influx in the sixties and seventies of settlers from over-populated areas of Kabale and Rukungiri. This population increase has created pressure on the most favored areas leading to considerable increase in land values. More particularly, land pressure has been

caused by large areas that are too dry for cropping and by planting the high potential areas with perennial crops (coffee, banana, and tea) which occupy land permanently.

The zone has a total land area of 15,540 square kilometers, and a population of 2.2 million (1999 estimate), giving an average density of 100 – 145 people per square kilometer. Population density is highest in the central parts and thinnest in the drier eastern and southern parts of the zone. The zone is crossed by major tarmac roads to Kabale, Fort Portal, and Masaka/Kampala Kasese. This has particularly encouraged commercial production of bananas, ranching, and intensive dairy farming. However, areas far off the main trunk roads have not developed as fast, and coffee tends to be the only important economic industry.

West Central

This zone, which covers Masindi, Hoima, Kibale, Kabarole, Kasese, Bundibudgyo, Kamwenge, and Kyenjo districts falls almost entirely within the Western Rift Valley System and is highly influenced by the Rwenzori Mountain System in the south and Lake Albert in the North. The zone as a whole experiences varied climatic, topographic, soil, and vegetation conditions ranging from cold and wet climate on the mountains to hot and dry climate in the Rift Valley; temperate vegetation and tropical forests and savannas, volcanic soils, and swampy loams and clays. These factors make it one of the most favored agricultural zones in terms of agricultural development. With an estimated population 2.4 million (1999) the zone has one of the lowest population densities in the country (75 – 85 persons per km²) making it a potential reserve for extensive agricultural development. Generally, the zone has all weather accessible roads excepting the mountainous areas.

These favorable conditions in the zone have, in the past, attracted a substantial inflow of capital for the establishment of agricultural and industrial projects and other economic infrastructures that formed an important base for future development. In North and South Bunyoro, for instance, major agricultural and crop processing industries such as Kinyala Sugar Project, the National Seeds Scheme, the Cocoa Scheme, Settlement Scheme, Ranches, Saw Mills, Cotton Ginneries and large individual or group private farms were established. In addition the area boasted of a National Park, a Cooperative College at Kigumba and a fishing industry based on Lake Albert. Kabarole and Kasese, on the other hand, had such important projects as Tea, Cocoa, Mubuku Irrigation Settlement, Prison Farms at Mubuku, Rwimi, and Kiboga; and major industries such as Kilembe Copper Mines, Hima Cement Factory, Katwe Salt Project, Tea processing, a fishing industry based on Lake George and Game Parks and Sanctuaries.

On the whole, therefore, the zone possessed relatively better infrastructure facilities and offered more opportunities for alternative employment than most others. The most important cash crops of the zone were tea, arabica and robusta coffee, cotton, fire-cured tobacco, cocoa, and maize.

These potentials and prospects were, however, considerably reduced during periods of national decline in the 1970s and 1980s. Apart from tea, most of the other enterprises have ceased altogether and others have not been rehabilitated. Long-running civil strife caused by rebellion of the Allied Democratic Forces (ADF) has resulted in large-scale population displacements. The worst affected areas are Kasese, Kabarole and Bundibudgyo where 100,000 – 120,000 internally displaced people are living in camps.

2.5 POVERTY AS THE PRIMARY CAUSE OF FOOD INSECURITY AND INADEQUATE NUTRITION

Poverty, which limits *access* to an adequate supply of food, is the primary cause of food insecurity in Uganda. Poverty limits the amount that households can spend on food, and may force a household to sell a significant portion of what food it produces to meet immediate needs for cash. Using the 1993 (MS-1) data that was used to calculate the Food Poverty Line or absolute poverty line, Appleton (1999) calculated that the poorest half of the population consumed on average only 1373 calories per capita per day. This is far below the 2283 calories per capita per day that Appleton calculates is necessary based on a basket of local foods or the 2200 calories per capita per day that is commonly used by UN agencies. No update of this calculation seems to be available. Given the reduction in the percentage of the population below the poverty line from 56% in 1992 to 35% in 1999/2000, this figure has undoubtedly improved somewhat. However at a minimum, the 35% of the population overall, are below the poverty line and are food insecure because they do not have sufficient income to consume adequate quantities and quality of food products to provide the minimum nutrition required for a happy, healthy, and productive life.

In addition, constraints on *utilization* such as limited storage and processing of food commodities contributes to the seasonality of food *availability* and pricing (*access*), as well as the nutritive value of the products that are consumed. Other aspects of *utilization* that appear to have a marked effect on food security are related to the feeding and weaning practices of small children. While these *utilization* factors may not necessarily be a direct result of poverty, the investment and nutrition and health care education which have helped overcome these *utilization* constraints in other populations are typically associated with higher income levels.

2.5.1 Poverty Line Definitions

In 1992/93 an absolute poverty line was estimated for Uganda. The methodology is presented in Appleton, 1999. (Changes in Poverty and Inequality in 1992-97) This absolute poverty line called the Food Poverty Line is based on the expenditure (proxy for income) required to purchase a basket of food products in prescribed quantities per month that provides 3,000 calories per day per adult male equivalent (See Table 2-5, below.). The food basket selected is based on the proportion of different foods consumed by the poorest 50% of the population (those below the Food Poverty Line at the time). Quantities were then scaled up by 219% to achieve the 3,000 calories per day per adult male equivalent used as the standard for adequate consumption/nutrition.

Appleton calculates that the 3,000 calories per day per adult male equivalent is about 2,283 calories per capita, based on the proportions of the population in different age and sex categories at the time. This 2,283 is relatively close to the 2,200 calories per capita per day that is typical used as the standard for adequate food consumption by UN agencies. The income that is required to purchase this food basket is 4,359 in 1989 Ush (deflated by the CPI changes since 1989). The same food basket and relative food prices were used for the 1999/2000 calculation as were used in 1992/93.

The monthly basket of food products includes about 85 kg of bananas, cereals, root crops, pulses, and oil seed crops. This would indicate a need for 1,020 kg of basic food crops per year to provide the staple component of the food basket producing 3,000 calories per day per adult male equivalent. To translate this into a per capita calculation, 1,020 kg is multiplied by .761 (2,283/3,000) indicating a need for 776

Table 2-4: Food Basket Used to Calculate Uganda Food Poverty Line

Food Item	Quantity Kgs	Price Ush/Kg	Calories per Kg	Retention	Calories per Day	Cost per Month (1993 Ush)	Poverty Lines (1989 Ush)
matooke	28.5435	66.67	770	0.5	366.309	1903.00	
sweet potatoes	34.1213	62.5	1020	0.7	812.086	2132.58	
cassava	9.0181	200	2557	0.89	684.095	1803.62	
Irish potatoes	0.3576	250	750	0.85	7.598	89.40	
rice	0.0597	700	3600	1	7.169	41.79	
maize (cob)	0.3028	400	3470	0.9	31.517	121.12	
maize (flour)	1.5368	350	3540	1	181.34	537.88	
bread	0.0156	1300	2490	1	1.291	20.28	
millet	2.2550	300	3231	0.65	157.86	676.50	
sorghum	1.5725	200	3450	0.9	162.752	314.50	
beef	0.3082	1100	2340	0.8	19.234	339.02	
other meat	0.0522	1000	2340	0.75	3.056	52.20	
chicken	0.0948	1166.67	1460	0.61	2.815	110.60	
fresh fish	0.6211	466.67	1030	0.6	12.795	289.85	
smoked fish	0.3924	583.33	3005	0.7	27.513	228.90	
eggs	0.0039	2000	1490	0.88	0.172	7.80	
milk	0.5473	400	640	1	11.677	218.92	
cooking oil/ghee	0.0632	1400	8570	1	18.058	88.48	
passion fruits	0.0968	382.41	920	0.75	2.227	37.02	
sweet bananas	2.3400	50	1160	0.56	50.67	117.00	
onions	0.1778	322.58	480	0.8	2.276	57.35	
tomatoes	0.6955	192.31	200	0.95	4.405	133.75	
cabages	0.3262	125	230	0.78	1.951	40.78	
beans (fresh)	0.7297	400	1040	0.75	18.973	291.88	
beans (dry)	2.8630	350	3300	0.75	236.199	1002.05	
groundnuts	0.5918	600	2350	0.93	43.11	355.08	
sim-sim	0.4494	222.22	5930	1	88.833	99.87	
sugar	0.3521	1000	3750	1	44.019	352.10	
Total Calories per Day from Food Basket					3,000		
Food Poverty Line: Total Monthly Cost of the Food Basket in 1993 Ush						11,463	
Food Poverty Line = Total Monthly Cost of the Food Basket in 1989 Ush							4,359
Poverty Line = Food Poverty Line + allowance for non-food expenses							6,252

Source: Simon Appleton, personal communication.

kg of basic food crop products per capita per year. This is the basis for the calculation in Section 2.7 below.

The Poverty Line definition is based on the Food Poverty Line, but adds an additional amount that corresponds to the expenditure people just at the Food Poverty Line spent on non-food necessities like housing, firewood, etc. This amount was estimated to be just over 43% of the expenditure needed to purchase adequate nutrition. In 1989 Ush, the Poverty Line, (6,252) equals the Food Poverty Line amount (4,359) plus 1,893 in expenditures on non-food necessities. Income data from the different household surveys between 1992/93 and 1999/2000 was translated into 1989 Ush equivalents in order to make comparisons between the years. This is the basis for the comparison that allows one to say that poverty has declined from 56% of the population in 1992/93 to 35% in 1999/2000. Appleton calculated at the time that the 6,252 figure was approximately \$34 per month, or very close to the World Bank poverty standard of one US dollar per day per capita.

It is an interesting intellectual exercise to calculate a domestic absolute poverty line and interesting to see how this compares to global standards such as the 2,200 calories per day per capita or the one US dollar per day per capita. However, because defining the poverty line is so complex, in most cases the documents and newspaper articles presenting information on the decline in the poverty rate don't even attempt to explain what the poverty rate is and what the numbers mean. The meaning of the declining poverty rate might be more readily understood by decision makers if the calculation was based on the 2,200 calories per day per capita standard, or the \$1 US per day per capita were used.

2.5.2 Poverty by Region

Poverty in Uganda is predominantly a rural phenomenon. As seen in Table 5, only about 10% of the urban population are below the Poverty Line and the mean income for the lowest decile of the urban population is above the Food Poverty Line. However, 39% of the rural population is below the Poverty Line and slightly over 20% are below the Food Poverty Line or absolute poverty line. This implies that 20% of the rural population have inadequate resources (food produced at home and income) to consume 2283 calories per capita. Approximately 35% of the total population and 39% of the rural population are below the poverty line. This implies that they do not have sufficient income to both provide the level of food consumption targeted by the Food Poverty Line and also meet the average expenses for non-food necessities incurred by people at the Food Poverty Line income level. The situation has improved significantly since 1992 when nearly 40% of the rural population was below the Food Poverty Line and 60% of the rural population was below the Poverty Line. However, there is still a long way to go before the rural population has sufficient income to *access* the food products necessary to provide adequate food consumption and nutrition.

Farmers who participated in coffee production have fared better than other crop farmers not growing coffee. From 1995/96 to 1999/2000 the poverty rate among coffee growers declined from 46% to 30%. Crop farmers not cultivating coffee (predominantly food crop farmers) saw poverty rates decline from 62% to 46% during the same period. Farmers participating in non-crop agriculture (livestock and fishing) saw their poverty rate stagnate at about 40%, but remained better off than the food crop farmers.

Table 2-5: Poverty Rates by Sector and Changes from 1992/93 to 1999/2000

Sector	Urban Poverty Rate		Rural Poverty Rate		Regional Poverty Rate	
	1992/93	1999/2000	1992/93	1999/2000	1992/93	1999/2000
North	55%	31%	73%	67%	72%	65%
East	40%	17%	61%	39%	59%	37%
Central	21%	7%	54%	26%	46%	20%
West	29%	6%	54%	29%	53%	28%
Uganda	28%	10%	60%	39%	56%	35%

Source: Appleton, 2001

Mean monthly consumption is estimated to have increased by 41% per adult male equivalent between 1992/93 and 1999/2000 or approximately 31% per capita. Statistical techniques to decompose this increased consumption between income growth and redistribution of incomes indicate that the entire reduction in poverty/increase in mean consumption is due to growing incomes. If a similar rate of economic growth could be maintained over the next 8 years, the poverty rate would fall to about 20% by the end of that period.

2.6 FOOD DISTRIBUTION

The transport network in Uganda was originally established in the colonial era. Trade between sub-regions of the country was not an objective of the colonial regimes. Each area was expected to be largely self-sufficient with regard to food staples, and in addition produce coffee, tea, cocoa, cotton, or other export commodities. The transport and marketing networks were designed primarily with the purpose of evacuating export commodities by road or rail through Mombasa, and to supply the urban areas with the necessary food products. After independence, the major commercial activities were controlled by the central government, which reinforced the transport and marketing linkages to the urban center.

The team has encountered very little in the literature about domestic marketing channels and commodity flows. Interviews of key informants indicate that the domestic transport and marketing networks still focus primarily on evacuating agricultural products to the Kampala-Entebbe-Jinja urban triangle. Most of the larger commodity traders are located in the urban center and have networks of small-scale traders that purchase and arrange to transport agricultural commodities back to the urban triangle. As a consequence of this infrastructure, the market has limited capacity to move commodities directly from a rural surplus district to a rural deficit district. More likely, the commodity would be purchased by a small-scale trader (or series of traders) and sold to an urban wholesaler, before being shipped back to the deficit rural area for sale (assuming that the deficit population has the means to purchase the commodity and prices have risen to equal or exceed those found in the urban area).

Information on the amount of food production that enters marketing channels is scarce and often contradictory. Few if any authoritative sources exist that identify the marketing channels, their efficiency or the quantities of food products that they handle. Marketing studies in other African countries have tended to find that marketing margins are relatively thin and the marketing system relatively efficient, therefore, that the markets work relatively well on their own. This view of the markets is reinforced by large traders interviewed who say it is cheaper to have small traders aggregate a commodity from

smallholders and small rural markets and deliver it to a central location like Kampala, than for the large trader to try to do so himself.

The Plan for the Modernization of Agriculture talks about the dichotomy between subsistence and commercial farmers. In most African countries, this dichotomy has been shown not to exist. Many subsistence farmers are forced to sell food products to meet cash needs to pay taxes and school fees, buy sugar, tea, and clothing and pay for social ceremonies. Subsistence farmers frequently barter or sell a portion of their produce to buy the salt, oil, meat or fish, tomatoes, greens and other elements to put in the sauce that they may not produce themselves. Table 1, above, indicates that on average about 40% of food crops (by value) were marketed from 1995 to 1999. On average, Monetary Agriculture is about 53% of Agricultural GDP, implying that about 53% of agricultural produce were marketed in the same period. The UNHS survey indicates that the average rural household purchases about 46% (by value) of the food that it consumes, produces about 48%, and receives about 6% as gifts.

Commodities produced along the borders with neighboring countries will flow across the border in whichever direction offers a price incentive. The study by Ackello-Ogutu and Echessah (1997) found that approximately 106,000 tons of maize and beans and other cereals, 90,000 tons of fish, \$3 million worth of fruits, vegetables and tubers, and 1300 tons of sugar from Uganda were exported to Kenya in informal trade in a 12-month period. In return, 5500 tons of cereals, 16,000 tons of wheat flour, \$2.3 million worth of bread, 27,000 tons of sugar and \$47 million worth of industrial goods were imported from Kenya in the same 12-month period. A second reconnaissance survey (Nobera, 1998) found significant cross border trade with Rwanda, Tanzania, Sudan and the DRC.

In the past, recommendations have been made that the cross-border export of food commodities should not be allowed in years of famine or perceived food scarcity. While the rationale for such a policy is obvious, it may be shortsighted. Markets and marketing channels tend to collapse when they are not used, as traders seek other opportunities in different sectors or locations. Buyers may also seek new sources of the commodities when the traditional sources are perceived to be unreliable. As a consequence of withholding commodities from a market for a single year, it may take several years to regain the confidence of the buyers so that they will again purchase from the former supplier. Banning food commodity exports tends not to be very effective because a large share of the exports is informal, and the ban may disrupt the market for years to come. If the market is important in normal years, it may in fact be cheaper in the long run to purchase additional food commodities on the international market and preserve the market for commodities that might be exported in a normal year. In the long run, the market will respond to the increased level of demand by producing more of the commodities being exported. In the short run, increasing prices should cause a larger amount of the commodity to be retained for domestic consumption (assuming the people who need it have the purchasing power to buy it).

2.7 NATIONAL ABILITY TO RESPOND TO FOOD SECURITY CRISES

With the liberalization of commodity markets, the Government no longer controls major stocks of food commodities. In Uganda, it does not appear that the government ever attempted or did control sufficient food stocks to feed a million people for several months, as might be necessary in the case of a major natural disaster or conflict. In large part this seems to be in recognition of several important factors with regard to national food security:

- Bananas and root crops are the staples for much of the country, and these crops can not be easily stocked and stored;
- With two rainy seasons a year in much of the country, if one harvest fails, the next harvest is only 3-4 months away;
- The banana harvest which supplies 50% of Uganda's food supply by weight is not seasonal, as it would be for cereal crops, rather bananas produce all year round.
- Cassava, as one of the important root crops can be harvested over a number of months and stored in the ground until needed.

For these reasons, Uganda is much less at risk from the kind of nation-wide disaster that has plagued Sahelian countries during drought years.

In the past, many Food Security Assessments have recommended that the Government maintain a series of warehouses in rural areas stocked with a 60-90 day supply of food products for the immediate region. However, in most cases, such programs have been disastrous both financially and in terms of maintaining a quality food supply for emergency situations. In some cases the stocks were unfit for human consumption by the time a crisis required their use. In other cases the Government's tendency to buy high, when facing a pending crisis, and sell low, when needing to turn over the stock when it was not needed in surplus years, made the practice both more costly and less reliable than importing food from international commercial stocks. However, it would increase food security if there were substantial on-farm and commercial food stocks within the country. That does not presently seem to be the case.

In most regions, on-farm storage seems to be minimal. Storage is difficult and risky in areas of high rainfall and humidity. Producing enough bananas that there is regularly a stem of bananas ready to pick, and maintaining a small cassava plot which can be harvested a little at a time over a number of months, seems to be the primary approaches that households use to insure that food staples are available. One occasionally sees a maize crib in areas where maize production is important. The team has been told that granaries were once common in the North and East in areas where cereals (finger millet, sorghum) were the primary staples. However, the team has also been told that many households in these areas no longer maintain a granary because it is felt that having a granary results in a high risk that the household will be targeted for attack by rebels or bandits. While on-farm storage is one of the most effective means of addressing food security at the household and community level, it seems unlikely that on-farm storage will increase significantly in the traditional cereal producing zones until security has been reestablished.

Commercial stocks of food commodities also appear to be quite small in Uganda. While the half-dozen or so large traders might accept a contract to provide 10,000 to 50,000 Tons of maize or smaller quantities of beans, these would usually be delivered over a period of time such that they have a much smaller quantity on hand at any one time. The Government has been trying to privatize some of the grain storage and processing assets that it did own. However, traders complain that the 20,000-ton unit in Jinja continues to stand idle and its services are not accessible, even though a private sector firm has ostensibly purchased it recently. When servicing larger contracts, the traders would find it convenient to have access to such a facility to store, clean and bag relatively large quantities of cereals in a short amount of time. While grain and bean prices often rise sharply before the next harvest, the potential profitability of storage is limited by, and the risks involved exacerbated by, interest rates over 20%. Traders focus on rapid turn over of their stocks and see little potential for building substantial storage (with cleaning and bagging) facilities.

To be profitable on limited margins, the traders try to minimize the amount of produce they keep and the time that they store it.

An increased volume of inter-country regional trade, particularly in the form of medium-sized and larger contracts would likely provide an incentive for the establishment of larger commercial food stocks. Large commercial traders would need to keep larger volumes of commodities on hand and moving through the marketing channels in order to respond to the larger trade volume. Traders, as well as other private sector stakeholders, suggested that improved regional marketing information about agricultural commodities would help facilitate such trade. Most Ugandan traders have only a very limited knowledge of demand conditions and opportunities to supply commodities to markets in Kenya, Rwanda, Tanzania, Sudan and the DRC and their traders have limited knowledge of conditions in Uganda. If some organization like FEWSNET were able to provide such information, it might provide a significant stimulus to regional trade and the information would allow FEWSNET to do a better job of warning decision makers about pending crises.

2.8 REGIONAL DISPARITIES IN FOOD SECURITY

Comparing food security between regions is not a very exact science. One of the few comparisons that can give some indication of the food *availability* in different regions is that of production of selected food crops. The statistics in Table 4 give at least an indication of the overall quantity and percentage of different categories of food crops produced in each region. Extrapolating from the quantities of these food types present in the food basket used by Appleton to derive the Food Poverty Line, about 776 kgs per year per capita are required to provide 2,283 calories per capita per day that is the minimum required (Appleton, 1999).⁵ Based on this very rough calculation, production of these selected food crops would have provided sufficient food at the national level where 856 kgs were available in 1998. Among the regions, the North produces only slightly less than needed to produce these calories. However, the one region that falls significantly (13%) below this figure is the Central Region. This result is instructive because the Central Region is the one where people are most likely to have sufficient food. This provides strong support for the contention that a region does not have to be self-sufficient in food production in order to achieve food security. The Western Region, which has the highest stunting rates and therefore one might expect to have the greatest food deficit, is in fact 30% above the average for all of Uganda and about an equal percentage above the Eastern Region, which has the second highest production. The situation of the Central Region can be explained quite easily, that of the Western region remains an anomaly (This will be discussed more fully in the Nutrition Component).

Approximately 50% of the cultivated area in the Central Region is devoted to sugar cane and perennial cash crops, particularly robusta coffee and tea. The Central Region is also the core of the traditional banana production and consumption area in Uganda as well as the location of the Kampala-Entebbe-Jinja urban area. Banana production has suffered in the region in recent years because of disease problems and declining fertility. Production of traditional staple crops has suffered because of competition from sugar cane and cash crops as well as urban and peri-urban activities which compete for both land and labor. While banana production did not show any marked decline through the years, a larger percentage of total banana production moved to the Western Region.

⁵ See explanation in Section 2.4

Although there are no hard statistics, observation and informants would generally agree that production in the peri-urban area is focused on higher value specialty products for the urban market, including vegetables, fruit, chickens and eggs, dairy and milk products, pork, cut flowers, horticulture and other high value specialty crops like vanilla. It is interesting to note that the Central Region with its large urban population is dependent on other regions and particularly the Western Region for producing a significant portion of its food staples. In addition, one must assume that a large portion of food imports such as wheat and rice are consumed in the urban area.

While the 80 kg surplus in food per capita does not seem like a lot, multiplied by 21 million people it totals more the 1.68 million tons or approximately 9% of annual production. This should be enough food to provide for the consumption needs and food security of the Uganda people, but in fact, due to problems of *access* and *utilization*, many Ugandans are not food secure.

There are other qualitative disparities that affect regional food insecurity that are more important than the food production statistics:

The Northern Region is chronically at risk of food insecurity, and will continue to be so until there is peace and civil security in Northern Uganda, Southern Sudan and along the Uganda-Kenya border. Although Gulu and Kitgum were once among the most productive areas of Uganda, 15 years of conflict and civil insecurity have forced people off their land and disrupted the production and marketing systems of the region. Nearly 450,000 people, approximately 80% of the population in Gulu and 20% in Kitgum, presently live in protected camps for internally displaced persons (IDPs) to protect them from attacks by the Lord's Resistance Army (LRA).

Table 2-6: Production per Capita by Region for Selected Food Crops in 1998 (Tons)

Food Crops	Northern		Eastern		Central		Western		Uganda	
	Quantity	%	Quantity	%	Quantity	%	Quantity	%	Quantity	%
Plantain	298,610	3.2	1,472,221	15.8	3,003,947	32.2	4,543,223	48.8	9,318,001	100.0
Pulses	195,644	37.8	150,892	29.2	46,695	9.0	123,775	23.9	517,006	100.0
Root Crops	1,627,902	28.2	1,979,488	34.3	806,491	14.0	1,350,117	23.4	5,763,998	100.0
Cereals	758,321	36.4	786,050	37.7	101,683	4.9	438,945	21.1	2,084,999	100.0
Oil Seeds	154,313	49.9	108,860	35.2	15,042	4.9	30,784	10.0	308,999	100.0
Total	3,034,790	16.9	4,497,511	25.0	3,973,858	22.1	6,486,844	36.1	17,993,003	100.0
Population	3,992,200	19.0	5,307,400	25.2	5,906,600	28.1	5,822,800	27.7	21,029,000	100.0
Per Capita Production of Selected Food Crops	0.760		0.847		0.673		1.114		0.856	

Source: Agricultural Policy Secretariat, 1999 and Uganda Bureau of Statistics, 2001
 Computations: Food Security Assessment, 2001

The region was heavily into cotton production and many farmers used animal traction to both increase area cultivated and intensify production. The expulsion of the Asians who owned the cotton gins and the civil strife in this area have resulted in drastically reduced cotton production. Most farmers have stopped using animal traction, either because their animals were stolen by the LRA or Karamojong “cattle-rustlers”, or because they fear owning cattle will cause their households to be targeted for attack. With the loss of their primary cash crop, cotton, incomes in the area have declined sharply in addition to food production. Conflict has caused this potentially rich agricultural production area to become a marginal food production area and to have the lowest income levels in Uganda.

The West Nile area has a somewhat similar situation although based on a little different history. This was Idi Amin’s power base and it came under heavy attack in the war to overthrow Amin in the late 70s. Many people from this area crossed over into Sudan to escape the war but later returned to West Nile when warfare erupted in Sudan. In addition, thousands of Sudanese have fled to Uganda over the years to escape the on-going conflict there. Approximately 200,000 Sudanese refugees live in camps in the West Nile and Kitgum. The camps have been in constant use for nearly 15 years although there is continual turn over in the actual populations in the camps, depending on the situation across the border in Sudan.

The Karamoja is a second area that is chronically at risk for food insecurity. The Karamojong are a traditional transhumant pastoralist group that traditionally depend on milk and blood as primary sources of nutrition, supplemented by small areas of food crop production. Traditionally, as a rite of passage for young men, raiding parties attacked neighboring clans and other ethnic groups to steal cattle and food. In times of famine, this has become a major coping mechanism. While traditional raiding parties carried bows and arrows and knives and an occasional home made rifle, the years of warfare in and around Northern Uganda has led to these raiding parties being equipped with AK 47s and other automatic rifles. Historically, the Karamojong undoubtedly extended their transhumance into areas of higher rainfall during periods of drought. Over time, the transhumance has been restricted to areas of marginal rainfall by the ever-expanding sedentary farming population on their borders. Pastoralists restricted are to regions of marginal rainfall by expanding populations and development around them are chronically at risk of food insecurity.

The Western Region with 120,000 displace persons, has civil unrest and some of the elements which cause food insecurity in the north. Although climate and rainfall vary (particularly by elevation), the West in general is less susceptible to drought and climatic risk than the North. In addition, the West has the highest per capita production traditional food crops and the second highest income of the four regions in Uganda. For these reasons, *availability* and *access* to food products is less of a problem in the West than the North. While food products are *available* and incomes are higher than for the North and East, there is still an important segment of the rural population for whom *access* is a problem. In addition there would appear to be some *utilization* problems based on the fact that the West has the highest levels of stunting among children age 0-60 months.

Some portion of the population in these areas of the North and West will be food insecure and periodically require food relief to avoid famine:

- As long as civil insecurity persists;

- Until “normal” production systems and income sources are reestablished; and
- Until households are able to accumulate assets that help rural households withstand the normal cyclical declines in agricultural production (bad years) and the strain of natural disasters such as droughts and floods.

2.9 DEVELOPMENT APPROACHES TO ADDRESS FOOD INSECURITY

In Uganda, there is generally enough food *available* to meet the needs of the population. However, 35% of the population overall and 39% of the rural population do not have adequate income (defined to include food grown by the family) to *access* the food products they need to consume for a happy, healthy and productive life. While there are *utilization* issues that need to be addressed, experience over the years indicates that many of these *utilization* issues are also highly correlated with income. Given these results, the key to addressing food security in Uganda is poverty alleviation through economic growth. Economic growth will do more to reduce food insecurity for a larger number of people than any other strategy. Economic growth has additional indirect benefits as well. Many of the nutrition and *utilization* issues tend to be highly correlated with income. Rising incomes will generally help reduce nutritional problems among small children such as stunting. They will also provide the means to increase private sector investment and to raise the level of public sector revenues available for public sector financed programs such as health and education.

2.9.1 Low Agricultural Productivity

The most basic approach to achieving economic growth in agriculture and improving food security is through improved agricultural productivity. This is an important aspect of the PMA strategy of facilitating a transition from “subsistence” (more correctly, low-input, low-output, consumption oriented) production to commercial agriculture. There are many things that may stimulate improved agricultural productivity including: improved technology and practices, technology transfer, facilitating access to agricultural inputs, marketing services, improved transportation, improved post-harvest handling and processing, secure land tenure, etc. However, there is no certainty that agricultural production and productivity will improve until all of the necessary enabling conditions for productive and profitable agricultural production are provided. As each of the constraints is overcome, another of these necessary conditions will limit the advance in agricultural productivity until it too is overcome. However, as each constraint is eliminated, agricultural production in general, or some aspect of agricultural production in particular, will move to a higher level. For example, even if one resolves a commodity marketing constraint, the lack of access to basic input supply, credit, and improved production technologies, may limit increases in production of that commodity.

In the past, many of the agricultural production projects, particularly those designed to resolve a lack of food security, have focused on obtaining a large increase (100-400% in a few years) in the production of a single commodity that appeared to have attractive potential. If successful, the production often exceeded the capacity of the marketing system and led to a major decline in the price of the commodity. Although this may make the commodity very competitive in export markets, it may not be the best way to raise household incomes. A more generalized approach can make an important contribution to household food production and income.

2.9.2 Income Diversification

Diversification of income sources provides the means to insulate income from the risks inherent in any one enterprise. In Uganda this risk is most obvious at both the household and national level with regard to coffee production. When coffee prices skyrocketed in the mid-1990s so did the household incomes of coffee growers and the national exports. When coffee prices crashed, so did national exports. Household incomes were seriously affected but probably less than exports, because farmers rapidly limited their labor inputs into coffee production and expanded other activities. Any one commodity or product is likely to be subject to cycles of high and low prices. A farming system that includes several ways of generating income in addition to food needs provides some insurance against the dips in income likely when one has only a single income source. While commodity prices are often correlated (all food crop prices tend to be high in drought years and low in years of good rainfall), non-cropping and non-farm enterprises can provide an income source that may both have much higher income potential than most crop commodities and are less correlated with the cropping cycles.

Diversification of farm related enterprises is particularly useful if it makes the farming system as a whole more productive and allows higher returns to land, labor and other factors of production. One of the more interesting programs for increasing farm productivity and based at least in part on diversification is that proposed by Africare in Kabale. Farmers have very small fragmented parcels of land and are faced with soil and water erosion problems. Africare proposes using bunds covered with grasses or leguminous trees to help hold them in place, which in turn provide feed for livestock raised with 0 or little grazing. Bean production and bean yields have declined over the years with increasing population pressure and declining soil fertility. Africare proposes that farmers grow new highly productive climbing beans that can produce much more on a small parcel of land than the traditional bush varieties. Harvesting some of the poles from the agro-forestry provides the material on which the beans can climb. The grass and leaves from the leguminous trees are usually used to feed animals and the manure generated used to fertilize the fields. If there is an excess of grass and leaves they can be used directly as green manure to improve soil fertility. The dairy cow or goat and the beans significantly increase and diversify household income while at the same time improving and diversifying household consumption/nutrition. The cropping provides feed for the livestock and the livestock manure helps improve soil fertility for the crops. Heifer Project International takes its 0-grazing livestock production a step further and helps participants set up biogas units that use the straw/fodder and animal manure to provide gas for a hot plate and energy to operate an electric light bulb, reducing expenses for energy. Two cows are sufficient to maintain the unit operating once an adequate stock of straw/fodder and manure is developed.

Providing farmers with linkages to agricultural research and extension services to learn new techniques and gain access to improved technologies also make an important contribution to improving rural incomes and food security. It makes little difference to the farmer if the information and products like improved seed are provided by the public or private sector, as long as they are available. Since it has been difficult to fund the public sector to provide adequate levels of these services to more than a small minority of the rural population, activities that use the private sector to provide key farming inputs and technological information would seem to hold more promise. In addition, they have the potential to be profitable enterprises for some members of the rural community.

Rural credit programs are one of the tools for helping increase investment and accumulate assets. Linking farmers with sources of rural credit or helping them to build resources through community savings programs can make an important contribution to raising incomes. Ideally different mechanisms should target both the micro-finance sector and small business finance for larger and more individual entrepreneurial activities as well as business development services (SPEED). Linking farmers to markets is another very important aspect and providing the enabling environment that allows farmers to improve productivity and increase incomes. The IDEA project is universally lauded by informants for the dynamic role it plays in providing both technical support and marketing linkages for cash crop oriented farmers and nascent agricultural input service enterprises.

Agricultural development alone is unlikely to bring about the rapid rates of economic and income growth desired to make Uganda a better place to live. Moving a large mass (80% of the population) of relatively traditional people is never an easy undertaking. Furthermore, with more than 50% of the population under the age of 15, there will be on the order of 10 million new entrants into the job market over the next 15 years. The traditional agricultural sub-sectors are unlikely to grow at anything approaching the rate of growth necessary to absorb all of these job seekers. The economy needs to diversify into the more rapidly growing industrial and service sectors as well as non-traditional agriculture and activities that are based on the use of natural resources. The two pronged approach of IDEA has been very beneficial in this regard. IDEA focuses part of its efforts on promoting low value food crops with export potential like maize and beans and another part of its efforts on high value export crops like cut flowers, horticultural products, vanilla, etc. that have the potential to grow rapidly and produce rapid employment growth. Progress in all of these areas will be needed if Uganda is to create jobs for the future generation, which in turn will both be necessary for and be a result of rapid economic expansion.

2.9.3 Asset Accumulation

Programs like those of Africare and Heifer International have the additional advantage of asset accumulation. One can predict that in agriculture producers will face good years and bad. The bad years may be due to drought and having only a small quantity of produce for sale, or it may be due to a bumper harvest nationally in which prices decline sharply. In most cultures and farming systems, farmers save assets such as a pig, goat or cow, or a granary full of cereal (or the income for the sale of such assets) for those occasions when seasonal cash flow is not sufficient to meet household needs. Alternatively they might invest in a non-farm enterprise such as small-scale trading to supplement their income. Farmers not only have the income from these activities but also a reserve such as the calves, kids, pigs or grain in storage that can be sold in a crisis, or even during the famine months before the next harvest. Many poor farmers in general and farmers in conflict areas in particular would seem to have very few such assets to supplement income or serve as a reserve in bad years or seasons. Programs that help build/rebuild such assets will greatly improve the ability of households to withstand the cyclical bad times, and possibly other shocks such as natural disasters.

2.9.4 Addressing Groups with Special Needs

One of the key fears about an economic growth orientation is that important segments of the population will not have access to the service required to produce an enabling environment in which to improve incomes, or will be left behind because of labor shortages and other problems within the household. The most obvious cases in Uganda are the very poor, IDPs, women and child headed households, orphans and

families living with HIV/AIDS. No one program or approach will solve their income and/or food security needs. Many of these households can be viable participants in mainstream programs if there is a bit of ingenuity and flexibility and they are not discriminated against simply because they belong to one of these disadvantaged groups. The best example of this is the gender program. Traditionally, nearly all extension, credit and other farming services were made available almost exclusively to men. In recent years with a new approach that targeted women, people finally begin to realize that women are the primary farmers in many cases, that women in fact provide 75% of the agricultural labor, and that women are indeed much better credit risks and have better loan repayment rates than men. But until a few years ago many people laughed when someone suggested that women should benefit from agricultural services. Even when these groups need special services targeted to their special needs and characteristics, they will still need agricultural inputs, information and access to technology, access to credit (perhaps through group and community based credit schemes), and linkages to markets, etc. In other words, they also will need a conducive environment for productive and profitable agricultural activities.

There are no good statistics on the number of people or portion of the population who belong to these disadvantaged groups. It may be less serious than ignoring the 50% of the population who are women. Yet 26% of households are female headed, and 35% of households are below the poverty line, nearly 20% are below the Food Poverty Line. Approximately 8-10% of the population or something approach 2 million people are affected by HIV/AIDS. Since the many of these are adults with families, and families have an average of 5-6 members, it is not unreasonable to suppose that 30% of households may be affected by HIV/AIDS. These are not simply additive because there is undoubtedly overlap between the different categories. However it seems reasonable to hypothesize that between 25% and 35% of all households are disadvantaged for at least one of the reasons cited, and many of these have multiple disadvantages. While it might be easier to make short-term gains if this segment of society is ignored, in the long-run, it seems unlikely that Uganda could maintain the desired high rate of economic growth if this large a segment of society is left out. Furthermore, it seems to be a questionable proposition that Uganda would be a better place to live, if that large a portion of the population were bypassed by economic growth.

In some cases food relief will be necessary. It is not easy to solve the problems of a household that has lost access to the land they traditionally cultivate because of conflict, or those of a family of young children that have lost their father and may lose their mother in the next few years to AIDS. The use of relief in cases of a chronic problem or situation is always sticky. Sooner or later the relief runs out and the situation still has not been resolved. To the extent that poverty is, and IDPs, women and child headed households, orphans and families living with HIV/AIDS have, chronic income and food security problems, then these are development problems and not just transitory problems that can be adequately addressed by relief.

2.9.5 Multi-Sectoral Development Approaches

Activities that use a multi-sectoral approach seem likely to have the best chance of addressing the development needs of vulnerable populations. Programs that have a local level geographic focus (District, county, sub-county) should look at ways of providing, or partnering with other programs to provide, responses to the population's needs across several sectors or sub-sectors. In agriculture, we know that combining livestock and cropping activities often have synergistic effects (greater returns to some crops and crop residues when fed to livestock, better soil fertility when animal manure is used) in addition to

the effect from diversifying income. Programs that integrate cash crops for income that can be used to purchase inputs and technology typically do better at improving production and productivity than those restricted to producing food for self-consumption. In many areas, addressing soil erosion and fertility is critical to increasing productivity and incomes, and agro-forestry may be one of the tools that can help address these issues. But even if a program solves all of the production problems but the farmers have no means to market their produce or transport their produce to markets, there will be little or no long-term increase in productivity and incomes. Not all of these functions need to be provided by the same organization, but some organization needs to serve an integrative function and help ensure that the agricultural environment is conducive to productive and profitable agriculture.

Agricultural programs need to go further than some have done in the past in addressing food security as well as food production. Uganda's performance on such key indicators (of past food insecurity) as stunting has not been very good. In a country where 38% of the children are stunted, locally focused agricultural programs need to address food consumption and nutrition, as well as production, or partner with other programs that will. A child's nutritional status is primarily a function of food intake and adequate health that the body can absorb nutrition from that food. Either inadequate food/nutritional intake or poor health may be the cause of stunted growth. Locally focused programs need to integrate activities focused on nutrition education and pre-and post-natal health care and maintenance to help insure that mothers know how and have adequate means to feed young children (See the Nutrition Component: Invest in the Mother [to insure the future of the child]).⁶ Addressing nutrition (particularly adequate sources of nutrient rich foods) and health care and maintenance will also address many of the immediate needs of families living with HIV/AIDS (see HIV/AIDS Component). Many of these families are capable of fully participating in growth oriented and income-generating activities, and even more will be able to do so if they also receive some help with these basic needs. Economic growth and poverty alleviation have a much better chance of achieving their quality of life objectives if a substantial portion of these disadvantaged households can be maintained in the mainstream of growing family incomes. And doing so will definitely have a positive impact on food security.

2.9.6 Relief to Development Transition

Many of the relief organizations propose a transition from relief to development. Such a transition is both necessary and welcome, but it is a very difficult tightrope to walk. Many of the traditional relief activities such as "seed and tool" programs often have negative side effects on the local economy. Private sector markets that would normally supply these commodities are disrupted. If some of the traders supplying these commodities move to other locations or lines of trade, there may be not be adequate supplies the following season after the relief program ends. The new approach in which relief organizations provide vouchers which allow beneficiaries to purchase supplies in a local market both help the beneficiary and support the market, whose services the beneficiaries will need in the coming months and years. This is an important step in the right direction.

Another step in the direction of supporting local markets is to allow relief agencies to purchase food commodities in local, regional, national markets when possible. As mentioned earlier, one of the

⁶ With free Universal Primary Education, perhaps a nutrition component in the curriculum might be a cost-effective way to reach future mothers.

constraints to responding to crises is the small quantity of food commodities in commercial stocks and flows. The local purchase of relief goods serves as an incentive to expand these stocks and flows as well as supporting the price received by farmers for the commodities in question in the area. In situations where there is a real shortage of food supplies, importing large quantities of cereals and flour products may not have a major negative impact on local markets. But in a country like Uganda where food stocks are generally greater than the purchasing power to *access* those food stocks, providing large quantities of maize or maize flour can only lead to a further depression of the prices for those commodities. This in turn may expand the crisis to farmers who have not been involved in the natural disaster or situation targeted by the food relief.

Food-for-Work and Cash-for-Work are chronically problematic with regard to the completion, use and sustainability of the development project for which food or cash are providing support. A Cash-for-Work activity reviewed by this team is a good example. The activity had a strong focus on rehabilitating roads important to the communities that were targeted for income relief, but also offered the communities the possibility of doing other micro-projects such as well maintenance. Another aspect of the activity was providing corrugated iron roof sheets to build 500 homes. The review team correctly concluded that the home building component was misguided because the purchase of iron roof sheets absorbed half of the funds allocated. If local materials had been used, many more homes could have been built with the same funds, and most of that money would have served to increase incomes of brick makers, brick layers, thatch cutters and roofers, etc. in the local community. Because road rehabilitation was going much slower than estimated, the original standards were changed to omit ditching and sloping so that more people would benefit. However, the road will likely wash out in the next rainy season without these precautions, so that the development benefits from the funds invested will be very short-lived. According to the review, “the micro projects cannot be completed with the current budget provision”, but “it would be futile to abandon them at this stage”. Yet “the total of 27,500 shillings earned by every household is not sufficient to last them to the next harvest”. The review proposes tripling the financial envelope in question to increase benefits to 75,000 shillings per household and expand the number of beneficiary households from 8000 to 21,500. A follow-up nutrition survey found that there was no obvious sign of food stress, however there was a loss of productive assets (stolen or destroyed by Karamojong raiders).

It seems terribly inefficient and ineffective to spend substantial amounts of money on development related activities and not receive any longer-term development benefit from the relief money invested, even if the primary objective is to support income and livelihoods. Roads built with such funds don't have to wash out in the first storm, but often will if relief objectives take priority. Furthermore, it is unlikely that they will be maintained, since people will be waiting for someone to pay them again to do the maintenance. One must wonder if the proposed increase in funding isn't throwing good money after bad, especially when the monitoring survey indicates that the population was sufficiently resilient to largely handle the situation on their own.

Whenever possible, it would seem more appropriate to separate relief from development rather than trying to combine them, or at least maintain some vision of the development objectives. As long as the overriding objective is giving away food or cash, it seems questionable that development will result.

While it may be necessary to provide both relief and development assistance, separating them into two different programs (possibly managed by two different agencies) may help prevent relief actions and motives from ruining development activities or rendering them unsustainable.

The proposed 416B School Feeding program is a case in point. The provision of 6 kg of corn and soy flour per month does not seem destined to change household decisions about keeping children, particularly girls, in school. This is particularly true in light of the recent doubling of the school population after the GOU announced that it would support free universal elementary school education. While most schools never had much capacity to provide children with a good quality meal, the rapid expansion of the attending population has in many cases overwhelmed whatever capacity they did have. Perhaps the objective of such a program should be to work with the school and community to help provide children with a decent quality meal, as well as with a food consumption supplement. According to an article in a local newspaper (The new Vision, February 26, 2001) “most schools do not have a feeding program at all”. For most of those that do, “a change from posho (thick porridge from maize flour) and badly prepared beans was as rare as darkness falling at noon”. Most schools that manage to provide better meals typically have a school farm that supplements the basic ration of maize and beans with vegetables, fruit and even milk. Furthermore, it is perhaps better to provide food relief in some form like this, rather than mix relief with development activities, to the detriment of the development objectives and sustainability.

2.10 CONCLUSIONS AND RECOMMENDATIONS

2.10.1 National Policy

The international donor community, and USAID in particular, has been very pleased with the growth-oriented policies and the success of the Uganda government in achieving 6-7% economic growth. These policies are based on the Poverty Eradication Action Plan (PEAP) as the overarching policy and Comprehensive Development Framework. Accompanying sector specific strategies include the Plan for the Modernization of Agriculture (PMA) and the Medium-Term Competitive Strategy for the Private Sector.

USAID has determined that it should align its new Integrated Strategic Plan (ISP) for 2002-2007 with the PEAP that is based on the premise that poverty eradication will depend on economic growth and can not be eliminated without raising incomes.

2.10.2 Agricultural Institutions

The institutional setting for the agricultural sector is in a stage of transition. Institutional roles are being changed as a consequence of structural adjustment, market liberalization and decentralization. The Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) is withdrawing from an implementation role to focus on policy making, regulation and enforcement functions. Responsibility for the provision of public sector services, such as extension, is being devolved to the district and sub-county level governments. Operations like marketing are being left to the private sector. The National Agricultural Research Organization (NARO) is decentralizing its agricultural research on the basis of agro-ecological zones and the establishment of Agricultural Research and Development Centers (ARDCs). NARO will also serve a new role in the guidance of extension activities. Local governments will be encouraged to contract out extension services to private sector individuals or entities. An initial pilot project to decentralize extension functions supported by the World Bank was not very successful and has since been redesigned as the National Agricultural Advisory Services Program (NAADS). NAADS will support this

privatization of extension services as well as provide more local and stakeholder input into planning agricultural research and the management of farms as business enterprises.

The problem is that with the entire range of agricultural institutions taking on new roles and functions, there is no information on how effective the system might be. The system being put in place is based on international best practices, but until it is up and running, it is difficult to know whether farmers will receive the support they need and whether the system will provide an enabling environment that makes agricultural sector activities productive and profitable. In other words, whether or when it will provide the support needed for economic growth is uncertain.

2.10.3 Causes of Food Insecurity

Smallholders are responsible for 95% of the agricultural production in Uganda and are generally characterized as low-input low-output, consumption-oriented producers. While low agricultural productivity has not prevented Uganda from producing enough food to feed its population, it does affect its competitiveness in many agricultural commodities. It also adversely affects the ability of poor smallholders to adequately feed their household members, both in terms of food produced and income generated, as on average rural households purchase 50% of what they consume.

However, at the national level, food *availability* is typically not the problem with regard to food security. Even the North is nearly self sufficient in basic food crops, although one suspects that the North makes a substantial contribution to feeding the Central Region and urban center from this production. Rather, the primary cause of food insecurity is poverty and lack of sufficient purchasing power or *access* to meet a family's food consumption requirements and other basic necessities. Even in the IDP camps, the issue seems to be less the *availability* of food than the opportunity to generate income so that a family can meet its entire range of needs.

In addition to the problems raised by conflict and HIV/AIDS, there is a question of food *utilization* within households, particularly linked to the fact that stunting rates among children 0-5 years remains persistently high at 38%. One can't be certain that decreasing poverty will also resolve this problem of the nutritional status of small children unless this issue is also addressed.

Food Availability is Generally Adequate

While food production per capita declined in the 1970s and 1980s with stagnant or negative growth of the agricultural sector, this situation has been reversed throughout the 1990s. The agricultural sector has grown by 3.7% per annum during the last decade compared to population growth of 2.5% per year. Food crop production has trended upward throughout the last decade. Very rough calculations indicate that food production per capita per year at 856 kg is more than the approximately 776 kg per capita per year required to make up the basic crop portion of the food basket used to establish the Food Poverty Line. Production of livestock and animal products have also trended upward during the decade, implying that they also are more than sufficient to make up the remaining portion of that reference food basket. Typically, Uganda produces more than enough food to supply its population with their minimum calculated food and energy requirements, although the same can not be said for all regions.

In terms of basic food crop production, the Central Region has the lowest production per capita, but is by most reports and measures, the best fed. The Central Region's focus on cash crops and expansion into high value specialty crops for urban and export markets provide the region's rural population with incomes that are 24% above the national average for rural populations and the possibility of being relatively food secure. This performance confirms the notion that self-sufficiency is not necessary for food security, even in a very poor country, and makes the Central Region the model or "poster boy" for both high value and export led growth in the agricultural sector.

Natural Disasters

Most people probably associate food security with issues related to providing food relief to people varied natural resource base and a climate that provides reliable rainfall and two harvests a year over much of the country, have helped insulate it from the widespread droughts that regularly affect neighboring countries. Uganda produces sufficient food that in most years there is adequate food to supply a region that has had a bad harvest. A bigger problem is whether or not the people affected by the disaster have the purchasing power to *access* the food products that they need, and whether the transport and marketing systems are adequate to get surplus foods from other regions to those who are food deficit. This is where some form of food relief (preferably locally purchased food supplies) may be required in a transitory situation to provide the affected population with the means to purchase, or the actual food that they need. Local purchases help maintain the marketing channels for inputs and agricultural products that will be needed when farmers need to purchase inputs and sell agricultural products in succeeding seasons.

Conflict

In Uganda, a larger problem with regard to food security are the conflicts, both internal civil unrest and warfare in neighboring countries, that have caused some 800,000-900,000 citizens to be displaced from their lands and located in protected camps, along with another 200,000 refugees from neighboring countries. While some IDPs may be able to walk to their farms or borrow land that they can walk to and return to the protected environment of the camp at night, many can not. But particularly in the North, when an attack does come, people die, children are abducted and women and girls are raped, homes and other assets are destroyed. Under such conditions farmers have little to invest in improving agricultural production and incomes, and probably would not invest much, even if they had the means to do so. The North, the region most affected by conflict is the region which has seen the least progress on reducing poverty and food security, and the only region where rural incomes and consumption actually declined (poverty incidence rose from 62% to 67%) between 1997/98 and 1999/2000. Some of the areas most affected, particularly Gulu and Kitgum, have in the past been, and are potentially, among the most productive regions of the country. Conflict is decidedly a major constraint to national economic growth, poverty alleviation and food security. Since many of the camp dwellers have been displaced two or three times over the last 15 years, the problems of income and food security are chronic and not amenable to solution by food relief alone.

HIV/AIDS

HIV/AIDS is another huge problem with regard to economic growth, poverty alleviation and food security. At a minimum, some 1.8 million people are HIV positive and the epidemic has already resulted in 1.7 million orphans (and the number is growing). Since many of the 1.8 million HIV positive people are adults with families, millions of additional family members are living with HIV/AIDS. One might

hazard a guess that the number approaches 30% of the population, or more. If this large a segment of the population is excluded from participating in and contributing to economic growth, it would negatively impact future rates of economic growth, and there would be little chance that the national poverty alleviation objectives could be attained.

Many of the individuals who are HIV/AIDS positive have special needs for nutrient rich food products that will help them maintain their health and productivity as long as possible. Families that lose the labor and income contribution of an adult member, often the husband/father, suffer income and productivity loss and greatly increase their risk of food insecurity. The remaining family labor may not be sufficient to grow enough food crops to feed the family, and cash crops are often left unattended. These families have a particular need for income generating activities that fit their reduced labor profile. This would largely be true for women headed households as well.

Inadequate Nutrition of Young Children

Another chronic food security issue in Uganda is the situation with regard to the nutrition of young children. Nationally, 38% of children between the ages of 0 and 5 years have had their growth stunted because of inadequate food intake/nutrition and health care. Many studies indicate that stunting may have a negative impact on the future productivity and health of these children. Evidence worldwide indicates that stunting rates are highly correlated with poverty rates (35%). However, there is still concern that many mothers may not have proper nutrition and health care to birth healthy babies and provide adequate breast milk. Concern that economic responsibilities may constrain mothers from providing adequate feedings, that cultural traditions and poor education may constrain mothers from providing nutrient rich weaning foods and beginning supplemental feeding at the appropriate age. And concern that inadequate health care may prevent young children from absorbing adequate nutrition from the food intake provided. There is very little information on how important these issues might be, but along with poverty, they obviously contribute to the poor nutritional status of young children. Antenatal programs focused on nutrition and health care of the mother and child have helped address these concerns in many countries facing similar problems regarding the nutritional status of small children. (This issue is addressed in more detail in the Nutrition Component.)

Poverty

Finally, the major cause of food insecurity in Uganda is poverty, which limits *access* to an adequate supply of food to meet minimum nutritional standards. A few years ago, Appleton (1999) calculated that the poorest 50% of the population consumed only 1373 calories per day per capita, far below the 2283 calories per day per capital that Appleton calculated necessary based on a basket of local foods typically consumed by the population. It is also far below the international standard of 2200 calories per capita per day. While there has been some improvement in the poverty rates since 1993, as long as 35% of the population have insufficient income to provide minimum family consumption requirements in addition to non-food necessities, there is little chance of achieving food security.

Poverty in Uganda is predominantly a rural phenomenon. While only about 10 percent of the urban population fall below the Poverty Line, 39% of the rural population fall below that same poverty measure. However, the portion of the rural population below the Poverty Line has fallen from 60% in 1992/93 to

39% in 1999/2000. Cash crop farmers have seen poverty rates decline much more rapidly than have non-crop (livestock and fishing) and food crop producers.

Since poverty is the primary cause of food insecurity, poverty alleviation through economic growth is the primary solution.

Analysis by Appleton (2000) indicates that the entire reduction in growth in recent years is due to economic growth, i.e. more income, as opposed to redistributing the income that exists. But it will be difficult to maintain the 7% per annum growth target. Some of the rapid growth in the early 1990s was due to investment in, and the rehabilitation of, estates and industries that had fallen on hard times with the departure of the Asian population. More fundamental changes in the economy will be necessary to maintain high rates of investment and economic growth.

2.10.4 Food Distribution

Food distribution is a function of both transportation and marketing systems. Transportation infrastructure was developed primarily with the intention of exporting cash crops through Mombassa, and providing food commodities for the urban center. Marketing systems were structured in the same manner. While roads may exist that would allow food to move from one district capital to another, in many cases the marketing system is such that surplus from one district would be aggregated by small traders and shipped to a wholesaler in Kampala. The wholesaler might ship it back to the deficit district, but a food deficit district then has to compete with urban prices and purchasing power to attract food in the commercial system. Little factual information seems to be available about marketing channels, margins and how the system really functions.

Commodities produced along the borders will flow in whichever direction offers a price incentive. Trade along the border with Kenya and other neighboring countries is very substantial and largely informal. As such it is not recorded, is not subject to taxes, and is very difficult to stop by decree, although price changes may have an important impact. Efforts to ban food exports are often ineffective and may disrupt the export market for years to come. It may in fact be cheaper in the long run to import food to deal with a transitory shortage and maintain the market for the exports. This is particularly true if coupled with a new orientation towards regional (multi-country) integration. Increased trade will at least in part be based on seasonal or transitory differences in supply and demand of agricultural products between countries.

2.10.5 National Ability to Respond to Food Security Crises

With the liberalization of commodity markets, the Government no longer controls major stocks of food commodities. In Uganda, it does not appear that the government ever attempted or did control sufficient food stocks to feed a million people for several months, as might be necessary in the case of a major natural disaster or conflict. In large part this seems to be in recognition of several important factors with regard to national food security:

- Bananas and root crops are the staples for much of the country, and these crops can not be easily stocked and stored;
- With two rainy seasons a year in much of the country, if one harvest fails, the next harvest is only 3-4 months away;

- The banana harvest which supplies 53% of Uganda's food supply by weight is not seasonal, as it would be for cereal crops, rather bananas produce all year round.
- Cassava, one of the important root crops which supplies 7.5% of Uganda's food supply by weight, can be harvested over a number of months and stored in the ground until needed.

For these reasons, Uganda is much less at risk from the kind of nation-wide food security disaster that has plagued Sahelian countries during drought years. Government-controlled stocks are not recommended as international experience with that approach to food security have typically produced very poor results. In a (limited) crisis, international stocks can be deployed fairly quickly. It would be helpful to both food security and income generation if on-farm storage could be increased. This is technically difficult in the humid, high rainfall zones and many of the crops do not lend themselves to extended bin or granary storage. Conflict constrains on-farm storage in the North, where on-farm storage was a traditional practice and the climate and crops make on-farm storage more practical. Commercial food stocks in Uganda are also quite small, in particular, because high interest rates limit investment in facilities and cause traders to focus on rapid turn over of stocks. An increased volume of regional (inter-country) trade could help stimulate an increase in commercial food stocks. Improved regional market information might serve as a catalyst to increase regional trade volumes.

2.10.6 Regional Disparities in Food Security

Uganda is blessed with a host of agro-ecological zones with different farming systems. These differences in natural resource base and climate are the basis for understanding some of the initial disparities between regions. However, in many cases, history, location and other impacts of human settlement have an even larger role in these disparities.

On average Uganda produces enough of the basic food crops to satisfy per capita consumption requirements. Two regions do not produce the approximately 776 kgs per capita per year of selected food crops necessary to provide that portion of the food basket (used to establish the Food Poverty Line) estimated to produce 2283 calories per capita per day. These are the Northern Region and the Central Region. The North in fact produces very close to the required amount (760 kgs), but one must also assume that a significant portion of this production helps feed the Central Region and urban area, given their greater purchasing power. The Central region has approximately 50% of the cultivated area devoted to sugar cane and other perennial crops, particularly tea and robusta coffee. It was once the dominant banana-producing region but has in recent years been surpassed in this area by the West. The Central Region is also heavily influenced by the presence of the Kampala-Entebbe-Jinja urban triangle. Much of the production in the peri-urban fringe is focused on higher value specialty products for the urban and export markets, including vegetables, fruit, chickens and eggs, dairy and milk products, pork, cut flowers, horticulture and other high value crops like vanilla. Since the Central Region has the highest income levels and probably is the best fed section of the country, this demonstrates that a region does not have to be self-sufficient in basic commodities to be relatively food secure.

The Northern Region is chronically at risk of food insecurity, and will continue to be so until there is peace and civil security in Northern Uganda, Southern Sudan and along the Uganda-Kenya border. Although Gulu and Kitgum were once among the most productive areas of Uganda, 15 years of conflict and civil insecurity have forced people off their land and disrupted the production and marketing systems of the region. Nearly 450,000 people, approximately 80% of the population in Gulu and 20% in Kitgum,

presently live in protected camps for internally displaced persons (IDPs) to protect them from attacks by the Lord's Resistance Army (LRA). Once among the more advanced farmers in the country, producing cotton and using animal traction, the collapse of the cotton industry left them without a cash crop and civil unrest has claimed their oxen. Conflict has caused this potentially rich agricultural production area to become a marginal food and income producer, and to have the lowest income levels in Uganda.

The West Nile area has a somewhat similar situation although based on a little different history. Approximately 200,000 Sudanese refugees live in camps in the West Nile and Kitgum. The camps have been in constant use for nearly 15 years although there is continual turn over in the actual populations in the camps, depending on the situation across the border in Sudan.

The Karamoja is a third area in the North that is chronically at risk for food insecurity. The Karamojong are a transhumant pastoralist group that traditionally depend on milk and blood as primary sources of nutrition, supplemented by small areas of food crop production. While transhumance zones may once have included higher rainfall zones, they are now largely restricted to the drier pasturelands of the northeast by population pressure and the expansion of sedentary farming areas. Cattle rustling raids on other ethnic groups and sedentary farmers are a long-standing cultural tradition. However, the recent availability of automatic rifles has made such raiding a much bloodier and more destructive process than in the past.

The Western Region with 120,000 displaced persons, has civil unrest and some of the elements which cause food insecurity in the North. In Bundibugyo district, 70 percent of the population is reported to be living in IDP camps. Climate and rainfall vary in the West (particularly by elevation) and drought risk varies accordingly. The West has the highest per capita production of traditional food crops and the second highest income of the four regions in Uganda. For these reasons, *availability* and *access* to food products is less of a problem in the West than the North. While food products are *available* and incomes are higher than for the North and East, there is still an important segment of the rural population for whom *access* is a problem. In addition there is a suspicion that there are some *utilization* problems at the household level, based on the fact that the West has the highest levels of stunting among children age 0-5 years of age.

Some portion of the population in these areas of the North and West will be food insecure and periodically require food relief to avoid famine:

- As long as civil insecurity persists;
- Until "normal" production systems and income sources are reestablished; and
- Until households are able to accumulate assets that help rural households withstand the normal cyclical declines in agricultural production (bad years) and the strain of natural disasters such as droughts and floods.

2.10.7 Development Approaches to Address Food Insecurity

The key to addressing food security in Uganda is poverty alleviation through economic growth. Although there is generally enough food *available*, the country can not be food secure as long as 35% of the population do not have the income to *access* the food they need. While there are some intra-household *utilization* issues that need to be addressed, the nutrition aspects tend to be highly correlated with income.

Economic growth and increasing income levels will do more to reduce food insecurity for a larger number of people than any other strategy. That said, there are still a number of different approaches to improving food security.

Improved Agricultural Production

The most basic approach to achieving economic growth in agriculture and improving food security is through improved agricultural productivity. This is an important aspect of the PMA strategy of facilitating a transition from “subsistence” (more correctly, low-input, low-output, consumption oriented) production to commercial agriculture. There are many things that may stimulate improved agricultural productivity including: improved technology and practices, technology transfer, facilitating access to agricultural inputs, marketing services, improved transportation, improved post-harvest handling and processing, secure land tenure, etc. However, there is no certainty that agricultural production and productivity will improve until all of the necessary enabling conditions for productive and profitable agricultural production are provided. As each of the constraints is overcome, another of these necessary conditions will limit the advance in agricultural productivity until it too is overcome. However, as each constraint is eliminated, agricultural production in general, or some aspect of agricultural production in particular, will move to a higher level. For example, even if one resolves a commodity marketing constraint, the lack of access to basic input supply, credit, and improved production technologies, may limit increases in production of that commodity.

Income Diversification

In the aggregate, the agricultural sector does not need to increase food production to have enough to eat, but rather to provide the rural population with the income and purchasing power necessary to *access* the food required for family consumption and other basic necessities. This is important because a massive campaign to increase production of a given crop, with the almost inevitable decline in prices if that campaign is successful, will not solve the problem. Rather farmers must find better ways to exploit the resources and markets that are available to them to produce higher incomes. Different farmers producing different crops and products is more likely to provide more opportunities to increase incomes (and with less risk of a price decline for a given commodity producing a national disaster) than having everyone produce the same crop. Therefore, diversification is one of the approaches that will contribute to increased incomes and food security.

Diversification is important at both the household and sector levels. Households benefit most from diversification when the different enterprises have synergistic effects and form a coherent system. Such synergies are demonstrated in the use of crop byproducts to feed livestock and the use of livestock manure to improve soil fertility, which benefits crop production. Components that have multiple uses such are also beneficial. In many cases farmers would be well served to add a non-farm activity that can supplement the farm income and reduce the risk of being totally dependent on farm production.

At the sector level, diversification tends to imply finding new crops or products that can be produced locally and looking at new markets, both for traditional products and the new high value crops proposed. High value crops for which opportunities exist in the markets of developed countries are often those that are very labor intensive to produce or process. Thus these crops provide an opportunity to generate substantial employment and income. IDEA has played an important role in helping connect entrepreneurs

to opportunities to market such crops and to financial institutions which might finance such endeavors. IDEA also plays a role in connecting the entrepreneurs with sources of technical support. In addition, IDEA has helped explore market opportunities for the export of traditional crops (but not traditional exports) like maize and beans. Most farmers and small business entrepreneurs have had limited access to sources of credit and business services which should be helped by the USAID's new SPEED activity.

Asset Accumulation

Another important aspect of an approach to addressing food security is asset accumulation. Agriculture tends to be cyclical in nature and most farmers have to expect that there will be bad seasons or years. Farmers need to set aside some assets that they can draw upon to help get them through the bad times. Any income generating activity can serve this role, but expenditures tend to rise to the level of regular income. Enterprises like livestock production that tend towards a building of assets, some of which can be sold in hard times, may provide a better buffer against food insecurity than some other forms of income. Off-farm activities may serve a similar purpose by helping maintain income during bad times.

Credit unions and community savings programs provide another approach to asset accumulation, often more focused on the eventual investments that they will accommodate. Insurance programs, now becoming important in Uganda, provide another means of helping insure that resource are available in bad times.

Addressing Groups with Special Needs

Groups with special needs, at risk of food insecurity and of neither benefiting from nor contributing to economic growth, include the very poor, IDPs, women and child headed households, orphans and families living with HIV/AIDS. The numbers are quite significant, 26% of households are female headed, 20 of the population is below the Food Poverty Line, and perhaps 30% of households are living with HIV/AIDS. There is undoubtedly significant overlap between these groups (e.g. A family that has lost the husband/father to AIDS, now female-headed, living below the poverty line). Families with one or more of these disadvantages would perhaps constitute 25-35% of the total population. It seems unlikely that the economy can maintain a high rate of economic growth if this large a segment of the population is not benefiting from and contributing to that growth. To the extent that the very poor, IDPs, women and child headed households, orphans and families living with HIV/AIDS have chronic income and food security problems, then these are development problems and not just transitory problems that can be adequately addressed by relief.

In some cases food relief will be necessary, particularly in the form of nutritionally dense food products for small children and persons with HIV/AIDS. However, many of these families are capable of fully participating in growth oriented and income generating activities and more will be able to do so if they receive a minimum of help with some of their special needs. However, many of these families are greatly in need of income-generating activities appropriate to the reduced labor status that many of these families have experienced. (This issue is addressed in greater detail in the HIV/AIDS Component.)

Multi-Sectoral Development Approaches

Activities that use a multi-sectoral approach seem likely to have the best chance of addressing the development needs of vulnerable populations. Programs that have a local level geographic focus (District,

county, sub-county) should look at ways of providing, or partnering with other programs to provide, responses to the population's needs with regard to food production (*availability*), income generation (*access*) and nutrition and health (*utilization*).

Agricultural programs need to go further than some have done in the past in addressing food security as well as food production. Uganda's performance on such key indicators (of past food insecurity) as stunting has not been very good. In a country where 38% of the children are stunted, locally focused agricultural programs need to address food consumption and nutrition, as well as production, or partner with other programs that will. A child's nutritional status is primarily a function of food intake and adequate health that the body can absorb nutrition from that food. Locally focused programs need to integrate activities focused on nutrition education and pre-and post-natal health care and maintenance to help insure that mothers know how and have adequate means to feed young children. Addressing nutrition (particularly adequate sources of nutrient rich foods) and health care and maintenance will also address many of the immediate needs of families living with HIV/AIDS (see HIV/AIDS Component). Many of these families are capable of fully participating in growth oriented and income-generating activities, and even more will be able to do so if they also receive some help with these basic needs. Economic growth and poverty alleviation have a much better chance of achieving their quality of life objectives if a substantial portion of these disadvantaged households can be maintained in the mainstream of growing family incomes. And doing so will definitely have a positive impact on food security.

Relief to Development Transition

Most people experiencing food insecurity in Uganda are suffering from a chronic situation of poverty, conflict, limited household labor, etc. rather than the loss of a season's food supply because of a natural disaster. These people need development activities to address the chronic nature of their problem rather than short-term relief. One would think that people living in camps for displaced persons should be a short-term problem, but in fact, many of the IDPs have been displaced two or three times over the last decade. But even many of the IDPs manage to find nearly adequate food. What this population really need are opportunities for employment or to generate income, to provide for their family's needs and do something useful with their lives. Unfortunately, the international community tends to be more willing to fund relief (motivated in part by images of starving babies and war-ravaged children) than to fund longer-term sustainable development.

A transition from relief to development is very welcome, but very difficult to accomplish. Relief keeps people alive in a famine situation, but often has a tendency to inhibit people from taking control of their own lives, community and development. There is often little incentive to do those things when their needs are being met. Programs like food-for-work (FFW) and cash-for-work (CFW) are meant to allow the recipients to feel like they are earning what the relief organization is providing, rather than receiving charity. CFW is typically more successful in this respect, because FFW is usually not sufficient to be considered an honest wage. But both often result in participants not taking ownership of the development activity that the FFW or CFW are meant to support; people tend to regard the food or cash as a wage, and lose interest in the activity when the wage ends. These incentives may work for short-term discrete activities such as building roads, assuming the government, local or national, is going to maintain them. In the case of a development activity that requires additional work, investment, maintenance or upkeep, it often is not completed or maintained, such that the negative incentives of FFW or CFW render it unsustainable. It is very difficult to find methods that allow relief work to support development rather

than hinder it. The new approach of using vouchers rather than distributing seeds and tools is a step in the right direction in the sense that it supports the markets that local residents require to meet their needs in the aftermath of relief. Unless ways can be found to reduce these disincentives from relief actions, it may be better to find some approach that separates relief and development activities. School feeding, may provide a focus for meeting some of a community's food needs, and allow relief to be separated from other development activities.

ATTACHMENT 1

Farming Systems Summary

Attachment 1:**NARO Outreach Programme:**
Summary of Agricultural Sub-regions and main Crops/Enterprises

Zone	Zone Coverage	Agricultural Systems and Land Use	Main Crops/Enterprises			
			Main Crops Grown		Processing and Other Economic Enterprises	
North-Western	Districts: Arua, Nebbi, Moyo, Yumba, Adjmani Land Area (Sq.km) 1999 15,044 Population ('000) 1999 1,459 Population density 1999 97 No. of households (000) - Urban 13.5 - Rural 247.7	West Nile Systems Basic agriculture, mixed and Crop farming, some fishing on the Nile Agricultural land per farm: 5.02 ha	Cotton	Cassava	Sorghum	Cotton ginning
			Tobacco	F. Millet	G. Nuts	Coffee processing (Okoro)
			Coffee	Beans		
			Sunflower	Simsim		
				Maize		
				S. Potatoes		
			Output per household (1995/99):		Cereals	- 644 kg
					Roots	- 1,900 kg
					Pulses	- 126 kg
					Oilseeds	- 99 kg
					Bananas	- 673 kg
North-Central	Districts: Gulu, Apac, Lira, Kitgum, Pader Land Area (Sq.km) 1999 39,734 Population ('000) 1999 2,130 Population density 1999 54 No. of households (000) - Urban 29.4 - Rural 422.7	Northern Systems Finger millet/Cotton with tobacco Introductions; Mixed agriculture, Organised communal labour. Agricultural land 3.5-11.8 ha for household Cultivation tools- traditional Lango hoe, Ox-plough	Cotton	F. millet	Maize	Cotton ginning
			Tobacco	Beans	Sorghum	Cotton yarn
			Citrus/Mangoes	Simsim	S. Potatoes	Cassava starch
			Sunflower	G. Nuts	Rice	Vegetable oil
			Pastures	Cassava	Cassava	
				P. peas		
			Output per household (1995/99):		Cereals	- 1,076 kg
					Roots	- 2,455 kg
					Pulses	- 333 kg
					Oilseeds	- 378 kg
					Bananas	- 299 kg
North-East	Districts: Moroto, Kotido, Nakapiripirit Land Area (Sq.km) 1999 27,321 Population ('000) 1999 517 Population density 1999 19 No. of households (000) - Urban 7.7 - Rural 91.57	Pastoral Systems Cattle keeping. Low utilisation of land: Main agricultural farm is the Manyatta. Average agricultural land- 14.82ha	Cattle	F. millet		<u>Other Potential</u>
			<u>Crops</u>			
				Sorghum		Cotton
				Cassava		Maize
				Sweet Potatoes		Simsim
				G. Nuts		Sunflower
						Cow peas
			Output per household (1995/99):		Cereals	- 786 kg
					Roots	- 81 kg
					Pulses	- 97 kg
					Oilseeds	- 117 kg
					Bananas	-

Zone	Zone Coverage	Agricultural systems and Land use	Main Crops/Enterprises			
			Main Crops Grown		Processing and other Economic enterprises	
Eastern Highlands	Districts: Mbale, Kapchorwa, Sironko Land Area (Sq.km) 4,142 Population ('000) 1999 1,081 Population density 1999 263 No. of households (000) - Urban 19.2 - Rural 215.9	Montane Systems: Arabica Coffee Highland grain crops— wheat, maize, bananas High population densities on mountain slopes and hence intensive cultivation. Average land per farm: 1.39 ha.	Arabica coffee Cotton in low lands Wheat Maize	Bananas F. Millet S. Potatoes Beans G. Nuts Fruits and Vegetables Sorghum	Coffee processing Cotton ginning Rice milling Textile mill (Mbale) Maize milling Soap mills	Output per household (1995/99): Cereals - 670 kg Roots - 1,901 kg Pulses - 235 kg Oilseeds - 57 kg Bananas - 3,516 kg
	Districts: Kaberamaido, Katakwi, Pallisa, Soroti, Kumi, Tororo. Land Area (Sq.km) 14,671 Population ('000) 1999 1,981 Population density 1999 135 No. of households (000) - Urban 30.2 - Rural 364.8	Teso Systems Millet, cotton and cattle keeping (mixed farming) Ox-cultivation main farming technique. Agricultural land per farm: 3.69 ha	Cotton Cashew nuts Citrus/Mangoes Sunflower Pastures	F. millet Sorghum Rice Cow peas G. Nuts P. peas Simsim	Cassava S. Potatoes Maize Cotton ginning Oil milling/Soap Mfg. Flour milling Cement mfg Jute bags Rice milling	Output per household (1995/99): Cereals - 935 kg Roots - 2,079 kg Pulses - 138 kg Oilseeds - 117 kg Bananas - 533 kg
South-East	Districts: Jinja, Iganga, Kamuli, Mayuge, Bugiri, Busia Land Area (Sq.km) 9,693 Population ('000) 1999 2,407 Population density 1999 249 No. of households (000) - Urban 60.4 - Rural 444.9	Banana, Millet and Cotton Systems With outliers of the main coffee- banana system in the south-west (along the Nile) Perennial crops relatively high in some areas: Average land available per farm: 2.07 ha.	Cotton (mainly in S. West) Cotton Citrus Sugarcane Fishing	Maize G. Nuts Beans Rice F. Millet Sorghum	Cassava S. Potatoes Cow peas Coffee processing Cotton ginning Textiles (Jinja) Soap and oil mills Breweries Rice milling Grain milling Fish processing Steel (Jinja)	Output per household (1995/99): Cereals - 529 kg Roots - 1,526 kg Pulses - 66 kg Oilseeds - 116 kg Bananas - 1,104 kg
	-	-	-	-	-	-

Zone	Zone Coverage	Agricultural systems and Land use	Main Crops/Enterprises		
			Main Crops Grown	Processing and other Economic enterprises	
L. Victoria Crescent	<p>Districts: Masaka, Rakai, Sembabule, Mpigi, Mukono, Kayunga, Kalangala, Luwero, Mubende, Kiboga, Nakasongola, Wakiso</p> <p>Land Area (Sq.km) 37,658 Population ('000) 1999 6,046 Population density 1999 160 No. of households (000) - Urban 352.2 - Rural 1,045.8</p>	<p>Main Robusta Coffee- Banana Systems</p> <p>With infusions of cocoa, tea, sugar cane and some horticultural crops in parts. High degree of perennial cropping. Western extension of the banana- millet-cotton system in the north with a few outliers of the coffee- banana system in the south and south-west; area formerly largely taken up by big ranching projects. Average agricultural land farm: 3.09 ha.</p>	<p>Coffee Tea Cocoa Sugar Cane Horticulture Dairy Cotton Ranching Fishing</p> <p>Bananas Cassava S. Potatoes Beans G. Nuts Maize F. Millet Sorghum Irish potatoes</p>	<p>Coffee processing Tea processing Sugar refining (Lugazi) Jaggery mills Food processing Fish processing Textiles Beer/alcoholic industry Industries (various) Commerce/Trade (General) Cotton ginning</p>	<p>Output per household (1995/99):</p> <p>Cereals - 91 kg Roots - 719 kg Pulses - 38 kg Oilseeds - 14 kg Bananas - 2,819 kg</p>
South-Western	<p>Districts: Bushenyi, Mbarara, Ntungamo, Rukungiri, Kabale, Kisoro, Kanungu.</p> <p>Land Area (Sq.km) 20,392 Population ('000) 1999 3,583 Population density 1999 176 No. of households (000) - Urban 34.9 - Rural 637.9</p>	<p>Montane/Coffee- Banana Systems</p> <p>In the West, pastoral systems to the east, Arabica and Robusta Coffee, tea, bananas. Large cattle herds in pastoral areas and high banana concentrations in the west, replacing finger millet. Agricultural land per farm: 3.03 ha</p> <p>Montane systems (south-west of zone) but with larger annual crops than in other montane systems. Arabica coffee and tea in parts, sorghum and sweet potatoes main staples. High population densities and fragmented land holdings. Average agricultural land per farm: 1.40 ha.</p>	<p>Coffee processing Tea Bananas Horticulture/ Vegetables Ranching and Dairy Wheat/Barley Pyrethrum Silkworms</p> <p>Cassava G. nuts Beans Maize Sorghum S. Potatoes I. Potatoes Field peas</p>	<p>Milk and milk Cattle sales Coffee processing Tea processing Small mines Tourism</p>	<p>Output per household (1995/99):</p> <p>Cereals - 314 kg Roots - 887 kg Pulses - 93 kg Oilseeds - 16 kg Bananas - 5,169 kg</p>
Western	<p>Districts: Masindi, Hoima, Kibaale, Kamwenge, Kabarole, Kasese, Bundibugyo, Kyenjojo.</p> <p>Land Area (Sq.km) 29,157 Population ('000) 1999 2,415 Population density 1999 83 No. of households (000) - Urban 32.3 - Rural 457.9</p>	<p>Arabica and Robusta Coffee- Banana</p> <p>System: Montane systems in parts. Heterogeneous agriculture but basically bananas, coffee, tea. Large reserves of unused land, average agricultural land per farm: 4.68 ha.</p>	<p>Cotton Coffee Tea Tobacco Sugar Estate Cocoa Rubber Oil palm Horticultural crops</p> <p>Maize Rice G. Nuts Beans Soya beans S. Potatoes Cassava Simsim Bananas</p>	<p>Cotton ginning Coffee processing Tea processing Sugar refining (Kinyala) Timber sawing/mills Cement (Hima) Copper/Cobalt mining (Kilembe) Salt (Lake Katwe) Seed production (Masindi)</p>	<p>Output per household (1995/99):</p> <p>Cereals - 433 kg Roots - 1,544 kg Pulses - 101 kg Oilseeds - 43 kg Bananas - 2,538 kg</p>

ATTACHMENT 2

**Total National Production of Selected Food Crops
(000' Tons)**

Attachment 2:
**Total National Production ('000 Tonnes) by Crop
Selected Food Crops
1980-1999**

Crop	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	%	% of	% of
																					Change	Ave	Ave
																					81-85 to	Crop	Crop
																					95-99	Prod	Prod
Bananas	5699	5900	6596	6487	6250	6468	6565	7039	7293	7469	7842	8080	7806	8222	8500	9012	9144	9303	9318	8949	1.44	0.50	0.53
Cereals																							
Finger Millet	459	480	401	545	332	480	427	518	578	610	560	576	634	610	610	632	440	502	642	606			
Maize	286	342	393	413	338	354	322	357	440	624	602	567	657	804	850	913	759	740	924	1053			
Sorghum	299	320	270	407	247	310	280	315	344	347	360	363	375	383	390	399	298	294	420	423			
Rice	17	15	19	22	20	19	21	20	23	45	54	61	68	74	77	77.5	82	80	90	95			
Wheat	17	8	10	12	7	8	8	10	13	11	4	9	9	9	9	9	9	9	9	11			
Total Cereals	1078	1165	1093	1399	944	1171	1058	1220	1398	1637	1580	1576	1743	1880	1936	2031	1588	1625	2085	2188	1.65	0.09	0.11
Root Crops																							
Sweet Potatoes	1200	1300	1487	1843	1630	1664	1865	1674	1716	1658	1693	1785	1905	1958	2129	2223	1548	1894	2176	2354			
Irish Potatoes	166	175	196	209	132	168	98	185	190	248	224	254	268	3320	368	402	318	360	384	449			
Cassava	2072	3034	3127	3239	2969	2700	2900	3101	3271	3568	3420	3229	2896	3139	2080	2224	2245	2291	3204	4875			
Total Root Crops	3438	4509	4810	5291	4731	4532	4863	4960	5177	5474	5337	5268	5069	8417	4577	4849	4111	4545	5764	7678	1.13	0.37	0.31
Pulses																							
Beans	133	240	237	314	295	267	267	299	338	389	396	383	402	428	378	390	234	221	387	401			
Field Peas	7	8	10	12	13	8	10	11	12	12	12	15	15	16	17	16	17	20	19	19			
Cow Peas	16	18	20	37	39	35	39	37	38	38	39	40	41	43	45	45	47	46	50	62			
Pigeon Peas	26	25	28	29	25	28	30	27	42	46	51	50	51	53	55	58	58	58	60	75			
Total Pulses	182	291	295	392	372	338	346	374	430	485	498	488	509	540	495	509	356	345	516	557	1.35	0.03	0.03
Oil Seeds																							
Ground Nuts	70	90	90	99	102	93	118	122	134	145	158	144	147	153	142	144	125	91	140	137			
Soya Beans	3	5	6	7	8	8	10	8	14	16	37	59	53	67	75	79	87	84	92	101			
Sim-Sim	20	25	35	42	39	33	35	33	36	45	62	61	72	75	70	71	73	73	77	93			
Sunflower													31	35	39	43.6	49	54	57	65			
Total Oil Seeds	93	120	131	148	149	134	163	163	184	206	257	264	303	330	326	337.6	334	302	366	396	2.54	0.01	0.02
Total Production of Selected Crops	10490	11985	12925	13717	12446	12643	12995	13756	14482	15271	15514	15676	15430	19389	15834	16738	15533	16120	18049	19768	1.35	1.00	1.00

Source: 1980-91 Agricultural Policy Secretariat, 1992-1999 Agricultural Statistics

ATTACHMENT 3

Total National Area of Selected Food Crops (000' Ha)

Attachment 3:
Total National Area ('000 HA) Planted by Crop
**Selected Food Crops
1980-1999**

Crop	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	Change 81-85 to 95-99	% of Ave Crop Prod 81-85	% of Ave Crop Prod 95-99
Bananas	1173	1180	1199	1209	1209	1210	1210	1271	1302	1322	1388	1430	1459	1488	1500	1512	1524	1538	1553	1570	1.28	0.34	0.30
Cereals																							
Finger Millet	279	300	330	341	332	300	342	324	371	381	373	384	396	404	412	395	400	395	401	379			
Maize	258	280	285	295	347	289	322	307	345	430	401	420	438	503	563	571	584	598	616	608			
Sorghum	167	170	200	207	206	190	207	203	233	231	240	245	250	255	260	266	271	276	280	275			
Rice	11	12	15	17	17	14	19	16	17	32	39	45	50	53	55	55	58	60	64	68			
Wheat	8	4	5	5	4	4	5	5	6	5	2	5	5	5	5	5	5	5	5	6			
Total Cereals	723	766	835	865	906	797	895	855	972	1079	1055	1099	1139	1220	1295	1292	1318	1334	1366	1336	1.59	0.24	0.26
Root Crops																							
Sweet Potatoes	231	350	372	457	387	359	407	398	417	405	413	425	442	460	473	494	516	529	544	539			
Irish Potatoes	24	25	28	30	17	25	19	26	27	36	32	35	37	40	44	50	53	56	60	64			
Cassava	302	310	331	372	401	300	362	345	361	392	412	389	362	369	320	332	335	342	356	375			
Total Root Crops	557	685	731	859	805	684	788	769	805	833	857	849	841	869	837	876	904	927	960	978	1.23	0.22	0.18
Pulses																							
Beans	224	299	364	398	385	334	396	373	445	480	495	510	536	552	574	600	615	630	645	669			
Field Peas	17	18	20	23	16	17	18	22	23	24	24	25	26	27	28	28	29	30	31	28			
Cow Peas	38	41	45	46	49	44	50	42	46	47	49	48	49	51	53	54	56	58	60	62			
Pigeon Peas	50	55	60	62	72	60	67	60	63	68	62	60	62	64	67	70	71	72	74	76			
Total Pulses	329	413	489	529	522	455	531	497	577	619	630	643	673	694	722	752	771	790	810	835	1.64	0.14	0.16
Oil Seeds																							
Ground Nuts	95	110	120	124	148	137	177	148	179	189	186	180	184	187	189	192	195	197	200	196			
Soya Beans	4	5	6	6	11	10	12	10	17	18	37	54	59	65	68	72	76	76	80	84			
Sim-Sim	65	70	80	95	86	76	80	74	81	92	124	130	143	150	158	166	172	172	179	186			
Sunflower													39	43	47	52	57	62.7	65.7	71.7			
Total Oil Seeds	164	185	206	225	245	223	269	232	277	299	347	364	425	445	462	482	500	508	525	537.7	2.35	0.06	0.10
Total Area Planted of Selected Crops	2946	3229	3460	3687	3687	3369	3693	3624	3933	4152	4277	4385	4537	4716	4816	4914	5017	5097	5214	5257	1.46	1.00	1.00

Source: 1980-91 Agricultural Policy Secretariat, 1992-1999 Agricultural Statistics

ATTACHMENT 4

**Regional Food Production of Selected Crops,
Average 1995-1999 Production (000' Tons)**

Attachment 4:
Regional Food Production: Selected Crops, Average 1995-1999 Production ('000 Metric Tons)

Crop Type	Crop	North-West	%	North-Central	%	North-East	%	Eastern Highlands	%	East Central	%	South-East	%	Central (L/Vic (Cresc))	%	South-West	%	Western	%	Uganda	%
Cereals:	Millet	41.3		158.3		4.4		36.1		111.0		87.6		8.0		63.3		54.4		564.4	
	Maize	74.1		179.1		18.5		94.4		105.1		127.4		72.5		83.0		120.9		875.0	
	Sorghum	43.2		112.8		49.0		6.1		60.6		10.7		14.2		52.6		17.8		367.0	
	Rice	0.9		4.3		0.0		1.0		64.5		9.6		0.0		0.0		4.6		84.9	
	Wheat	0.0		0.0		0.0		7.2		0.0		0.0		0.0		1.6		0.6		9.4	
	Total	159.5	18.7	454.5	23.7	71.9	72.7	144.8	10.5	341.2	24.6	235.3	15.8	94.7	2.5	200.5	4.9	198.3	9.3	1,900.70	11.0
Root Crops:	Cassava	337.1		661.3		2.8		227.3		421.3		387.7		395.1		145.9		389.3		2,967.8	
	S. Potatoes	124.6		364.0		4.6		157.0		306.2		265.4		314.0		214.3		287.5		2,037.6	
	I. Potatoes	9		11.6		0		26.2		30.8		25.9		43.1		205.6		30.4		382.6	
	Yams/Coco yams	na		na		na		na		na		na		na		na		na		na	
	Total	470.7	55.2	1,036.90	54.1	7.4	7.5	410.5	29.8	758.3	54.7	679.0	45.7	752.2	19.5	565.8	13.7	707.2	33.2	5,388.0	31.3
Banana (Plantains)	Total	166.8	19.6	126.3	6.6	-	0.0	759.1	55.1	194.5	14.0	491.1	33.0	2,948.2	76.6	3,297.0	79.8	1,162.0	54	9,145.0	53.1
Pulses/Lentils:	Beans	17.1		69.9		1.4		48.9		34.2		28.1		38.6		42.3		44.7			
	C. Peas	13		12.9		5.1		1.0		15.7		1.0		0.8		0.0		0.4			
	P. Peas	1.1		57.8		2.4		0.3		0.4		0.1		-		0.0		0.4			
	F. Peas	0.0		0.0		0.0		0.6		0.0		0.0		0.1		16.9		0.7			
	Total	31.2	3.7	140.6	7.3	8.9	9.0	50.8	3.7	50.3	3.6	29.2	2.0	39.5	1.0	59.2	1.4	46.2	2.2	455.2	2.6
Oil Crops:	Groundnuts	17		38.7		2		6.7		24.8		9.6		9.1		8.5		11.2			
	Simsim	6.9		58.2		3.8		0.0		4.5		1.0		0.2		0.0		1.7			
	Soya beans	0.6		21.1		-		1.6		12.4		41.0		4.6		2		5.2			
	Sun flower	0.1		41.8		4.9		4.1		1.1		-		0.1		0		1.5			
	Total	24.6	2.9	159.9	8.3	10.7	10.8	12.4	0.9	42.8	3.1	51.6	3.5	14.0	0.4	10.5	0.3	19.6	0.9	346	2.0
Total Food Crops:	Total	852.8	100	1,918.2	100	98.9	100	1,377.6	100	1,387.1	100	1,486.2	100	3,848.6	100	4,133.00	100	2,133.3	100	17,234.9	100
Cash Crops:	Coffee																				
	Cotton																				
	Tea																				
	Cocoa																				
	Sugar																				
	Others																				
	Total	0		0		0		0		0		0		0		0		0		0	
TOTAL (all crops)																					
Source: Agricultural Statistics, Calculations by Food Security Assessment, 2001																					

Attachment 4:
Regional Crop Production: Selected Crops, 1995-1999 Average Area Planted (Ha)

Crop Type	Crop	North-West	%	North-Central	%	North-East	%	Eastern Highlands	%	East-Central	%	South East	%	Central (L/Vic (Cresc)	%	South-West	%	Western	%	Uganda	%
Cereals:	Millet	29,339		115,946		2,962		25,020		76,750		60,513		5,625		43,626		37,449		397,229	
	Maize	48,601		100,221		18,501		62,560		67,766		84,493		48,016		67,994		80,130		578,281	
	Sorghum	31,734		82,962		36,066		4,460		44,533		10,055		11,890		38,687		13,212		273,600	
	Rice	583		3,127		0		718		46,537		6,942		0		0		3,140		61,046	
	Wheat	0		-		-		3,956		-		-		-		901		343		5,200	
	Total		80,918	29.6	186,310	21.8	54,568	65.1	71,694	18.7	158,836	33.4	101,489	24.7	59,905	6.8	107,581	13.4	96,825	18.7	918,127
Root Crops:	Cassava	38,733		77,843		327		26,249		57,169		44,779		57,529		16,857		28,066		347,552	
	S.Potatoes	31,850		92,150		1,207		39,978		71,022		67,900		93,221		54,055		69,816		521,199	
	I. Potatoes	1,322		10,555		0		3,836		5,119		3,796		6,330		21,299		4,339		56,597	
	Yams/Coco yams	na		na		na		na		na		na		na		na		na		na	
	Total		71,905	26.3	180,548	21.2	1,534	1.8	70,063	18.3	133,310	28.0	116,476	28.3	157,080	17.8	92,211	11.5	102,220	19.7	925,348
Banana (Plantains)	Total	28,470	10.4	20,738	2.4	7	0.0	126,461	33.0	33,809	7.1	83,375	20.3	568,896	64.5	472,293	58.8	205,350	39.6	1,539,399	32.9
Pulses/Lentils:	Beans	33,393		134,798		2,691		95,600		66,732		54,855		75,462		80,961		87,291		631,783	
	C. Peas	14090		14,197		5,515		1098		20,711		1,100		901		0		369		57,980	
	P. Peas	1,311		62,038		2,745		293		418		125,88333		6.1		0		463		67,400	
	F. Peas	0		0		0		947		0		0		105		27063		1,084		29,200	
	Total		48,794	17.9	211,033	0.2	10,950	13.1	97,938	25.6	87,860	18.5	56,081	13.6	76,475	8.7	108,024	13.5	89,207	17.2	786,362
Oil Crops:	Groundnuts	26,800		58,011		3,216		10,734		35,266		15,422		14,768		21,277		18,120		203,614	
	Simsim	15,502		131,097		8,677		-		10,493		4,953		561		-		1,318		172,601	
	Soya beans	465		17,336		36,73684		1345		14,934		33,720		3,855		1,665		4,244		77,600	
	Sun flower	64		48,083		4,892		4,728		1,244		38		160		0		1,806		61,016	
	Total		42,831	15.7	254,527	0.3	16,822	20.1	16,807	4.4	61,937	13.0	54,133	13.2	19,344	2.2	22,942	2.9	25,489	4.9	514,831
Total Food Crops:		272,918	100	853,156	46	83,874	100.01	382,963	100	475,753	100	411,554	100	881,700	100	803,052	100	519,091	100	4,684,068	100
Cash Crops:	Coffee																				
	Cotton																				
	Tea																				
	Cocoa																				
	Sugar																				
	Others	0		0		0		0		0		0		0		0		0		0	
TOTAL (all crops)																					

ATTACHMENT 5

**Domestic Food and Agricultural Related Exports
(US\$ '000)**

Attachment 5:**Domestic Food and Agricultural Related Imports by Value (US\$'000) - SITC Grouping**

SITC Description	1993 (2)	1994	1995	1996	1997	1998 (1)	1999	Average (1995/99)
Live animals	814	1,092	715	1,171	200	99	398	517
Meat and Meat Preparations	80	208	290	290	180	1,627	414	560
Dairy products and birds eggs	1,784	2,817	2,657	2,376	1,485	3,285	1,471	2,255
Fish, crustaceans and moluses and preparations thereof	13	181	17	34	84	72	82	58
Cereals and cereal preparations	12,971	38,335	39,741	48,448	77,735	72,383	58,089	59,279
Vegetables and fruits	463	5,734	12,791	8,268	7,805	3,438	2,699	7,000
Sugars, sugar preparation and honey	12,270	16,355	26,694	10,931	15,953	35,587	21,316	22,096
Coffee, tea, cocoa, spices and manufactures thereof	206	271	231	465	887	1,482	1,453	904
Feeding stuff for animals	218	223	196	244	178	244	301	233
Misc. edible products	1,775	5,620	6,894	5,980	6,864	8,710	5,691	6,828
Beverages	1,624	1,420	968	677	464	2,659	1,273	1,208
Tobacco and tobacco manufactures	202	163	98	68	116	199	674	231
Hides, skins and furskins, raw	1	9	0	2	2	32	-	7
Hides, skins and eleoginous fruits	437	106	2,815	3,906	299	6	28	1,411
Crude animals and vegetable materials,	724	1,815	1,171	801	1,333	2,341	2,552	1,640
Animal oils and fats	10,082	5,985	4,965	306	251	5,660	6,953	3,627
Fixed vegetables fats and oils, crude, refired or fractional	7,929	21,042	27,376	30,426	39,625	39,598	26,880	32,781
Animal or veg. Fats and oils, processed animals or veg. Waxes	5,122	8,685	14,706	24,227	16,105	18,287	17,888	18,243
Total	56,715	110,061	142,325	138,620	169,566	195,709	148,162	158,876

Source: Uganda Bureau of Statistics, 2000

ATTACHMENT 6

**Domestic Food and Agricultural Related Exports
SITC Grouping (US\$ '000)**

Attachment 6:**Domestic Food and Agricultural Related Exports (US\$'000) - SITC Grouping**

	1991	1992	1993	1994	1995	1996	1997	1998(4)	1999	Averag 1995/99
1 Live animals			285	156	98	120	28	111	59	83
2 Meat and Meat preparations			9	23	37	-	13	76	1	25
3 Dairy products/bird's eggs			47	239	275	254	476	2,622	163	758
4 Fish and fish products			8,872	15,104	32,753	45,040	29,990	40,765	24,305	34,571
5 Cereals and preparations			23,518	30,044	26,603	19,272	21,161	18,346	7,203	18,517
6 Vegetables and fruit			13,512	15,669	18,939	27,438	11,341	9,779	9,748	15,449
7 Sugars and preparations			42	660	427	231	713	590	1,614	715
8 Coffee, tea, cocoa, spices, etc			137,587	356,893	392,290	416,376	345,484	328,342	311,661	358,831
9 Animal feeding stuff			352	1,275	65	28	14	103	44	51
10 Misc. edible products			182	312	1,592	1,385	1,476	941	272	1,133
11 Beverages			188	263	1,203	854	787	1,033	1,069	989
12 Tobacco and tobacco m/g.s.			6,983	6,608	9,652	4,626	12,150	22,332	14,673	12,687
13 Hides and skins			6,014	10,924	10,102	7,663	7,987	6,384	4,468	7,321
14 Oil seeds and oleaginous fruit			5,194	2,832	8,808	12,813	2,078	205	1,862	5,153
15 Crude animal and veg. Materials			1,243	2,505	3,264	3,953	2,223	7,192	8,075	4,941
16 Animal oils and fats			3	2,245	-	20	540	9	2	114
17 Fixed veg. Fats and oils, etc			14	7	1,430	22,546	2,210	15,171	2,391	8,750
18 Animal/veg. Fats/oils etc.			92	66	68	654	1,991	238	77	606
Total			204,137	445,825	507,606	563,273	440,662	454,239	387,687	470,693

Source: Uganda Bureau of Statistics, 2000.

ANNEX G

3. Nutrition Component

CHEMONICS INTERNATIONAL INC.

ANNEX G

3. Nutrition Component

The Government of Uganda's Poverty Eradication Action Plan (PEAP, 2000), drafted by the Ministry of Finance, Planning and Economic Development, emphasizes the need for more participation by the poor, increased income from self employment, and improved opportunities and services for small-scale farmers (who comprise a large segment of the poor). In working to improve food security for Ugandans, the Government recognizes that healthy people can provide better for themselves than the malnourished can.

Many Government- and donor-funded projects, even those with an entirely different focus, can have a positive impact on the nutritional status of poor farmers and others in Uganda. For example, improving roads to increase access to markets and providing inputs to farmers can help smallholders increase production, yields, and sales, enabling them to earn more money, purchase more nutritional food for consumption, and create a buffer against future food insecurity.

This section discusses the state of nutrition in Uganda (as seen through studies and projects) and provides recommendations (nutrition tools) to help improve the nutritional status of the country, especially the poor. Of principle concern are data on stunting, wasting, and underweight children and mothers.

3.1 IMPORTANT NUTRITION ISSUES IN UGANDA

3.1.1 Poverty Alleviation, Nutrition and Food Security

There is an inherent link between increased economic growth and poverty reduction and a corresponding effect on nutritional status indices. Among the items examined in these indices is the growth of children — comparisons by height/weight, height/age, and the like. In developing countries, a positive change in nutritional status is often indicated by a reduction in the prevalence of stunting. Stunted children are usually members of households that are poor; however poverty is defined in a country, region, subgroup (poor access to water, sanitation, health facilities, low household income, few possessions). Since stunting is an indicator of poverty, inclusion of the assessment of height of preschool-age children would be a valuable indicator of the ability of a household to access (purchase) food, an important component of food security. While cultural traditions and feeding practices at the household level may have some effect on food consumption, poverty is likely the key issue of nutrition and food security that needs to be addressed.

3.1.2 Nutrition Adequacy in the General Population — Food Availability and Consumption

Poverty is widespread in Uganda and particularly in rural areas. The 1999/2000 Uganda National Household survey indicates that 35% of the population and 39% of the rural population live below the poverty line. This poverty line is based on the cost of 2,283 calories per capita from a given food basket

typically consumed by poor Ugandans, plus essential non-food expenditures (Appleton, 1999¹). According to the 1999/2000 Uganda National Household Survey, on average, most households spend nearly 50% of expenditures on food, drink and tobacco. Rural households spend almost 60% of expenditures on food, drink and tobacco while urban expenditures are just below 40%. Expenditures on food, drink and tobacco also differ regionally, where the average share of household spending on these items compared to total expenditures is 49% for the Central Region (excluding Kampala), 35% for Kampala, 55% for the Eastern Region, 55% for the Western Region and 59% for the Northern Region.

The fact that rural households are poorer than urban households is supported by the nutritional status results of large-scale national and regional household surveys described in later sections of this component of the report. They show that nutritional status of preschool-age children (UDHS, 1988/89 and 1995, UNHS 1999), older children (Ministry of Health, 1993) and mothers (UDHS, 1995) is lower in urban households compared with rural households.

Sufficient calories may be available (4,320 calories per capita/day), and seemingly adequate calories consumed (2,429 calorie per capita/day) to meet the “critical minimal level” of 2,200 calories per capita per day. However, the amount of protein (87%) and fats (94%) consumed per capita per day fall below the minimum levels recommended by FAO, which results in chronic and transitory food deficits in various districts. It has been estimated that the poorest 50% in Uganda consumed approximately 1,373 calories per day per person (Appleton, 1999), far below the critical minimal level of 2,200 calories per day per person.

3.1.3 Nutrition Problems in Special Populations

Nutrition problems in Uganda have been identified where the nutritional status of special populations, preschool-age and older children and women have been described, as well as micronutrient deficiencies. In the following sections, these nutrition problems will be reviewed with a focus on linkages to food security and suggestions for nutrition monitoring tools as well as examples of successful programs that have had an impact on nutrition and food security.

3.1.4 The Nutritional Status Problem in Perspective

Malnutrition is widespread in Uganda. Various data sources (further described in Section 3.2) show similar stunting and wasting results (approximately 40% stunting, 5% wasting with regional variation).

These results represent a concern, particularly with the regional variations reported, and also in comparison to other African countries (Table 3-1, below).

While some countries in East Africa have comparable stunting rates (Tanzania, 42%; Rwanda, 42%; Malawi, 48%; Mozambique, 48%), Uganda’s prevalence rate of stunting remains one of the highest East Africa.

¹ Changes in Poverty and Inequality in 1992-97, Assessing Outcome for a Comprehensive Development Framework, S. Appleton, University of Bath, October 26-28, 1999

Table 3-1: Nutritional Status Results of Selected African Countries²

Country	% Stunting	% Wasting	%Underweight
Uganda	38	5	26
Benin	25	14	29
Botswana	29	11	17
Cameroon	29	6	22
Central Af. Rep.	34	7	27
Kenya	33	6	22
Malawi	48	7	30
Mozambique	36	8	26
Rwanda	42	9	27
Somalia	14	12	26
Sudan	33	13	34
Tanzania	42	6	27

3.2 DESCRIPTION OF SOURCES AND QUALITY OF NUTRITIONAL STATUS INFORMATION

Since 1988, there have been three national surveys where height and weight of preschool-age children were collected to assess their nutritional status: the 1988/89 and 1995 Uganda Demographic and Health Surveys (UDHS) and the 1999 Ugandan National Household Survey (UNHS). A fourth UDHS survey has just been completed in February 2001, but data from this survey will not be available until April 2001.

The three Uganda Demographic and Health Surveys were collaborative efforts with technical assistance provided by Macro International, Institute for Resource Development, Calverton, Maryland.³ The 1988/89 UDHS was implemented by the Ministry of Health as a collaborative effort between MOH, the Ministry of Planning and Economic Development, Makerere University and the Institute for Resource Development (IRD). The 1995 and 2000/2001 UDHS were conducted by the Statistics Department in the Ministry of Finance and Economic Planning with technical assistance from Macro International and funded by USAID and the Government of Uganda.

Height and weight of the two UDHS surveys and the UNHS survey were collected on children from different age groups. For the 1988/89 UDHS survey, children 0 – 60 months were weighed and measured, in comparison to children ages 0 – 48 months who were weighed and measured on the 1995 UDHS and 1999 UNHS surveys, which would have implications as to the comparability of data sets, especially for stunting where the prevalence rates would be expected to be higher in older children (the 48 – 60 month cohort).

In addition to weighing and measuring preschool-age children, mothers' height and weight were taken on the 2000/2001 UDHS. Although similar height measuring devices were used on these surveys, different scales were used to weigh children and their mothers. For the 1988/89 UDHS and UNHS surveys, the Salter hanging spring dial scale was used to take the weight of survey children, while the UNICEF Uniscale, an electronic digital scale made exclusively for UNICEF by Seca Corporation, Germany, was

² "The State of the World's Children 2001," UNICEF, New York, 2001

³ Macro International, Inc., Demographic and Health Surveys, 11785 Beltsville Drive, Suite 300, Calverton, Maryland 20705 USA, Telephone: 301-572-0200; Fax: 301-572-0999; E-mail: reports@macroint.com ; Internet: <http://www/macroint.com/dhs/>

used to take the weight of preschool-age children months of age and their mothers on the 1995 and 2001 UDHS surveys. All three surveys used the Shorr Height Measuring Board to take the standing height and recumbent length of children and mothers.

Three derived nutritional status indices, height-for-age, weight-for-height, and weight-for-age were created from the anthropometric measurements of height and weight taken on preschool-age children, while Body Mass Index (BMI) was created to describe the nutritional status of mothers on the 1995 UDHS survey. Two cutoff-points, -2 and -3 Z-score (standard deviation units from the median value of the growth reference population⁴) were used to classify children with low height-for-age (stunting), low weight-for-height (wasting), and low weight-for-age (underweight); those children who fell below -2 Z-score were classified as stunted, wasted or underweight, while those children who fell below -3 Z-score were classified as “severely” stunted, wasted or underweight.⁵

3.2.1 The National Demographic and Health Surveys (1988/89 and 1995)

Stunting

Data from the two UDHS surveys showed a decrease in stunting (less than -2 Z-score height-for-age) of survey children from 44.5% (n=3,789) in 1988/89 to 38.3% (n=4,775) in 1995. This decrease in stunting between the two UDHS surveys is important but should be interpreted with caution for three reasons.

First, it should be noted that the age range of children included in the 1988/89 survey was 0 – 60 months while the age range of children in the 1995 survey was 0 – 48 months. This is an important consideration since the prevalence of stunting is expected to be higher in older age groups. Therefore, if children from 48 – 60 months of age were included in the 1995 survey population, the prevalence of stunting would likely be somewhat higher than 38.3% that would have an impact on the difference in stunting between the two surveys (although noteworthy, the difference would be less).

Second, Kitgum district was excluded from the 1995 sample because of instability in this district. The inclusion of children from this vulnerable area may also have the same impact on the overall prevalence of stunting in survey children where an increase in stunting may be expected. Therefore, the difference between the prevalence rates in the two surveys (i.e., the apparent improvement in the height-for-age of survey children) may actually be less than 6.2%.

The third consideration is that there were nine districts excluded from the 1988/89 UDHS because of instability. Inclusion of children from these nine districts may have increased the overall prevalence rates of stunting for the country for the 1988/89 survey results.

Therefore, because of the effects of the different age ranges of the two surveys and districts excluded from both surveys, it is possible that the stunting rates of both the 1988/89 and the 1995 UDHS surveys would have been higher than the reported rates even though there is an apparent improvement in the prevalence of stunting between the two UDHS surveys.

⁴ United States, Public Health Service, Health Resources Administration. “NCHS Growth Charts,” Rockville, Maryland, 1976 (HRA 76-1120, 25, 3).

⁵ In some surveys, “global” malnutrition refers to those children who fall below -2 Z-score for height-for-age, weight-for-height or weight-for-age.

Wasting

Results from the two UDHS surveys showed that there was an increase in wasting (less than -2 Z-score weight-for-height) of survey children from 1.9% in 1988/89 to 5.3% in 1995. This difference is appreciable although caution is urged in interpreting these results for the same reasons mentioned in the “Stunting” section above. Nine districts were excluded from the 1988/89 survey because of instability, which may otherwise have resulted in a higher prevalence of wasting in children on the 1988/89 survey. Kitgum district and children 48 – 60 months of age were excluded from the 1995 UDHS, which, had these been included, may have resulted in a higher prevalence of wasting on the 1995 survey. Also, the two surveys were conducted at different times of the year; data from the first UDHS was collected from September 1988 to February 1989 while data from the second UDHS was collected from late March to mid-August 1995.

Underweight

Results from the two UDHS surveys showed a slight increase in the prevalence of underweight survey children (less than -2 Z-Score weight-for-age) from the 1988/89 survey of 23.3% in comparison to 25.5% in 1995. Since weight-for-age is a composite of both height-for-age and weight-for-height,⁶ observation of the stunting and wasting data is required to account for the increase in underweight children between the two surveys.

Further Notes on Comparison of the 1988/89 and 1995 UDHS Surveys

The 1988/89 data was reanalyzed excluding the 48 – 60 month old children and selecting children from the same geographic areas and comparing these results to the 1995 survey.

Results of this reanalysis showed a slight increase in stunting from the original 1995 data from 38.3% to 38.8% (<-2 Z-score Height-for-Age). Wasting showed a very slight decrease from this reanalysis (from 5.3% - 5.1%).

Maternal Nutritional Status – Use of Body Mass Index (BMI)

The heights and weights of mothers of children who were weighed and measured on the 1995 UDHS were also taken. It should be noted that the sample of women on the 1995 UDHS is not representative of all women 15 – 59 years of age in Uganda, since high fertility age groups (25 – 34 years of age) were over represented in the sample.

Two measures were used to describe the nutritional status of women in the sample, absolute height, and Body Mass Index (BMI). Only 1.6% of the sampled women fell below the cutoff point of 145 cm, although regional variation was evident. The Northern region has the highest percentage of women who fell below this cutoff point, 3.4%, followed by the Central region with 1.8% and Eastern and Northern regions, 0.6% and 0.2% respectively.

⁶ For example, observation of a child with low weight-for-age, one would not be able to distinguish if the child recently lost weight, had not attained linear growth, or a combination of both.

Body Mass Index is derived by dividing the weight in kilograms by the square height in metres. A cutoff point of 18.5 kg/m has been recommended, while a cutoff point below 16 classifies as severe undernutrition (James et al., 1988). Results of the 1995 UDHS survey show that 9.9% of the survey mothers fell below the cutoff point of 18.5 kg/m. The Northern and Eastern regions had more mothers with low BMI (14.0% and 14.1% respectively) followed by the Western and Eastern regions with 7.3% and 5.4%. Women with lower education levels had a higher prevalence of low BMI.

3.2.2 The Uganda National Household Survey (UNHS 1999/2000)

The Uganda National Household Survey was conducted in 1999/2000 in over 10,000 households by the Uganda Bureau of Statistics to collect agriculture, socioeconomic, education, expenditure, income, assets, access to loans and credit, as well as health and nutritional status information. The nutritional status component of the UNHS will be discussed in this section (Table 3-3, below). Children 6 – 60 months of age were weighed and measured on the UNHS.

Stunting

Results showed that 32.8% of the children were stunted (<-2 Z-score height-for-age) and 12.6% were severely stunted (<-3 Z-score). Stunting increases with age, is higher in boys (34.3%) than girls (31.3%), and is higher in rural than urban areas (34%.3 and 20.7% <-2 Z-score respectively). As expected, children 12 – 23 months of age had the highest prevalence of stunting (39.2%), although as a general trend stunting increases with age. The highest percentage of children who were stunted were from the Western region (39.3%) followed by the Northern and Eastern regions where the prevalences of stunting were similar (32.4% and 32.1%, respectively), and finally by the Central region with the lowest stunting rate of 27.9%.

Wasting

Nationally, 4.7% of the survey children were wasted (<-2 Z-score weight-for-height) with little difference between boys (4.8%) and girls (4.6%). Again, children 12 – 23 months of age had the highest prevalence rates of wasting (7.4%). The Northern region had the highest prevalence of wasting, 7.1%, followed by the Western region with 4.7%, while the Eastern and Central regions had the same wasting rates of 4.0%.

Underweight

There were 19.7% of children who were underweight (<-2 Z-score weight-for-age), with approximately equal distributions between boys and girls (19.8% and 19.5% respectively). Rural children were more underweight than urban children (21.0% and 8.4% respectively). The Western and Northern regions showed similar prevalences of underweight children (23.0% and 22.7% respectively) followed by the Eastern and Central regions (19.5% and 14.6%).

3.2.3 The 1993 Ministry of Health National Rapid Assessment District Surveys

In 1993, the Ministry of Health's Nutrition Department, conducted rapid assessments of nutritional status in primary schools of 37 districts in four regions of the country. Height and weight of children 4 – 18 years old were taken in the schools as well as assessments of Vitamin A (Xerophthalmia, night blindness, corneal scarring), clinical signs of anemia, and iodine deficiency (presence of goitre). In addition, salt

samples were obtained at the retail, market and household levels and were analyzed to determine salt iodine concentration levels. The anthropometric nutritional status results of these surveys will be discussed in this section.

3.2.4 Anthropometric Nutritional Status Results

Nutritional status results in primary school children 6 – 14 years old from this survey showed similar relationships with the two Ugandan Demographic and Health Surveys. For all regions, stunting was prevalent in 27.7% of the primary school children included in the survey, while 4.7% were wasted. The highest stunting rates were observed in the Western region (33.3%) while the Northern region had the highest wasting rates (8.1%). As with the UDHS surveys, overall, boys were more malnourished than girls. Boys had a higher prevalence rate of stunting for all regions. Although boys were more stunted than girls in all schools studied, girls had higher wasting rates in the Central and Western regions.

Table 3-2: Nutritional Status Results of 1993 MOH Surveys by Region

Region	Stunting			Wasting			Underweight		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Northern	28.5	18.6	24.4	8.7	7.0	8.1	32.6	22.2	28.2
Central	31.4	23.6	27.5	4.0	4.7	4.3	27.3	22.4	24.8
Western	37.6	27.4	33.3	2.5	2.8	2.6	29.5	22.3	25.9
Eastern	29.3	22.3	25.7	4.6	2.9	3.7	26.4	19.6	23.4
Total	31.7	23.0	27.7	5.0	4.4	4.7	29.0	21.6	25.6

3.2.5 The Rabbit Intervention Baseline Survey

A community project for the promotion of animal food consumption is being implemented in Luwero district in collaboration with Volunteer Effort for Development Concerns (VEDCO). The primary objective of the proposed community intervention is to increase the availability and consumption of animal source foods for children and women in poor households through rabbit rearing and consumption at the household level. A baseline study was conducted by the Child Health and Development Centre (CHDC), Makerere University in collaboration with VEDCO. The main objective of the baseline study was to collect information on household food consumption patterns, health and nutritional status of preschool-age children 0 – 60 months of age.

In the study areas, 34% of the children were stunted (<-2 Z-score height-for-age), 4.7% were wasted (<-2 Z-score weight-for-height), and 27.0% underweight (<-2 Z-score weight-for-age); all of which were lower than the stunting, wasting and underweight results obtained on the 1995 UDHS.

3.2.6 Africare Uganda Food Security Initiative Project Baseline Survey (May 1997)

The Uganda Food Security Initiative (UFSI) is a five-year initiative in the southwestern district of Kabale. The overall goal of the project is “to improve food security in Uganda, and strengthen Uganda’s role in enhancing food security for the Greater Horn of Africa.” The project’s objectives (summarized in Section 3.6.3) are examples of a successful project that has desirable elements for an impact on nutrition.

The baseline study was conducted in 210 households in two counties of Kabale district. The survey was intended to establish indicators for project interventions against which to monitor and evaluate implementation progress. Data was obtained on household characteristics, socioeconomic characteristics, crop/animal production, soil conservation, post-harvest handling, community-based roads and nutrition. The nutrition information obtained included information on breastfeeding, morbidity (cough and diarrhea), treatment for diarrhea, frequency and type of child feeding, and water quality. Household food habits were assessed through focus group interviews. Unfortunately, there were no anthropometric measurements taken as part of this survey, which would have been valuable, not only for baseline information but also as a monitoring tool (see Section 3.7, Conclusions and Recommendations).

3.2.7 ACF-USA Anthropometric Nutritional Status Surveys in Refugee Populations

ACF-USA conducts ongoing anthropometric nutritional status assessment surveys in refugee populations in the Northern Region where weight, height and mid-upper arm circumference are taken on children 6 – 60 months of age. Data is also disaggregated into the 6 – 29 month age group. The weight-for-height index is used to describe wasting where data from these surveys are presented in both Z-score and percent of reference median. According to the nutritionist for ACF,⁷ percent of reference median is used in the field for program decisions since it is more easily understood by field staff than Z-score that is used for presentation of results in survey reports. The cutoff points of –2 and –3 Z-Score are used to describe “global malnutrition” and “severe malnutrition” respectively.

3.2.8 Anthropometric Nutritional Status Survey in Kitgum District, March 1999

Two surveys were conducted in displaced camps (IDP camps) and non-displaced areas (villages) in the Kitgum district in March 1999 on children 6 – 60 months of age. Using Z-score, results showed that in villages, the prevalence of wasting was 6.7% for children 6 – 60 months of age (<-2 Z-score) and 0.9% severe wasting (<-3-Z-score). The prevalence of stunting was 36.8% and severe stunting 14.7% using the same cutoff points. Results from the IDP camps in Kitgum showed similar results where the prevalence of wasting was 7.0% and severe wasting 0.3% while the prevalence of stunting was slightly higher in the IDP camps with 39.3% and slightly lower for severe stunting with a prevalence rate of 12.7%.

3.2.9 1999 Anthropometric Nutritional Status Surveys in Gulu District

Four anthropometric nutritional status surveys were conducted in Gulu District IDPs camps in 1999. Two surveys were implemented in IDPs camps between March 1 – 22, 1999. Height and weight of preschool-age children 6 – 60 months were taken as well as age to assess both wasting and stunting in camps with health facilities in comparison to those without health facilities. Results showed that 6.4% of the children who were members of camps with health facilities were wasted (<-2 Z-score weight-for-height) in comparison to 4.9% wasting of children who were members of camps without health facilities. The prevalence rate of stunting of children who were members of camps with health facilities was 39.0% in comparison to those children without health facilities which was 41.8% using the same cutoff point of –2 Z-score.

Two more surveys were conducted in the same camps between September 27 and October 15, 1999. Results showed a decrease in wasting from 6.4% to 4.9% of children who were members of camps with

⁷ Personal communication with Cathy Skoula, ACF-USA nutritionist, February, 2001.

health facilities in comparison to a decrease in wasting from 4.9% to 3.8% of children who were members of camps without health facilities. Stunting of children who were members of camps with health facilities also showed a decrease from 39.0% to 37.8% in comparison to a decrease in stunting from 41.8% to 39.8% of those children who were members of camps without health facilities. Seasonal variation may account for some of the observed differences in wasting.

3.2.10 Baseline Survey for The Nutrition and Early Childhood Development Project

A baseline survey was conducted in five districts, Iganga, Pallisa, Mbale, Tororo and Busia to better identify and give direction to project inputs for The Uganda Nutrition and Early Childhood Project. The main objective of the baseline survey was to identify household characteristics and health status of children under six years of age. Three data collection instruments were developed to assess information at the household and community levels as well as from children. Information on household socio-demographic, economic and food security characteristics were collected in addition to heights and weights of preschool-age children 0 – 72 months of age from 2,260 households. According to the study report, children who were less than one year of age and unable to stand did not have either standing height or recumbent length taken.

Results showed that 39.5% of the survey children were stunted, 4.1% wasted, and 22.9% underweight. The high stunting prevalence may be partly accounted for by the exclusion of the 0 – 12 month old children from the study, whose prevalence rates of stunting would be expected to be low, and also from the inclusion of the older 60 – 72 month old children, whose stunting rates would be expected to be higher than the younger age groups (the prevalence rates of stunting typically increases with age). Generally, the anthropometric nutritional status results of this survey are similar to results of other studies described in this report.

3.2.11 Discussion of Anthropometric Nutritional Status Survey Results

As shown in Table 3-3 below, trends in the prevalence of protein-energy malnutrition show that there has been a decrease in stunting over time from three national surveys, 1988/89 UDHS, 1995 UDHS and 1999 UNHS.

Table 3-3: Trends in Protein-Energy Malnutrition (PEM; < -2 Z-score) in Uganda

	1988/89 UDHS	1995 UDHS	1999 UNHS
Stunting	44.5%	38.3%	32.8%
Wasting	1.9%	5.3%	4.7%
Underweight	23.3%	25.5%	19.7%

Results from surveys cited conducted in various regions of the country also showed similar data for stunting and wasting (approximately 30% - 40% stunting and 2% – 5% wasting) for preschool-age children (UDHS and 1995, UNHS 1999, and select regional surveys), which gives credibility to the consistency of the various data sets. The regional variation reported by the different surveys is also consistent (the Northern region has the highest wasting rates and the Western region the highest stunting rates). Results from the 1993 Ministry of Health Surveys for older children 4 – 18 years of age showed similar regional relationships with wasting highest in the Northern Region (8.1%) and stunting highest in

the Western Region (33.3%). It also indicated that rural areas show higher prevalence rates of PEM than urban areas.

Because of the different age groups used on the two UDHS surveys and because nine districts were excluded from the 1988/9 UDHS, it is possible that the stunting prevalence rates may actually have been higher than reported in either UDHS surveys (Section 3.2.1 provides further discussion of this issue). This further emphasizes the severity of the malnutrition problem in Uganda and the importance of poverty alleviation in relation to reducing stunting. Prevalences of wasting and the variation observed between surveys may be a result of seasonal fluctuations. The high wasting observed in the Northern Region is of concern and requires immediate attention and resolution to alleviating the conditions associated with the instability of the region that would have an impact on nutritional status.

It is interesting to note that all the surveys cited showed that with few exceptions, males are more malnourished than females. Even male primary school-age children 4 – 16 years of age had higher prevalence rates of anemia than females. These results should be interpreted with caution, since, although there are apparent differences between the prevalence rates (of stunting, wasting, and/or underweight) of boys and girls, none of the surveys cited tested these differences to see if they were statistically significant (i.e., the margin of error may obliterate a difference). However, the trends are apparent — with few exceptions, the prevalence rates of nutritional status indices (particularly for stunting) of boys is higher than girls. This issue is also discussed in 3.7, Conclusions and Recommendations.

3.2.12 Selected Factors Associated with Anthropometric Nutritional Status

Food Consumption Patterns

According to the National Food and Nutrition Policy, Background Information (October 2000),⁸ over the past 15 years, there has been a change in food consumption patterns where maize has been consumed more in urban areas and matoke is consumed by more than 60% of the population. While maize has been consumed more frequently as a staple because of its low cost and easy preparation, matoke is still considered the major staple in Uganda, where approximately 84% of major food crop production by weight is comprised of matoke and root crops (see Section 2, Agricultural/Economic Component of this report for a more complete description).

Childhood Illness

The Poverty Eradication Action Plan identifies poor health as a fundamental cause of poverty in Uganda. One of the four pillars of the PEAP is to improve the provision of primary health care.

Various studies have shown high levels of childhood illness. The 1995 UDHS reported 27.1% of the survey children less than 48 months of age had a respiratory illness during the two weeks prior to the survey; of these, 61.4% were taken to a health facility or health provider for treatment. Almost one-half of the survey children were reported to have had a fever and nearly one-fourth were reported to have had diarrhea in the two weeks prior to the survey. According to the Baseline Survey Report of the Uganda Food Security Initiative (UFSI) in Kabale (Africare, May 1997), 82.4% of survey respondents reported that their children suffered from illness, mostly cough (39.5%) and diarrhea (37.3%), in the two weeks

⁸ National Food and Nutrition Policy, Background Information, Uganda Food and Nutrition Council, October 2000

preceding the survey. From the results of the UNHS (1999), approximately 15% of the children 6 – 60 months of age had diarrhea in the two weeks prior to the survey with the highest prevalence of 25% in the 6 – 23 month old group.

For treatment of diarrhea, approximately two-thirds of the survey children from the 1995 UDHS received oral rehydration treatment (ORS), while only 13% of the mothers on the Africare survey in Kabale reported giving their children ORS. Results from the UNHS indicate that 33% of the respondents gave their children ORS treatment for diarrhea.

According to the UNHS (1999), approximately 28% of the survey population (adults) reported being sick in the 30 days prior to the survey; of these, 30% were females and 26% males. Regional differences showed that the highest rate of illness was in the Eastern region (37%). The UNHS also reported malaria as a major cause of morbidity in Uganda with 56% of the respondents reporting that they had fever/malaria in the 30 days prior to the survey.

The UNHS reported that 23% of those who were sick prior to the survey were treated at home. The average distance to a health care facility is 5 km, with clinics being the closest, 3 km, and hospitals the longest distance, 9 km. Results also showed that rural populations travel long distances to health facilities. Approximately 50% of the women interviewed on the 1995 UDHS lived within 5 km of a health care facility providing antenatal care, delivery care and immunization services.

Maternal Education

The 1995 UDHS reported that the prevalence rates of stunting and wasting was less in children whose mothers had a higher education (43.1% stunting where the mother had no education; 38.2% where the mother had a primary school education; and 25.7% where the mother had at least a secondary school education). There is a strong body of evidence to show worldwide that maternal education is a determinant of child nutritional status — controlling for other potentially confounding effects, maternal education has a direct effect on the nutritional status of children.

3.3 MICRONUTRIENT ISSUES: STILL THE “BIG-3” PLUS ONE —VITAMIN A, IODINE DEFICIENCY, IRON, AND ZINC

Studies to assess micronutrient deficiencies have been few. One study to assess Vitamin A Deficiency (VAD) was conducted in Kamuli district in 1991⁹ sponsored by the Ministry of Health in cooperation with UNICEF and WHO.

3.4 NUTRITION TOOLS AND INDICATORS FOR MONITORING FOOD SECURITY

The purpose of this section is to suggest specific nutrition tools and indicators that can be incorporated into existing activities, which may create new systems without the need for new infrastructures. This strategy would help facilitate a lower cost monitoring of indicators in comparison to a much higher cost that would be associated with establishing totally new infrastructures.

⁹ The Kamuli District Vitamin A Deficiency Baseline Survey, September – October 1994, An Application of the Helen Keller International Food Frequency Method in Uganda, Dr. D.K.W. Lwamafa, Ministry of Health, Uganda

3.4.1 Stunting as an Indicator of Poverty and as a Monitoring Tool

There is a large body of evidence to support the hypothesis that stunting is an indicator of poverty. Stunted children are usually members of households that are poor; however poverty is defined in a country, region, subgroup (poor access to water, sanitation, health facilities, low household income, few possessions). Since stunting is an indicator of poverty, inclusion of the assessment of height of preschool-age children would be a valuable indicator of the ability of a household to access (purchase) food, an important component of food security.

Assessment of height is already mandated in Child Survival baseline surveys but not for other projects where periodic cross-sectional assessment of a population's height (preschool-age children up to 60 months) could be used for program evaluation (CRS, ACF). To achieve one of their project objectives of reducing stunting by 10%, the CHILD project plans to conduct periodic cross-sectional nutritional status surveys where height and weight are assessed every two years. Other NGOs (ACF, MSF, UNHCR) are already taking height of children in the populations that they serve, primarily to assess wasting (low weight-for-height). From discussions, some NGOs (e.g., CARE) would consider addition of the stunting index for program evaluation provided the activity is incorporated in local institution programming where increasing community capacity is a prime objective. Monitoring of stunting in the Western region would be particularly useful since, according to national surveys (UDHS, UNHS), the prevalence of stunting is highest in this region.

Admittedly, there are additional obstacles to taking height in comparison to weight. Ages of preschool-age children are essential to create the height-for-age index. Age assessment could be done even in refugee and IDP populations because of the stability of these groups. Since some NGOs have been working with these groups for many years, assessing reasonably accurate ages should be feasible. Obtaining an accurate measurement of standing height or recumbent length is indeed more difficult in comparison to other measurements such as weight, since error due to the procedure of taking height is greater; i.e., a child must be put into specific restrictive positions. A small error in the procedure can result in a gross misclassification of a child's height when used in the height-for-age or weight-for-height indices. Procedures for weighing and measuring children are available¹⁰ as well as state-of-the-art anthropometric measuring instruments through UNICEF.

3.4.2 Wasting with Mortality as Monitoring Tools for Immediate Assistance

Weight-for-height has been used frequently on assessments of nutritional status, particularly in the Northern region in refugee populations and IDP camps. Its role in assessment and monitoring is well known, but wasting identifies only one component of nutrition problems in an area, those that require immediate attention. Solutions to alleviate factors that affect wasting are usually aimed at problems addressed by relief programs, an essential but not exclusive component of monitoring food security. Typically, only wasting has been used in refugee populations, but historically those have been transient, fluctuating populations, unlike the refugees and IDPs in the Northern region who have been long-term residents and members of stable populations in this region.

Conversely, program objectives that include poverty alleviation and increasing the level of living of a community (non-refugee situations) may mistakenly use only wasting as a way of assessing and/or

¹⁰ "How To Weigh And Measure Children," I.J. Shorr, U.N., New York 1986.

monitoring the nutritional status of a population in an effort to assess the factors that affect food security. This is incomplete without addressing the underlying factors that affect the socioeconomic status of a population that may be assessed by periodic cross-sectional assessment of height of preschool-age children as an indicator of poverty.

Therefore, monitoring of wasting of preschool-age children is useful since it is a sensitive indicator of problems that require immediate attention, but should be only one component of assessing and addressing the long-term needs of a population. Also, consideration should be given to assessing and monitoring mortality in populations where the prevalence of wasting is high. Studies by Berry and Neiburg in refugee camps showed that while the prevalence rates of wasting did not change significantly over time after interventions were implemented, there was a significant decrease in child mortality.

3.4.3 The Role of Growth Monitoring Data as an Indicator of Food Security

There has not been an active national growth monitoring and promotion (GMP) program; children have been weighed on an ad hoc basis when they are brought into a health care facility for either treatment of an illness or for immunizations. The CHILD Project has been working with the Ministry of Health to pilot a growth monitoring scheme that is planned to expand to the entire country. New growth cards have been designed, and training and assessment tools identified (training materials, scales, height measuring devices).

The anthropometric nutritional status index used in growth monitoring is weight-for-age, since serial weights taken on an individual child over time is the best indicator of that child's health status (Jelliffe, 1966¹¹; DeOnis et al, 1996¹²). If weight-for-age data is delivered to a central location (the Ministry of Health from the districts) and can be readily accessed, then the weight-for-age data by district, aggregated up to regions (groups statistics) can be a useful tool to monitor changes in for this nutritional status index. As mentioned, weight-for-age, either for an individual or aggregated up to a population, collected on a cross-sectional survey (single statistics), cannot distinguish between stunting and wasting. However, if weight-for-age data is collected as part of a growth monitoring and promotion program on a population where data is continuously sent to a central location (the Ministry of Health), then this data will be more of an indicator of recent fluctuations of weight of a population (i.e. more of an indicator of wasting rather than stunting). Therefore, weight-for-age data collected continuously on a population can serve as an indicator of the current health status of a population and is one component of a monitoring system of food security that can be aggregated to the district, region or national level.

3.4.4 Monitoring Maternal Health Status

Since the mother is responsible for many household responsibilities — child rearing, food purchase, access and preparation and, in some cases, is the head of household and responsible for all financial aspects and well being of the household, monitoring the health status of mothers is an important indicator of food security in a household.

Two measurements of maternal nutritional status would be a useful indicator of maternal health status collected periodically: the measurement of mother's absolute height and Body Mass Index (BMI), which

¹¹ Assessing the Nutritional Status of the Community, Derrick B. Jelliffe, WHO, Geneva, 1966.

¹² "Anthropometric Reference Data for International Use: Recommendations from a WHO Expert Committee," Mercedes de Onis and Jean-Pierre Habicht, American Journal of Clinical Nutrition, 1996; 64:1.

is weight/height². Using the cutoff point of 145 cm for maternal height and 18.5 kg/m² for BMI can provide valuable information on the nutritional status of the mothers in a population. Standing height of adults is easier to take than either standing height or recumbent length of children since adults will maintain positions in which they are placed more readily than children.

3.4.5 Use of Appropriate Cut-off Points for Interpretation of Nutritional Status Indices

The cutoff point of -2 Z-score for nutritional status indices of stunting, wasting and underweight should be used for decision making about monitoring, programs, etc. Although -3 Z-score has been used to define “severe” stunting, wasting or underweight, while -2 Z-score has been used to define either “moderate” or “global” malnutrition, the severity of a child who is classified at -2 Z-score for any nutritional status index should not be underestimated. The term “moderate” does not give the necessary verbal impact of a child who is classified at -2 Z-score. The term “global” is even more vague, possibly giving the impression that if an index is “global” then the malnutrition that that index represents (stunting, wasting or underweight) is “usual” or “typical”. In fact, the USAID funded CRSP project was implemented in five countries in Africa to investigate the impact of mild and moderate malnutrition as health indicators of a population where the “mild” malnutrition was defined as a cutoff-point between 0 and -1 Z-score, and “moderate” between -1 and -2 Z-score.

In summary, since the terms “global” or “moderate” do not adequately represent the severity of a child who is classified at -2 Z-score for any nutritional status index, it is recommended not to use these terms, and also to consider using -2 Z-score cutoff points for decision making, rather than -3 Z-score for any nutritional status index.

3.5 INSTITUTIONAL INVOLVEMENT IN NUTRITION-RELATED FOOD SECURITY ISSUES

The institutions involved in food security and nutrition activities in Uganda can be divided into two broad groups: government institutions and non-government (international and local) institutions. On a national level, governmental agencies involved in policy formulation and technical backstopping have increased their support and efforts towards nutrition and food security programming in Uganda. Coordination and implementation measures of nutrition and food security programs are in the process of being defined and instituted in collaboration with district-level providers according to the draft National Food and Nutrition Policy 2000. In addition, several NGOs, through Title II programs and targeted nutritional status surveys, have integrated nutrition into their existing programs in an effort to decrease malnutrition and improve the quality of their target populations. This section identifies these interventions and constraints that institutions continue to face.

3.5.1 Governmental Institutions

Government agencies involved in the promotion of food security and nutrition provide expertise in policy formulation, coordination, support and guidance, standard setting, and technical backstopping. The Ministry of Health houses the majority of nutritional activities, including eight programs that concentrate on both curative and preventive measures towards improving the nutritional status of mothers and children. In addition, other ministries such as the Ministry of Agriculture, Animal Industry and Fisheries, and the Ministry of Education have included nutrition as part of their programming activities. Table 3-4 below provides a summary of the government programs currently operating in Uganda.

Coverage and Constraints

Government institutions have adequately covered their planning roles as far as policy formulation and programming are concerned. However, some plans and programs have not penetrated to the beneficiary communities due to limited infrastructure including a lack of human resources, logistical support, and dissemination capability. Coordination of government agencies involved in nutrition programs is severely handicapped because of non-operational and uncoordinated monitoring and evaluation systems.

Table 3-4: Government Programs in Uganda

Institution	Program	Area of Focus
Ministry of Health	Nutrition and Early Childhood Development Project	Targets children under six years of age in 25 districts. Aims to improve the quality of life and cognitive development of children by economically empowering mothers and diversify diets.
	The Nutrition Unit	Manages the MOH nutrition programs on policy formation, setting guidelines, and preparing materials
	Rehabilitation Hospitals & Centers	Implements preventive and curative measures for malnourished children and adults
	IMCI	Involved in early detection and treatment of child illness and maternal/child education. Also promotes immunizations and Vitamin A supplements.
	DISH	Involved in capacity building for improved services for health sector.
	School Health Program	Targets schools for Vitamin A supplementation, consumption of iodized salt and promotion of school gardens to supplement school diets.
	MOST	Develops manuals, guidelines and other teaching aids for Vitamin A supplements.
	Italian Projects	Operates in 9 districts promoting production and utilization of vegetables and fruits. Also provides instruction on rabbit rearing and production of yellow sweet potatoes and yams.
Ministry of Agriculture	Home Economics and Nutrition program	Advocates proper food and nutrition practices, provides skills in food preparation, processing, preservation, and storage at household level, promotion of backyard gardens at school and household levels.
	NARO	Involved in the research, adoption and dissemination of technologies in agriculture, livestock, fisheries and forestry.
Ministry of Education	Home Economic Program	Promotes good dietary practices in schools, school gardens, and nutrition education.
	Curriculum Development Center	Develop home economics curriculum for primary, secondary, and tertiary institutions that contain information about nutrition.
	Department of Food Science and Technology	Makerere University focuses on human resources development for the sector, research on energy and nutrient dense weaning foods, processing and preservation methods as well as prevention of micronutrient deficiencies in semi-urban communities. Develop nutrition curriculum.
Ministry of Trade, Tourism and Industry		Uganda Bureau of Standards in collaboration with relevant ministries (e.g., MOH, MAAIF) develops food standards and regulations, enforces the food and drugs Act and ensures that consumers are protected through improved quality and safety of food.

Institution	Program	Area of Focus
WFP		Manages relief/food aid, school feeding programs, food security, street children in selected areas and nutrition assessments in refugee camps.
African 2000		Partnered with district-level health centers to provide training to community members in ways to minimize micro-nutrient deficiencies
Africare		Promote micronutrient-rich vegetable production and increase availability of animal food protein in household daily diets through animal rearing and improved utilization through nutrition education at health center and at the household level.
FAO		Provides support to the Government food security initiatives in various aspects as well as to the Tele food project
UNICEF		Provides support to programs in child monitoring and nutrition, HIV/AIDS and orphans
WHO		Provides support to national health and nutrition programs as agreed by government
Care International		Involved in Agricultural innovations projects aimed at improving dietary practices, pasture management soil conservation and food preparation.
AMREF		Runs the child survival project, targeting children below six years of age to reduce infant and child mortality as well as monitoring growth performance. Also runs the Masode Social Center, which provides agricultural production skills and training of childcare workers.
Action Against Hunger		Conducts nutritional status surveys in the Northern region of Uganda. Works in growth monitoring and capacity building
Oxfam		Programs focus on improving livelihoods through increased income and employment. Have instituted cash for work programs and conducted studies on nutritional status in the Northern region
Catholic Relief Services		Provides food aid to refugees and is part of the Global Food for Education Initiative (416b).
Save the Children UK		Utilizes a household food economy approach to understand aspects of food security. Promotes child-child programs and guidelines for feeding children suffering from HIV/AIDS.
VEDCO		Rabbit Project in Luwero and Mpigi that promotes dietary diversity, income generating activities at the household level plus child growth monitoring and promotion (GMP) by community members.
World Bank		Provides support to Government approved programs such as the PMA, NECD, in addition to monitoring progress on ongoing projects.

3.5.2 Non-Governmental Organizations

The interventions of local and international nongovernmental organizations (NGOs) focus on areas such as the management of malnourished children, the promotion of production and consumption of Vitamin A and iron rich foods, and proper food preparation. While international agencies tend to concentrate on technical and financial support, local NGOs are directly involved in implementation of programs with support from the Government of Uganda and international NGOs.

There remains a continual emphasis on weaning foods, nutrition education, and growth monitoring coupled with the provision of relief food to refugee camps. Food security programs have also incorporated nutritional aspects by focusing on improved seeds and other agricultural inputs such as the diversification of crops and animals at the household level.

A prime example of the incorporation of nutrition within food security programs is the Title II Initiative funded by USAID. For example, Africare's Uganda Food Security Initiative in Kabale has incorporated innovative techniques in nutrition education by establishing nutrition education centers and promoting the production and consumption of micronutrient-rich food to increasingly diversify diets at the household level. This was in response to a high prevalence of PEM including night blindness and IDD among women and children.

Coverage and Constraints

NGOs tend to restrict their activities to specific areas and have limited spread of operations except the specialized ones such as in schools and refugee camps. The general observation is that NGOs at the district level actually run parallel programs and sometimes with contradicting methodologies. This problem is a result of a weak National NGO Board, which only registers NGOs and does no monitoring and evaluation of activities.

International NGOs depend on the capacity of local NGOs and government agencies to implement programs. In most cases, such capacity (especially manpower and equipment) is not readily available, hence rendering these programs ineffective. Consequently, local NGOs have an increased dependence on foreign funding, which tends to be erratic and can lead to the suspension of ongoing programs.

In conclusion, programs with similar or related objectives regardless of location should develop a common approach with the aim of complementing each other and minimizing resource loss.

3.6 ELEMENTS OF SUCCESSFUL PROJECTS THAT HAVE HAD NUTRITION IMPACT

Key elements of successful nutrition programs include community participation, training, growth monitoring and promotion, and supervision (Abosede and McGuire, 1991). Other critical elements for effective nutrition program implementation in Africa have been identified that include: community participation, program flexibility (so that project approaches can be modified if not successful), use of existing institutional structures, recovery of recurrent costs (although external financing is necessary), multifaceted program activities where nutrition is linked to broader food security activities and income-generating activities, well trained and qualified staff, and strong infrastructure where there is a physical infrastructure and an adequate health care delivery system (Kennedy, 1991). Kennedy also emphasizes that design and management are important components of successful programs and not just evaluation of outcomes.

Africa has hosted well known models of successful nutrition programs, such as the Iringa Nutrition Project in Tanzania where undernutrition (low weight-for-age of preschool-age children) was reduced from 56% to 38% from 1984 – 1988, at a cost of \$8.00 per child by making five interventions: maternal and child health, water and sanitation, household food security, child care and income generation. The Zimbabwe Children's Supplementary Feeding Program had intensive community involvement and encouraged mothers to feed their children groundnuts, beans, and oil, in addition to the local cornmeal staple. Previously, groundnuts had been used as cash crops instead of feeding them to children.

Abosede and McGuire observed that the most striking lesson from these examples is the variety of institutional mechanisms used. Not only NGOs and private for-profit, but also political structures, and

community organizations should be considered as delivery vehicles. Because public finances are usually tight and existing public health systems have poor quality and coverage, non-traditional delivery vehicles and financing mechanism must be identified to deliver nutrition services.

The examples presented were of nutrition projects with classic nutrition inputs. However, it is also possible to have as part of these projects, or completely independently, a project with seemingly no nutrition inputs that has an impact on nutrition. Building roads to increase market accessibility, policies that affect the poor, inputs to the small farmer are just a few project inputs/issues/policies that may have an impact on nutrition and consequently have measurable nutrition outcomes (decreased levels of protein-energy malnutrition – stunting, wasting, underweight).

Multifaceted projects that contain the components mentioned above have the best chance of success in terms of reducing poverty, raising the level of living of a community, and consequently, affecting food security at the household level that has a measurable impact on the nutritional status of household members.

3.6.1 The Luwero Agricultural and Rural Enterprise Development Project

The Luwero project is an example of a successful multifaceted project with several inputs that include adequate funding, qualified personnel, community participation, management and supervision, training and infrastructure. The administrative center of the project is located near the town of Wobulezi in Luwero district. The project, which began in 1998, is funded by three international NGOs: HIVOS (Dutch), Agro-Action (German) and McKnight Foundation. USAID financed the micro-finance component for one year, 2000. The project operates in Katikamu, Kasagati, and Semuto, with approximately 2,000 small farmers participating.

The objectives of the project are to:

- Increase household food production through provision of training and technical assistance
- Improve food storage and preservation at the household level
- Provide income diversification for markets
- Provide access to micro-finance

To achieve these objectives, the project components instituted two components:

- a. Capacity building for food security management and nutrition improvement through training of local extension workers, collaboration with the Child Health and Development Center to integrate nutrition into agricultural extension services, collaborating with research institutions to implement demonstrations of food production management, and to maintain production and community food security levels.
- b. Agricultural trade development, which focuses on farm business education, market information services, assisting farmers to search for markets, and micro-finance (provision of savings and credits).

The food security activities of the components described above include improvement in the diets of household members by assisting with diversified food production of a variety of foods such as rabbit rearing, poultry, pig and “zero-grazing” animals (cows), vegetable and fruit production, improved varieties of banana, maize and beans. Demonstration and training is done at both the project center and at

the community level. At the project center, tree, fruit and vegetable, and banana nurseries have been established as well as demonstration gardens for project participants. At the community level, there are farm demonstrations of crop cultivation, soil fertilization and utilization. Also, growth monitoring and promotion is conducted at the community level that is the responsibility of members of the community.

3.6.2 Africare Uganda Food Security Initiative Project (UFSI)

The Africare UFSI is a five-year Title II development activity program started in April 1997 and is scheduled through September 2001. The goal of the UFSI project is to improve the household food security in Uganda, particularly in Kabale District. A baseline survey was conducted in 1997 to identify the characteristics and magnitude of food insecurity in Kabale District.

The project is implemented through a village group approach where community participation is key to the success of the project. The main objectives of the project interventions are to:

- Increase the quantity of food available for home consumption
- Protect soils against erosion and establish a means of maintaining and increasing soil fertility
- Provide year round road access and egress for commerce, production and marketing
- Enhance household utilization of food, particularly by women and children

The UFSI project interventions are as follows:

- Soil erosion control and conservation
- Agricultural production and post harvest handling
- Community roads
- Community nutrition
- Agricultural marketing
- Collaboration and partnerships

The overall objective of the community nutrition intervention is to improve the nutritional status of women, children and other vulnerable groups in rural communities in the project target villages. The main activities of the intervention are promotion of micro-nutrient rich vegetable production among rural households in Kabale district, increasing the availability of animal food protein in households daily diet by promoting animal rearing, and improving food utilization by establishing nutrition/health education counseling centers.

The intervention has benefited approximately 34,000 in 106 villages. More than 90% of targeted farm families are consuming vegetables where over 4,300 backyard gardens were established in the project area. Over ten vegetable species have been introduced and promoted and vegetable seedlings planted are continuously harvested primarily for home consumption. To increase the animal protein intake in rural household diets, the project also has initiated rabbit and pig rearing in rural communities.

Training has taken place at community-based centers in nutrition and sanitation. By the end of December 2000, more than 54 nutrition education centers (NECs) have been established. Nearly 5,700 community members have received training in a variety of nutrition and health issues such as proper infant feeding, diet, importance of immunization and good sanitation practices, primary health care and AIDS/HIV

awareness. Also, growth monitoring and promotion is undertaken by UFSI staff that includes training and demonstration on the procedures of growth monitoring and counseling mothers based on her child's growth.

3.6.3 Elements of Successful Nutrition Projects and Impact on Food Security

The Luwero Agricultural and Rural Enterprise Development project and the Africare Uganda Food Security Initiative project are excellent examples of successful projects where food security is addressed through a variety of project inputs that include several of the elements identified above. In both of these projects, the message is clear — nutrition at the household level can improve when project interventions employ a multisectoral approach that has positive effects on food security. The result is an increase of food production at the household level of small farmers, diversification of food production and better utilization, improved agricultural production and small animal rearing, marketing of products produced by the small farmers — all of which improved the nutrition situation at the household level.

3.7 CONCLUSIONS AND RECOMMENDATIONS

3.7.1 Evaluation of the quality of data available as tools for monitoring food security

The three national surveys, the 1988/89 and 1995 UDHS surveys and the 1999 UNHS survey are reliable sources of nutritional status and health information where there appears to be a consistency of results obtained. However, the varied age groups of children weighed and measured on each of these surveys should be considered when interpreting or using the survey results to help with program planning or policy formation. Children from the 1988/89 UDHS were 0 – 60 months of age while the children from the 1995 UDHS were 0 – 48 months of age. Since the prevalence of stunting increases with age, it would be expected that the overall prevalence of stunting for the 1995 UDHS would have been higher if the older age group of 48 – 60 months of age were included in the survey. Children from the UNHS survey were 6 – 60 months of age.

Also, the 1988/89 UDHS excluded nine districts in the Northern Region because of instability, while the 1995 survey excluded one district in the Northern Region, Kitgum. Exclusion of districts in the Northern Region due to instability may have an effect on the nutritional status results where wasting would be expected to be higher.

The 1993 Ministry of Health survey in 37 districts is a useful source of information on school-age children 4 – 18 years of age where nutritional status and micronutrient deficiencies were assessed. Again, caution is recommended in interpreting and using results from these surveys, since information was obtained only from children who attended the sampled schools and may not be representative of the population.

As mentioned above, the data from the different surveys appears consistent, although training of enumerators and field supervision is difficult to evaluate. Also, the surveys apparently used similar weighing and measuring instruments, which reinforces the consistency of the data obtained.

3.7.2 Nutrition Tools for Monitoring Food Security

- *Stunting as an indicator of nutrition, poverty and food security.* The periodic assessment of height of preschool-age children in populations in Uganda would serve as a useful monitoring tool to monitor food security, since stunting is an indicator of poverty. Accurate ages of children should be possible to obtain, even in refugee and IDP populations since these groups have been stable for many years.

If new data collection is to be done, it is recommended to obtain weighing and measuring instruments (scales, height measuring boards) from UNICEF, who have access to state-of-the art instruments. Enough lead-time must be allowed, as the process of ordering equipment from UNICEF could be time consuming.

- *Wasting with mortality as monitoring tools for immediate assistance.* Weight-for-height to assess wasting of preschool-age children has typically been used as the only nutritional status index in refugee populations. When wasting is appropriate to assess, it is recommended to assess child mortality along with wasting to give a better profile of the health and nutritional status of a population, since studies have shown that although prevalence of wasting may not change in refugee populations even after project implementation (feeding programs, health care, immunizations), mortality decreased significantly.
- *The role of growth monitoring data as an indicator of food security.* If growth monitoring data (weight-for-age) from the various regions countrywide can be made available on an ongoing basis from the Ministry of Health, then this would be a useful tool to monitor changes in the nutritional status of a population. Weight-for-age data that is collected continuously on a population would be more of an indicator of recent fluctuations of weight in a population, i.e., more of an indicator of wasting rather than stunting. Therefore, this data can serve as an indicator of the current health status of a population and is one component of a monitoring system of food security that can be aggregated to the district, region or national level.
- *Monitoring maternal health status.* Since many mothers are responsible for household responsibilities and even serve as the household head (particularly when the male head of household has been lost due to AIDS), monitoring the health status of mothers is an important indicator of food security in a household. The two measurements of maternal nutritional status that are recommended are absolute height, using 145 cm as a cutoff-point, and BMI (Body Mass Index) using 18.5 kg/meter² as a cutoff point. Monitoring the nutritional status of mothers in a population should be part of a campaign protect and lessen the burden of this most valuable member of the household (see Section 3.7.5, Investing in the Mother).
- *Use of appropriate cut-off points for interpretation of nutritional status indices.* The cutoff point of -2 Z-score for nutritional status indices of stunting, wasting and underweight should be used for decision making about monitoring, programs, and policy formation. Although -3 Z-score has been used to define “severe” stunting, wasting or underweight, while -2 Z-score has been used to define either “moderate” or “global” malnutrition, the severity of a child who is classified at -2 Z-score for any nutritional status index should not be underestimated.

Also, the terms “global” or “moderate” do not adequately represent the severity of a child who is classified at -2 Z-score for any nutritional status index; therefore, it is recommended not to use these

terms and to consider using -2 Z-score cutoff points for any nutritional status index for decision making, rather than -3 Z-score.

3.7.3 Multisectoral approach to nutrition programs to ensure food security — focus on the small farmer

Strategies for including monitoring of food security through growth monitoring and periodic cross-sectional assessment of nutritional status have been demonstrated in the Luwero Rabbit project where nutrition and food security are part of integrated projects sustained by the community.

It is recommended to consider the approaches that the The Luwero Agricultural and Rural Enterprise Development Project and the Africare Uganda Food Security Initiative Project used to incorporate nutrition into schemes that have a better chance of enhancing food security in an area. These are two excellent examples of successful projects where food security is addressed through a variety of project inputs that include several desirable elements. In both of these projects, the message is clear—that nutrition at the household level can improve where positive effects on food security can be achieved through strategies with a multisectoral approach that include a range of project interventions with a focus on small farmers. The result is an increase of food production at the household level of small farmers, diversification of food production and better utilization, improved agricultural production and small animal rearing, marketing of products produced by the small farmers—all of which, had an effect on improving the nutrition situation at the household level.

3.7.4 Using Existing infrastructures

There is a greater chance of success when strategies and activities are incorporated into existing infrastructures in comparison to elaborate schemes requiring the creation of new infrastructure and trained personnel, transportation, communication, and other resources that invariably translates into higher costs. New systems also require searching for sources of ongoing funding that is necessary to sustain a new system. The Universal Salt Iodization (USI) programme has recommended an elaborate scheme to monitor iodine deficiency by instituting a sentinel surveillance system for monitoring the programme's performance, appointing a stake holders multisectoral national committee, appointing a chief executive to coordinate programme activities and intensifying advocacy among district leaders. The report further recommends use of existing laboratories to analyze urine and salt iodine content as a monitoring tool and advocates an increased iodization of locally produced salt as well as periodic surveys. Although using some existing infrastructures is proposed, at least some new infrastructures must be created to facilitate this ambitious proposal.

3.7.5 Investing in the Mother: Continuation of breast feeding promotion and the need for nutrition and health education

Any food security scheme must incorporate the mother, whose indispensable role in the household is undeniable, particularly with the increased loss of male household heads due to AIDS. Results from the 1995 UDHS showed that the prevalence of stunting decreased in children whose mothers had a higher education. There is substantial evidence to show that maternal education is a determinant of child nutritional status — controlling for potentially confounding effects, maternal education has a strong effect on the nutritional status of children. The need for basic health education for the mother is substantiated by results of various surveys. For example, the 1995 UDHS reported that approximately two-thirds of

mothers whose children had diarrhea, gave them ORS, while only 33% of the mothers surveyed on the UNHS gave their children ORS, and an even smaller proportion of mothers (13%) gave their children ORS in a regional survey conducted by Africare.

Nutrition education is also required to ensure that mothers give their children appropriate weaning foods. Reinforcing breast-feeding should be an ongoing campaign, even though breastfeeding is widely practiced throughout Uganda.

3.7.6 Unresolved Issues of Concern

Highest stunting in Western region. Survey results show that the highest prevalence rates of stunting are in the Western region, which also is the region where income is highest. Since stunting is an indicator of poverty, the result observed in the Western region is somewhat perplexing. It is possible that although the income is highest in the Western region, it is still not sufficient enough to promote adequate linear growth in children. Also, there may be other factors that are affecting the outcome indicator of stunting thereby confounding the expected result. There is a need to further investigate this issue (see Section 3.7.7)

Boys More Malnourished than Girls. Interestingly, all the surveys showed that with few exceptions, males are more malnourished than females. Even male primary school-age children 4 – 16 years of age had higher prevalence rates of anemia than females. These results should be interpreted with caution, since, although there are apparent differences between the prevalence rates (of stunting, wasting, and/or underweight) of boys and girls, none of the surveys cited tested these differences to see if they were statistically significant (the margin of error may obliterate a difference). However, the trends are very apparent; with few exceptions, the prevalence rates of nutritional status indices (particularly for stunting) of boys is higher than girls. It is recommended to conduct further research on this issue to determine the factors that affect nutritional status in boys versus girls.

Micronutrients. Micronutrients remain an important yet unresolved issue in Uganda. The issue of food fortification has not yet been resolved since there has been no national data available on micronutrients that addresses the two critical areas of food fortification: consumption patterns and controllability (at central processing). The 2000/2001 UDHS has collected national data on blood samples to obtain information on anemia and Vitamin A that should prove valuable in quantifying the extent and severity of micronutrient deficiencies in Uganda necessary before any intervention can be proposed.

3.7.7 Need for Further Research

Based on survey results and nutrition activities in Uganda, further research is needed on why boys tend to be more malnourished than girls. Also, there is a need to investigate cultural effects on food selection, preparation and intrahousehold food distribution where there is a need for more anthropological information instead of the anecdotal information that is the basis for conclusions about food preferences. Closely related to the issue of food access is who controls the assets in a household (the purchasing power within a household, the mother or male household head, and the effects on the quality, quantity and diversity of food accessed for a household).

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ATTACHMENT 1

Anthropometry Terms, Definitions and Basic Concepts

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Anthropometry Terms, Definitions and Basic Concepts

Anthropometric Measurements

Stature: Distance from crown of head to heel either standing or lying down

Standing Height: Distance from crown of head to heel standing (done on people two years of age and older)

Recumbent Length: Distance from crown of head to heel lying down (done on children less than two years of age)

Weight

Examples of Other Measurements: Mid-Upper Arm Circumference (MUAC)

Height and Weight of Preschool- age Children

Height and weight of preschool-age children are the two most important measurements of HEALTH STATUS, not just of nutritional status. Note: the proper term is “Stature” which means the measurement of the distance from the crown of the head to the heel. Stature is broken down into two categories, “Standing Height,” and “Recumbent Length.” Standing height is measured on children >24 months of age while recumbent length (lying down) is measured on children <24 months of age. The terms that are most often seen in the literature is “Height” and “Length” where the words “Standing” and “Recumbent” are dropped respectively.

Examples of Other Measurements

There are many other measurements: e.g., mid-upper arm circumference, skinfold, head, waist and hip circumferences; but again, height and weight of preschool-age children are the most important (note: these are only examples of measurements for many different types of data collection efforts).

Derived Anthropometric Indices (Index)

A mathematical relationship between two measurements or a measurement and age.

An anthropometric index (plural indices) is a mathematical relationship between two measurements or a measurement and age. The three indices that use height and weight are as follows: height-for-age, weight-for-age, and weight-for-height. When an index is “low” (i.e., defined by comparison to % of median or Z-score), the terms that apply are as follows:

Index	When “Low”
Height-for-Age	Stunting
Weight-for-Age	Underweight
Weight-for-Height	Wasting

Do NOT Use the Terms “Acute” or “Chronic” Malnutrition/Undernutrition

Wasting during non-war, non-famine conditions, such as during baseline surveys, should be low (with the exception of refugee populations) although intra-country differences, e.g., between geographic regions, can occur. A child who is wasted cannot stay in that state for very long; he/she must either get better or will die. WHO advises not to use the terms “Acute Malnutrition” and “Chronic Malnutrition” since these phrases have a connotation of causality. The terms “stunting” and “wasting” are observational (albeit quantitatively observational) since only the numbers (i.e., height-for-age, weight-for-age and weight-for-height) are being observed, and on their own cannot adequately describe causality.

Indicator

An indicator is the use of an index or measurement to describe a particular phenomenon. For example, height-for-age is an indicator of poverty.

Growth Reference

The growth reference used to compare children’s height and weight are from a series of cross-sectional and longitudinal studies assembled by the U.S. National Center for Health Statistics (NCHS)¹³ and were determined by a WHO working group as the most suitable for use as an international growth reference population.

New growth references have been developed using data from more recent surveys in the U.S. Also, the “Euro Growth Reference”, based on data from a multi-country study are also available. However, the widely used NCHS growth references described above are still in use. WHO recommends that the term “standard” not be used in referring to a growth reference.

Cut-Off Points

There are three methods for determining cut-off points of the NCHS growth reference for classifying children as stunted, wasted and underweight; use of percentiles, percent of median, and Z-score (i.e., use of standard deviation units). The preferred method is Z-score. For any index, -2 Z-Score is the cutoff point, below which, children are classified as stunted, wasted or underweight. Some reports use -3 Z-Score to classify children as “severely” stunted, wasted or underweight, while labeling -2 Z-Score as “moderate” stunting, wasting or underweight (also called “global” malnutrition).

While some reports have used these two cutoff points, it is important not to underestimate the severity of a child whose height-for-age, weight-for-height and weight-for-age falls below -2 Z-score; the term “moderate” is an inappropriately benign term for the true severity of this classification.

¹³ United States, Public Health Service, Health Resources Administration. “NCHS Growth Charts,” Rockville, Maryland 1976.

ANNEX H

HIV/AIDS Component

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ANNEX H

HIV/AIDS Component

Uganda is one of the African countries where HIV/AIDS was first recognized and most severe but the government responded early to the epidemic in the mid-1980s after realizing the potential magnitude of its impact on the country's future. It has achieved notable success in fighting HIV/AIDS after developing one of the most vigorous and comprehensive HIV prevention and AIDS mitigation efforts in sub-Saharan Africa.

The number of people living with HIV/AIDS (PLWHA) is approximately 1.8 million out of a total population of 21.4 million. The national HIV prevalence was 8.3% in 1999, a remarkable decline in new HIV cases in comparison to the previous decade where HIV prevalence was 30% in some areas. The decline in HIV prevalence, though significant, needs to be viewed as a *vulnerable success* due to a many factors. A variety of conditions in the country may lead to a second epidemic that could divert resources from more constructive development activities to AIDS mitigation. Knowledge of HIV prevalence for the country's 56 districts is far from complete, especially in the rural areas and the northern and western regions that have been embroiled in a prolonged civil conflict.

AIDS is presently the leading cause of death among adults. The rate of HIV infection is highest among 15- to 49-year-olds who constitute the most productive members of society. More than one-half of Uganda's population is below 15 years and will soon enter the age range of highest risk for HIV transmission. Coupled with these demographics is a growing orphan burden that is currently estimated at 1.7 million and expected to reach 2.1 million by 2010. The rise in the number of orphans increases the dependency ratio in households affecting consumption, savings, and investment patterns.

These statistics suggest that the AIDS epidemic could have extensive impacts on the economic and social fabric of Ugandan society. The potential ramifications need to be acknowledged when considering development strategies, as HIV/AIDS will likely affect the economic, health, educational, social service, and public and private sectors. The country's growth prospectus and ability to attain the national development objectives outlined in the Poverty Eradication Action Plan could be hindered. A better understanding is needed of the multi-sectoral impacts of HIV/AIDS and the factors contributing to the vulnerability of HIV risks and AIDS impacts in various contexts including conflict areas.

Recent attention has been focused on the linkages between poverty, gender inequities, food insecurity, behaviors that increase vulnerability to HIV risk, and the capacity of communities and households to respond to the impact of AIDS. Poverty is, in most instances, the root cause of problems that facilitate the spread of HIV/AIDS and also prevents an effective and sustainable response. In no area is this relationship more vital than food security. Food insecurity is a growing concern for PLWHA and AIDS-afflicted households in Uganda and it occurs when food availability, access, or utilization is not consistently ensured.

HIV/AIDS can exacerbate an existing food insecure situation over time. It can gradually deplete a household's resources, the labor supply and income of one or more interdependent households, and eventually diminish resources within a community that can undermine effective coping responses. Large-scale disintegration of extended family networks and social structures, increased pressure for communities to care for needy orphans, as well as the psychological burden of AIDS stigma and grieving for lost relatives constitute some of the social costs. HIV/AIDS erodes social capital—the community networks, the people, and the indigenous knowledge base that form the foundation for human development. Social capital is gaining recognition as a valuable resource that has an important role in promoting sustainable development to augment the gains made with economic growth.

AIDS-afflicted and -affected households may adopt a range of coping responses to mitigate their circumstances. Coping tends to occur in three sequential stages: drawing down and disposing of insurance assets, disposing of productive assets, and finally destitution. Certain coping strategies have negative ramifications because they are irreversible such as selling off productive assets (e.g., land and animals), withdrawing children from school to assist with agriculture or to care for sick parents, and out-migration. In order to strengthen a household's coping capacity, it will be important to identify indicators of coping and critical points in time to strategically target short-term assistance combined with longer-term income-generating capacities. Special targeting considerations should be made for AIDS-afflicted households experiencing adult deaths, a high dependency ratio, and those headed by single women, grandparents, older children, and foster families that provide care for multiple orphans.

Positive coping responses have been observed within hard-hit communities and represent a way of responding more effectively to the multiple challenges of HIV/AIDS. These include the re-emergence of communal agriculture in the north, mutual assistance for the collective care of orphans, secession planning for AIDS-afflicted families, and comprehensive home-based care programs that provide a range of services from voluntary counseling and testing to food assistance, vocational training, and primary health care. Even with these efforts, AIDS stigma remains a problem for PLWHA and their households in spite of widespread community sensitization.

Further research is needed to explore more systematically the (1) range and timing of coping mechanisms adopted by vulnerable groups in different contexts including conflict regions; (2) intra-household decision-making around the use of limited resources that may jeopardize food security; (3) indicators of vulnerability to HIV risk and AIDS impacts for different types of households; (4) critical points in time to target short-term food aid and material assistance in addition to providing longer-term livelihood support; and (4) strategies that strengthen existing support systems and community coping responses.

The recent Leadership and Investment in Fighting an Epidemic (LIFE) initiative that was awarded to Uganda will provide \$20 million over five years to establish 10 “ready-to-go” and “underserved” model district programs. LIFE will support the country's continued progress in HIV prevention and AIDS care by developing “one stop” integrated HIV/AIDS service delivery centers offering a continuum of HIV/AIDS care. Among the array of services that LIFE can provide for PLWHA and other vulnerable groups in selected districts include:

- Helping to promote access to anti-retroviral and prophylactic therapy;
- Expanding knowledge of and PLWHAs' access to complementary and alternative therapies through linkages with traditional healers;

- Adopting and strengthening innovative strategies developed by communities in response to HIV/AIDS (e.g., succession planning for children in AIDS-afflicted families and community care approaches for orphans);
- Nutrition education and counseling to optimize nutritional well-being and to improve symptom management;

An additional \$30 million over five years in Title II LIFE food aid has been awarded by USAID/Uganda to ACDI/VOCA to work collaboratively with four non-governmental organizations—The AIDS Support Organization, Catholic Relief Services, World Vision, and Africare—and to strengthen household coping responses and reduce the likelihood of food insecurity occurring in targeted communities. This project will provide PLWHA and their households with supplementary food baskets containing selected food aid commodities as well as nutrition education and counseling that can assist with HIV disease management. Nutrition care and support guidelines that have been developed by various groups for Uganda could be enhanced through participatory research to formulate concrete and culturally competent nutrition messages that are relevant and practical based on the eating habits and life circumstances of PLWHA. A simplified version of the nutrition care and support guidelines could be integrated within the *Positive Living Guidelines* already being used by indigenous non-governmental organizations.

Assistance to special AIDS-afflicted groups falls under the domain of SO 8 (HIV/AIDS, nutrition, and health-related services). These groups will need special targeting of short-term relief combined with vocational and livelihood skills training and opportunities for IGA. However, some institutions may not be willing to give them credit or loans because their needs may outweigh their ability to repay loans. It will be necessary to develop creative strategies to help these AIDS-afflicted groups. The NGO working through the LIFE initiative are an important mechanism to: support group IGA so that a few close members will jointly share in the repayment of a loan; organize community groups that can enforce accountability for loan repayment; or, provide loan guarantees to PLWHA and AIDS-afflicted household members so that they can gradually rebuild assets that have been drawn upon or lost as a result of HIV/AIDS.

Members of AIDS-affected families may be better off than PLWHA and AIDS-afflicted households because they are more likely to repay loans. These families need to be targeted by mainstream economic development strategies to alleviate poverty and to promote food security such as those supported by SO 7 (economic growth and agricultural productivity). Special targeting to this group would enhance the IGA and MFI opportunities with the goal of asset creation to improve resilience to cope with the challenges posed by poverty and HIV/AIDS.

PLWHA and AIDS-afflicted households in conflict areas face unique circumstances that will require a combination of short-term relief (e.g., food aid provided by WFP) and longer-term livelihood skills training and IGA opportunities. The transition from relief to development in these areas is complicated. The short-term relief often drags on longer than anticipated without any exit strategy, or, relief provisions may undermine creating incentives for self-sufficiency and sustainability. SO 9 (democracy, governance, and conflict) could work more closely with NGO that promote capacity building and civic engagement among local stakeholders to help them gain a deeper understanding and personal investment in food security problems within these areas.

Women and children in AIDS-afflicted households may lose their assets after the death of the breadwinner through property grabbing, and may have no recourse if inheritance laws are not enforced at the local level. The issue of land ownership and property rights is complex, varies across ethnic groups and cultures, is exceedingly bureaucratic, and may not be resolved in the short-term. Nevertheless, property disinheritance is a common occurrence and is related to AIDS deaths. This trend focuses renewed attention on this issue. Another recommendation would be for SO9 to work closely with the Ministry of Gender, Labor, and Social Development to support national legislation around inheritance, and to support the enforcement of domestic inheritance laws at the local level.

4.1 HIV/AIDS and Food Security

In developing countries, there has been a growing awareness about the relationship between poverty, gender inequalities, food insecurity, behaviors that increase vulnerability to HIV risk, and the capacity of communities and households to respond to the progressive impacts of HIV/AIDS (FAO and UNAIDS 1999, Topouzis 1998a). Poverty facilitates the spread of HIV/AIDS and prevents an effective and sustainable response. An area of mounting concern is the relationship between HIV/AIDS, nutritional health, and food security because poverty can inhibit a household's ability to be food secure. People are food secure when they have regular access—either through production or purchasing power—to sufficient food for a healthy and productive life (USAID 1995).

FAO research in East and West Africa shows that the most immediate problem for many AIDS-afflicted¹ rural households is not medical treatment but lack of food and poor nutrition (Topouzis 1998b). Food security is a vital concern for PLWHA and AIDS-afflicted and -affected households in Uganda. Food insecurity results when food availability, access, or utilization is not consistently ensured and can occur at several levels including national, regional, community, and within a household. Food insecurity is an underlying cause of poor nutrition and for an individual can lead to hunger and malnutrition. Food insecurity has always been a problem in Africa, regardless of HIV/AIDS. What is distinctive about HIV/AIDS is that it can worsen an existing food insecure situation. Over time, it can deplete a household's resources and the labor supply of interdependent households, eventually diminishing community resources and weakening effective coping responses.

Previous research has suggested that all three aspects of food security—availability, access, and utilization—are undermined by the impact of HIV/AIDS in Uganda (Barnett and Blaikie 1992, FAO 1995, UNAIDS 1999, Kraak et al. 1999). This component is based on a review of the relevant literature and consultations held with key stakeholders involved with food security, nutrition and health, and/or HIV/AIDS in Uganda between February 1-23, 2001. Its purpose is to explore the relationship between HIV/AIDS and food security emphasizing:

- HIV/AIDS and food security as cross-cutting themes in the USAID/Uganda integrated strategic objectives;
- the type of household and community coping strategies that are used to mitigate the impact of HIV/AIDS;
- the relationship between nutrition, food security, and HIV/AIDS; and

¹ Based on the research of Barnett and Blaikie (1992), an AIDS-afflicted household represents one with many ill or deceased members; an AIDS-affected household is one where the death or illness of a family member has led to a loss of cash, labor, support, or the addition of orphans. This distinction may be useful for targeting resources to needy households.

- nutrition care and support guidelines for people living with HIV/AIDS (PLWHA), as well as AIDS-afflicted and -affected household members.

The findings will be used to inform the programmatic activities of the 2002-2007 USAID/Uganda Mission Integrated Strategic Plan (ISP), the LIFE model HIV/AIDS district program, and also the Title II LIFE that will provide food aid commodities and nutrition education to optimize HIV disease management and to strengthen food security at household and community levels.

4.2 OVERVIEW OF HIV/AIDS IN UGANDA

Uganda is one of the African countries where HIV/AIDS was first recognized. The government of Uganda (GOU) responded early to the epidemic in the mid-1980s after realizing the possible impact on the country's future. Uganda has a record of several notable achievements related to HIV/AIDS. These include: having the first African Head of State to publicly discuss AIDS; founding the first indigenous AIDS service organization (ASO) in Africa; conducting the first national HIV prevalence survey; establishing the first anonymous HIV voluntary, testing, and counseling program (VCT) in Africa; and representing the first country in the world to document a national reduction in HIV prevalence. The commitment to fight HIV/AIDS was supported by the GOU, generous donors including US Agency for International Development (USAID), the World Bank, Danish International Development Assistance (DANIDA), and the Joint United Nations Programme on HIV/AIDS (UNAIDS). Also involved were international and indigenous NGO, church groups, and a compassionate civil society to ensure that the country developed one of the most vigorous and comprehensive HIV prevention and AIDS mitigation efforts in sub-Saharan Africa.

HIV/AIDS Surveillance

Three types of HIV seroprevalence data are collected in Uganda: antenatal sentinel sites, population-based cohort studies in selected districts (e.g., Rakai, Entebbe, Masaka, Kabarole, and Gulu), and VCT at the AIDS Information Center (AIC). Based on these data, the number of PLWHA is estimated to be 1.8 million out of a population of 21.4 million (UAC 2000). Sentinel surveillance data from 22 sites throughout the 45 districts of the country² revealed a remarkable decline in the national HIV prevalence to 8.3% in 1999 (UNAIDS and WHO 2000). Data from first-time testers in VCT programs at AIC indicated declines in HIV prevalence among young persons as the prevalence rates among 15- to 24-year-olds declined from 11% among men and 29% among women in 1992 to 2.5% and 12.1% in 1999. While the decline in national prevalence to 8.3% is encouraging, these data must be interpreted cautiously.

In 1999, HIV prevalence exceeded 10% at five surveillance sites including Jinja (10.8%), Rubaga (10.5%), Kagadi (11%), Mbarara (11.3%), and Nsambya (12.3%). According to the population-based cohort data in the Rakai district of southwest Uganda where HIV was first detected in 1982, HIV prevalence was 17% among adults aged 15 to 59 years old. Supporting data from Rakai suggest that HIV prevalence among women exceeds that of men (19% versus 14%) and the prevalence rate is higher among household heads versus other household members (21.5% versus 13.3%) (Nalugoda et al. 2000). Although these districts have made enormous progress in promoting sexual behavior change among high

² The number of districts in Uganda expanded from 48 to 56 in January 2001.

risk groups, supported by declines in HIV prevalence from 24% to 30% just a decade earlier (MOH 2000a), the rates remain unacceptably high.

AIDS case surveillance data, representing the HIV cases that progress to full-blown AIDS, are collected by health units and are based on the World Health Organization (WHO) AIDS clinical case definition. A total of 112,000 new AIDS cases and a cumulative total of 838,000 AIDS deaths were reported to the Ministry of Health STD/AIDS Control Program in December 1999. The MOH (2000a) acknowledges that there are inconsistencies among health units that report AIDS cases. However, the data support the assessment that AIDS is the leading cause of death among adults in Uganda, exceeding malaria, and the AIDS rate is highest among 15- to 49-year olds who represent the most productive members of society.

Gender Perspectives. HIV continues to be a threat to Ugandan women. Nearly 60% of PLWHA are women and mother-to-child transmission (MTCT) including breastfeeding accounts for 15-25% of HIV cases. The HIV prevalence of women below 25 years is three times greater than men of the same age range. Factors that may contribute to a higher infection rate among women are: limited access to formal education and information about HIV/AIDS; the larger mucosal surface area that facilitates the spread of HIV; and women are more dependent upon men for socioeconomic survival (including access to land) and are therefore exposed to greater risks due to gender inequities. The high prevalence rate among women is a serious concern because they are traditionally the care providers in the family and subsequently bear the heaviest burden of caring for the sick as well as orphans. Their time is often diverted from agriculture to assume the caretaker role and if they are HIV positive, their burden is three-fold: as the primary care provider in the family, the food procurer engaged in subsistence agriculture to provide food for household consumption, and as a PLWHA. Women are also more likely than men to feel apprehensive about their own health and the future of their family.

Rural and Urban Assessment. Although the Ministry of Health STD/AIDS Control Program plans to expand surveillance sites to rural areas, the country's HIV/AIDS profile for all 56 districts is incomplete. This is especially true for rural areas where accurate prevalence data is less readily available. HIV prevalence continues to rise in rural areas of most developing countries through migration, trade, and refugee movement, and Uganda is no exception. However HIV infection rates are difficult to quantify and are more prone to underreporting due to a variety of causes including poor health infrastructure, limited access to existing health facilities, and a lack of established surveillance programs.

Regional Dimensions. A regional overview reveals that districts such as Kampala, Masaka, Jinja, and Rakai have more than 500 AIDS cases per 100,000 residents (although the HIV caseload is significantly higher). The large numbers of cases in Kampala and Jinja is attributed to the high concentration of urban residents, while in Masaka and Rakai it is due to the fact that HIV/AIDS occurred earlier than in other districts. In areas where civil conflict prevails such as Gulu, Kitgum, Kabarole, and Kasese, 200-500 AIDS cases per 100,000 have been recorded.

Vulnerability to HIV transmission is suspected to be high in regions of civil conflict, environmental degradation, and natural disasters. Millions of Africans leave their homes as a result of these conditions and become refugees or may be internally displaced persons (IDP) in their own countries. Their living conditions and survival strategies increase their vulnerability to the risk of HIV (Mann and Tarantola 1996, FAO and UNAIDS 1999). The GOU recognizes that refugees traveling across its borders may have

no knowledge of HIV prevention and/or access to condoms, thereby compounding the risk of unsafe sexual behaviors that promote sexually transmitted infections (STI) including HIV.

In northern Uganda, there are an estimated 450,000 IDP and Sudanese refugees in the Gulu and Kitgum districts, and nearly 130,000 IDP in the southwest districts of Bundibugyo, Kisoro, and Kasese (WFP 2000). According to sentinel surveillance data at Lacor Hospital in Gulu, HIV prevalence declined from 27.1% in 1993 to 12.3% in 1999. This reduction in HIV prevalence is positive but cannot be generalized to other districts where conflict prevails. Many factors contribute to the increased risk of HIV in areas of conflict including: close-quarter living conditions in government protected camps where social and cultural norms dissolve, and limited accessibility to health services including HIV prevention and care. The lack of accurate data is partly due to the inability of researchers to carry out in-depth assessments due to the high level of insecurity in these regions.

4.3 HIV/AIDS, National Security, and Sustainable Development

Uganda's Vulnerable Success

Uganda is considered to be a model country in fighting HIV/AIDS but policymakers caution against the tendency to become complacent. Reaching a national HIV prevalence of 8.3% must be viewed as a *vulnerable success* because tenuous conditions in the country could lead to a second HIV epidemic. If this were to happen, it would necessitate that resources be diverted from more constructive development activities to AIDS mitigation. Given that more than 50% of Uganda's population is below 15 years of age, the epidemic could rapidly increase among youth and cause detrimental impacts on a future generation as well as the health, social, economic, and educational sectors. In broader terms, a rise in HIV cases could have serious negative implications for the GOU's development trajectory and could also potentially reverse the positive economic growth that Uganda has achieved in recent years and hopes to sustain.

Implications of the Orphan Burden

As productive adults in extended families die in areas of high HIV prevalence, there will be a growth in the number of orphans requiring some type of safety net. Many of them will be absorbed by extended families or kinship networks, foster care or they may live on their own. Globally, the orphan count is estimated at 15.6 million children and an orphan is defined as a child under 15 years of age who has lost either a mother or both parents to AIDS or other causes. More than 90% of orphans live in sub-Saharan Africa. By 2010, as many as 44 million children in 34 developing countries will have lost one or both parents, most of whose deaths will be the result of HIV/AIDS-related illnesses (Hunter and Williamson 2000).

Some maintain that a large orphan burden could create a generation of youth who will neither have the benefits of family nurturing, stability, and socialization nor access to formal education and basic health care. These children may also resort to living on the streets. If this should happen, these children might serve as a reserve for militia groups engaged in armed conflict. This has occurred to a certain extent in the northern region of Uganda bordering Sudan, and could contribute to regional and national political instability (Piot 2000).

Indeed, the number of orphans from all causes in Uganda is presently 1.7 million and is expected to reach 2.1 million by 2010 representing 13.6% of all children below 15 years of age (Hunter and Williamson 2000).³ A high orphan count increases the dependency ratio within a household that could change the consumption, saving, and investment patterns. Uganda's orphan phenomenon dates back to years of civil conflict in the 1970s-80s and has strained the traditional extended family obligations to a degree that some families are becoming overwhelmed and are unable to take the responsibility of caring for their relatives' orphaned children.

NGO such as the Uganda Women's Effort to Save Orphans (UWESO), which has been working to improve the support systems and life prospects of orphans who do not have intact extended family networks, point out that reaching the *needy orphans* among all orphans must be a priority. A needy orphan may lack basic necessities, live with elderly grandparents who are responsible for supporting them, live with large foster families, and/or live in child-headed households. UWESO maintains that it is possible for communities to collectively create a nurturing home environment for this sub-group of orphans and works toward providing them with opportunities so that they have a better chance of growing up into physically, emotionally, and spiritually balanced adults who retain their cultural values and lead productive lives (UWESO 1996).

Impact of HIV/AIDS on Professionalization of the Army

HIV/AIDS has affected national security by delaying the professionalization of the Uganda Army. President Yoweri Museveni recently announced that 70% of the deaths among 900 Ugandan soldiers last year was attributed to AIDS. Others who did not die were prevented from professional development because they could not get training abroad due to their HIV status. Even if they remained active in the country's military, the vigorous physical training could contribute to a faster decline in their health and HIV disease progression to symptomatic AIDS (Mugisa 2001).

Impact of HIV/AIDS on Sustainable Development

The AIDS epidemic is projected to have extensive impacts on the economic and social fabric of Ugandan society. The growing realization that HIV/AIDS is a multi-sectoral issue that has causes and consequences beyond the health sector prompted the GOU to establish the Uganda AIDS Commission (UAC) in 1992 which has the mandate to facilitate and encourage the involvement of as many actors as possible to both prevent the further spread of HIV/AIDS and to mitigate its consequences (UAC 2000). In light this view, donors and other stakeholders need to acknowledge the potential ramifications when considering development strategies and project design as HIV/AIDS will likely affect key sectors of the economy, the growth prospectus, and the attainment of national development objectives.

Economic Costs. A few African countries have conducted sector impact studies and made projections that account for the contributory effects of HIV/AIDS. In Zimbabwe, where one out of every four adults is estimated to be HIV positive, AIDS is exacerbating poverty for certain groups and may be partly contributing to the economic and agricultural decline initiated by many other factors. Zambia has examined the impact of HIV/AIDS on the skilled

³ Other sources have estimated that the orphan burden in Uganda may double from 1.7 million to 3.5 million by 2010. This figure may be based on a higher HIV prevalence. However, Hunter and Williamson in *Children on the Brink* (2000) project a more conservative number.

labor force and determined that it will have a shortage of teachers due to AIDS-related deaths that may directly impact on the education that students receive.

HIV/AIDS can affect both the quantity and quality of labor supply in the economy. This is especially relevant when members of the labor force—who contribute the most to economic and social development—become debilitated through recurring episodes of HIV-related illnesses that may impair their productivity through reduced functional capacity causing absenteeism. This in turn, may affect gross national and domestic products (GNP and GDP) (Mann and Tarantola 1996, Armstrong 1995). HIV/AIDS can also contribute to a loss of job opportunities for infected PLWHA, reduced productivity and efficiency, an inability to save and invest, diminished entrepreneurial capacity, poor management and utilization of resources, and work taken off to care for or bury loved ones (Jabbo-Obbo 2001).

The AIDS Control Programs of key Uganda line Ministries, including the Ministry of Public Service (Jabbo-Obbo 2001) and the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), recognize many of these private and public sector impacts. The MAAIF HIV/AIDS Sectoral Plan for 2000/1-2005/6 acknowledges that HIV/AIDS has contributed to poor and irregular supervision at all levels in the agricultural sector institutions, low extension service coverage, reduced farmer training, and increased administrative burdens (MAAIF 2000). Moreover, agricultural extension specialists are facing the dilemma of how to tailor information that had previously been reaching men to reach farm households headed by single women, grandparents with multiple orphans, and older children. In order to raise agricultural production there must be an expansion of technology and knowledge-based production which may be a challenge for many households in the rural areas.

Health Costs. By 2005, the health sector costs for treatment, care and support related to HIV/AIDS are anticipated to represent more than one-third of all government health spending in Ethiopia, more than a half in Kenya, and nearly two-thirds in Zimbabwe (UNICEF and UNAIDS 1999). However, there are no figures available to assess the contribution of HIV/AIDS to Uganda's health-sector costs. Access to health facilities may vary both within and between districts. More than one-half of rural (56%) and urban Ugandans (51%) lack access to health services. For those who do have access, the average person travels five kilometers to get to a health facility and the chance of being seen by a physician is low because the physician to patient ratio is 1:18,700 and the nurse to patient ratio is 1:4,300 in Uganda (UAC 2000). According to the Uganda Participatory Poverty Assessment Report (MFPED 2000), poor health and disease are perceived to be a cause and effect of preventing people from moving out of poverty.

HIV/AIDS has been implicated in reversing of many development gains made by African countries within the past few decades. Demographic statistics for Uganda (based on multiple data sources including USAID and USDOC 1999, MOH 2000, Stanecki 2000) reveal the following trends:

- adult life expectancy has fallen from 48 years in 1990 to 38 years in 1997;
- crude death rates will increase from 8.8 to 14.4;
- infant mortality has increased from 81/1000 in 1995 to 97/1000 live births; and
- under-five child mortality has increased to 147/1000 live births.

Social Costs. Large-scale disintegration of extended family networks and social structures, an increased pressure for communities to care for needy orphans, as well as the psychological burden of stigmatization and grieving constitute some of the social costs of HIV/AIDS (Armstrong 1995). At the 13th International

AIDS Conference in Durban, South Africa, the UNAIDS director expressed that “*HIV does to society what it does to the human body; it undermines institutions and kills those people who are the basis for Africa’s social safety net.*” (Piot 2000). AIDS erodes social capital—the community networks, the people, and the indigenous knowledge base that form the foundation for human development. Social capital is a valuable resource that institutions such as the World Bank have identified as playing an increasingly important role in promoting sustainable development (World Bank 1997).

Multi-sectoral Impact Analysis. Because HIV/AIDS may produce adverse impacts at the macroeconomic level, especially with regards to commercial agricultural production and socioeconomic development, conducting an in-depth multi-sectoral impact analysis based on high and low HIV prevalence would be useful to assist the GOU to formulate appropriate policy responses. A recommendation for an impact analysis has been included in some of the line Ministry AIDS Strategic Plans (MOH 2000b). This type of analysis may be able to quantify and characterize in more detail the potential economic, health, social, and educational impacts that the HIV/AIDS epidemic is capable of producing, especially if HIV prevalence rates rise in Uganda. Some of the concerns that could be addressed by an impact study include:

- *economic impacts:* changes in agricultural output and marketing, loss of skilled labor, absenteeism, and reduction in the tax base;
- *health impacts:* increased demands on the health sector to train health workers, expand health services, absorb in-patient costs, and subsidize medications;
- *social impacts:* changes in extended family networks and household composition, increased dependency ratios, increased prevalence of single parent, grandparent, adolescent, and/or child-headed households, and a higher number of “needy orphans” among the larger orphan burden;
- *educational impacts:* absenteeism and death of skilled and professional labor, primary and secondary school teachers, withdrawal of children from school if their families are unable to pay for school fees, and the loss of indigenous knowledge.

Integration of HIV/AIDS into the PEAP. The Uganda AIDS Commission (UAC) provides multi-sectoral coordination of AIDS activities in the public and private sectors. It is closely aligned with the office of the President and works in partnership with the GOU. The UAC was directly involved with the revision of *The National Strategic Framework for HIV/AIDS Activities in Uganda: 2000/1-2005/6*. This key document advocates for improving integration and cross-sector collaboration, community implementation, and broader stakeholder participation for more effective HIV/AIDS-related interventions. The *Framework* has been endorsed by a variety of stakeholders including the GOU, the AIDS Control Programs of 12 line ministries, UNAIDS partners (WHO, World Bank, UNICEF, UNDP), other donors (USAID, DANIDA, DFID, EU), NGO, and research institutions. The significance of this collaboration is that it places HIV/AIDS in the broader context of national development and relates it to other national policies for health and poverty including the Poverty Eradication Action Plan (PEAP) (MFPED 2000).

The GOU’s recent decentralization program has devolved a substantial amount of authority and autonomy as well as resources and responsibilities to all 56 districts. Elected councils now have significant

responsibility for providing basic services, controlling financial resources, collecting and retaining tax revenues, and passing ordinances. This policy has brought the issues of HIV/AIDS closer to local governments which will need to play a more active role in implementing the components of the *Framework* and designing interventions that are responsive to the specific nature and extent of each sub-district's HIV/AIDS problems (UAC 2000).

Despite the positive economic growth that Uganda has experienced over the past decade, it remains one of the poorest countries in the world. It is ranked 154 out of 178 countries on the human development index that measures human progress according to life expectancy, educational attainment, and standard of living. In 1996, 40% of Ugandans were classified as being “significantly deprived” (UNDP 1998). The PEAP and the USAID/Uganda Six-Year Integrated Strategic Plan (2002-2007) propose an economic growth program that strives to reduce mass poverty by creating new opportunities for income growth at the household level. The PEAP contains four major goals and the GOU recognizes that HIV/AIDS is a cross-cutting theme for each of these goals:

- create an enabling environment for rapid and sustainable economic growth and structural transformation;
- assist the ability of the poor to increase their incomes;
- increase the quality of life of the poor; and
- ensure good governance and security.

Key features of the Ugandan economy and labor market make it particularly vulnerable to poverty and the potential impact of HIV/AIDS:

- (1) the majority of people living below the poverty line are in the rural areas (35% are below the poverty line and nearly 20% are below the food poverty line representing the absolute poverty line);
- (2) the bulk of economic activity and production takes place in the rural areas where 85% of the population depends primarily on agriculture for income to achieve household food security;
- (3) agricultural production is labor intensive as most rural households, farmers, and micro-enterprises lack access to modern technology, extension services, and micro-finance institutions (MFI);
- (4) a diversified and competitive economy that is able to meet the needs of a rapidly growing population has not yet developed in Uganda and is further hindered by a weak enabling environment that does not support rapid and sustainable agricultural modernization, strategic resource management, economic diversification, and private sector competitiveness.⁴

Some of the factors contributing to an increased vulnerability to HIV/AIDS are listed in Table 1 (FAO and UNAIDS 1999).

⁴ The agricultural production/economic growth component provides an in-depth discussion of how poverty relates to food security in Uganda.

Exhibit 4-1: Factors Contributing to Vulnerability to HIV/AIDS

Vulnerability to the Spread of HIV	Vulnerability to the Impact of AIDS
Multiple sexual partners	Drought
Migration for wage work	Limited range of crops
Frequent alcohol consumption	Labor peaks in the agricultural cycle
Proximity to transport or trading	Labor-intensive processes
Frequent interactions with market centers	No tradition of labor-exchange of households
Low status and economic independence of women	Existing pressures on the domestic-farm interface
Physically damaging sexual practices (dry sex)	Limited substitutability between existing labor-intensive and less labor-demanding crops
Exchange of cash or favors for sexual services	Low food surplus reserves
	Limited opportunities for off-farm income

Source: Barnett et al. 1996 (FAO and UNAIDS 1999)

Vulnerabilities to HIV Risk and AIDS Impact in Uganda. Of the 3.5-4 million rural households in Uganda, 2.5 million are subsistence farmers producing food for their own consumption on less than two hectares of land with limited opportunities for diversifying their income. Growing evidence suggests that in absolute numbers, PLWHA may be found predominately in the rural areas. The rural areas also tend to bear a large proportion of the cost of AIDS care as many urban dwellers often return to their home village when they become symptomatic with HIV disease. If this is confirmed in Uganda it means that the costs of food, health care, other material needs, and funeral expenses are frequently incurred by rural families (FAO and UNAIDS 1999). Compounding this predicament is a variety of conditions that will make it more difficult for households to effectively respond to the impact of HIV/AIDS. Statistics gleaned from the UNDP (1998), the Uganda National Household Survey (1999-2000), the Uganda Bureau of Statistics (2001), and the Uganda Participatory Poverty Assessment Report (MFPED 2000) indicate that:

- Approximately 40-50% of rural households that fall below the poverty line (1999-00), 20% fall below the *food poverty line*, suggesting that this segment of the population are the *most* food insecure;
- 56% of rural and 51% of urban dwellers lack access to health services;
- The average Ugandan travels 5 kilometers to get to a health facility;
- Poor health and disease are perceived by people living in poverty to be a cause and effect of preventing them from moving out of poverty;
- 54% of Ugandans do not have access to clean drinking water; and
- 70% of household expenditures are spent on food.

4.4. A Model of the Impact of HIV/AIDS on Household Income, Expenditure, and Production Patterns

Household and Community Coping Strategies in Uganda

There are a range of coping strategies adopted by AIDS-afflicted and -affected households and the communities in which they live. It is important to understand when and the reasons why they occur in order to help reduce vulnerability to HIV risk, cushion the severity of the impact of AIDS, and strengthen a household's resilience for coping with stresses precipitated or intensified by HIV/AIDS. There is also a need to closely monitor the coping capacity of communities so that policies and programs can be designed to provide support in strategic ways. Strategically targeting households will help to maximize the

effectiveness of local initiatives, to use limited resources wisely, and to support emergent coping strategies that have positive effects.

The ability of communities and households to cope in response to HIV/AIDS has been researched in several sub-Saharan African countries over the past decade. The demographic changes and coping strategies adopted by households, on farms, and in the marketplace were the subject of an extensive study in the Rakai district of Uganda from 1988-89 (Barnett and Blaikie 1992). In a survey consisting of 69 households in some of the hardest hit villages (e.g., Kiembe, Guanda, and Kooki), 20% were either AIDS-afflicted or -affected. Another census conducted in Kakooma, Kitemba, Kitunto, and Luanda by the same researchers revealed that 49 of 185 households (26%) were either AIDS-afflicted or -affected.

At the household level, changes were observed in:

- *household structure* (families splitting up, the addition of dependent or productive members);
- *domestic work organization* (redistribution of workloads among household members);
- *quality of life* (inadequate diets due to a restricted range of food or less time to prepare food, poorer housing due to less time or money for repairs, and restricted access to education).

Changes in farm work organization and practices were also observed. The participatory research conducted by Barnett and Blaikie (1992), based on fieldwork conducted in seven settlements of the Rakai district over 18 months, identified several types of resources that households and communities use to cope with HIV/AIDS. The economic resources include:

- labor (separated by gender because men and women have different tasks);
- land;
- cash reserves;
- household and family skills;
- income-generating activities (e.g., farming, trading, fishing);
- the wealth of close relatives who may be able to provide food, lend money, or care for orphans.

Figure 2 is based on Barnett and Blaikie's fieldwork and depicts five stages illustrating how a household in the Rakai district was impacted by HIV/AIDS-related morbidity and mortality from 1980-1989.

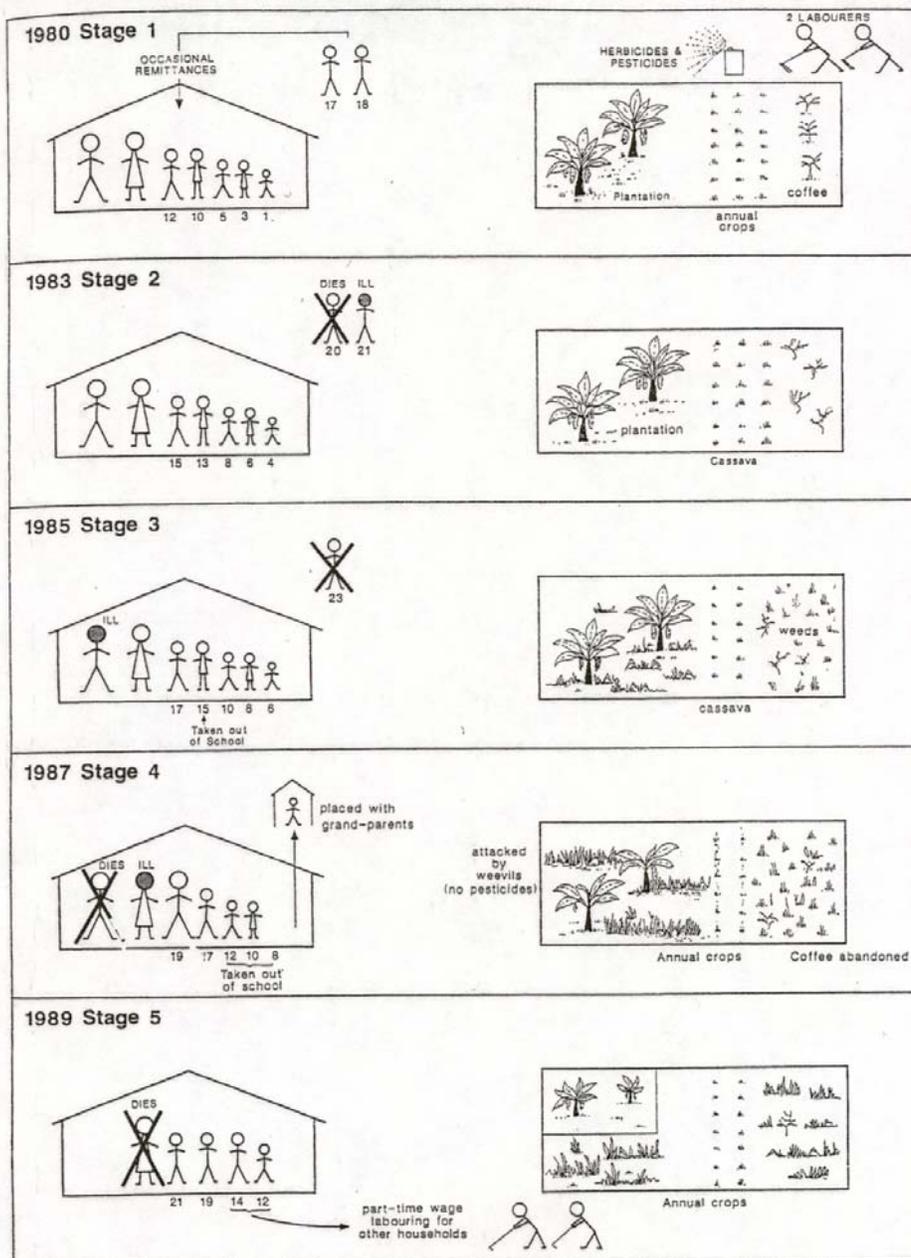
The social resources identified by the researchers were found to be equally important as the economic resources in the coping process and consisted of social networks and emotional support that are tapped into to mobilize all types of resources.

Findings from Rakai suggest that agricultural production for AIDS-afflicted households that have fewer economic reserves is significantly decreased and households responded by either hiring labor or cultivating less land. There was also a shift from cultivating high- to low-labor intensive crops, and a progressive decline in cash crop production and food crop sales. AIDS-afflicted households switched from cultivating cash crops such as maize to growing less nutritious subsistence crops such as cassava and sweet potatoes. The findings revealed that 25% of households were cultivating less land and more than one-third (35%) of these households attributed it to HIV-related illness. It was not entirely clear, however,

Exhibit 4-2

How Households, Families, and Communities Cope with AIDS

Incremental AIDS deaths within a household (1980-1989) Rakai District, Uganda



Barnett T. and Blaikie P. *AIDS in Africa: Its Present and Future Impact*. New York: The Guilford Press, 1992.

what percentage of family labor may be lost when a mother or father of an AIDS-afflicted household becomes ill and unable to work or dies. In the market setting, changes in cash income were attributed to loss of remittances, loss of cash income due to time spent on domestic or farm work, and diminished sale of food crops. *It is important to account for these factors because what occurs at the household-farm system level may eventually influence farming systems at regional and national levels* (FAO 1995).

A recent report, *A Review of Household and Community Responses to the HIV/AIDS Epidemic in the Rural Areas of Sub-Saharan Africa*, provides one type of a framework for discussing coping responses (UNAIDS 1999). The report identifies three main coping strategies, some of them having negative consequences while others could produce positive outcomes:

- Coping strategies that aim to *improve food security*
 - substituting cheaper commodities such as porridge instead of bread
 - reducing consumption of a food item
 - sending children away to live with relatives
 - replacing food items with indigenous or wild vegetables
 - begging

- Coping strategies that work to *raise and supplement income* to maintain household expenditure patterns
 - income diversification
 - migrate in search of new jobs
 - loans
 - sale of assets
 - use of savings or investments
 - diversifying source of income

- Coping strategies that *compensate for the loss of labor*
 - intra-household labor reallocation
 - withdrawing children from school
 - putting in extra hours
 - hiring labor and drought power
 - decreasing area cultivated
 - relatives helping out

The UNAIDS report concludes that poverty, gender inequality, and natural disasters create an environment that exacerbates the impacts of HIV/AIDS. Over several years, an episode of illness may be followed by others that gradually deplete the resources and labor supply of one or more interdependent households. Household coping mechanisms are adopted sequentially or in stages over time. These stages are: reversible mechanisms and disposal of self-insuring assets, disposal of productive assets, and finally destitution.

The coping strategies not requiring cash were the ones most frequently used including: intra-household labor reallocation, taking children out of school, diversifying household crop production, and decreasing the area of land cultivated. While some of the coping responses can be reversed, some, such as the

withdrawal of children from school, are often irreversible and represent a short-term strategy with long-term consequences for survival.

Many of these coping strategies were identified collectively by stakeholders interviewed in Uganda for a recent food security and HIV/AIDS study. All three aspects of food security were undermined especially for people who were living in poverty. In terms of reduced food availability and access, adult illness and death in a household results in less household production and income and a shift in spending from food to medicine. Food reduction and substitution are strategies employed by PLWHA, even though they know that they need more nutrient-dense foods to maintain weight and to keep physical stamina as HIV disease progresses. The stakeholders interviewed identified the need for PLWHA to receive foods that provide adequate energy and a high quality protein. Nonetheless some stakeholders noted that sources of high protein foods (e.g., eggs from chickens and milk from cows) are often sold off by households to pay debts incurred as a result of the impact of HIV/AIDS (Kraak et al. 1999).

Other Coping Strategies Identified

The consultations with stakeholders and a review of recent documents during this mission provide further insight into specific coping strategies adopted by PLWHA and their families in different circumstances and regions of Uganda.

Coping Strategies in Conflict Regions. Although HIV prevalence is not readily available in districts where conflict prevails (e.g., Gulu, Arua, and Kitgum), one might speculate that the vulnerability of IDP and refugees to HIV risk and the impact of AIDS is much higher than for Ugandans living in peaceful areas. This was confirmed by some of the stakeholders interviewed. WFP (2000) has recently completed an extensive emergency food needs assessment that used a household food economy model as one of a range of methodological tools to identify coping strategies among groups residing in conflict areas of Uganda where this organization provides emergency assistance.

The coping strategies adopted by the Karamoja in eastern Uganda, where civil insecurity causes food insecurity, were diverse and included: gathering wild fruits and vegetables, hunting for wild animals, borrowing from relatives, sale of livestock, and migration in search of food. In Gulu and Kitgum, where people are living in government protected camps, food aid supplies between 20-30% of the IDPs' food needs. Due to pressures of poverty and lack of resources, the coping strategies adopted ranged from begging, selling household property, stealing food, and migrating out and sending remittances back to relatives who stay in the camps.

The psychosocial consequences of the conflict in these districts has created a "camp culture" characterized by poverty, overcrowded living conditions, dependency, idleness and unemployment, and breakdown of cultural values. In a recent assessment of food security, HIV/AIDS and food aid conducted for the World Food Program/Uganda, Silva-Barbeau (2001) notes that food insecurity often develops out of this complex situation and has promoted the coping response of transactional sex among young women with soldiers and older men to obtain food and other basic needs for their families. Other studies have confirmed casual or transactional sex as a coping mechanism in response to poverty and food insecurity (Kraak et al., 1999), but it is not well understood where this coping response falls along a continuum of strategies adopted by households in response to HIV/AIDS (FAO and UNAIDS 1999).

As was previously noted, poverty facilitates the spread of HIV/AIDS and also prevents an effective response. Poverty is also one of the root causes of food insecurity, especially reducing access to food. The conclusion can be made that there is a close connection between poverty, food insecurity, and increasing HIV risk for people living in conflict regions, particularly IDP and refugees. As table 1 illustrates, conflict areas are characterized by factors contributing to the vulnerability to HIV risk (e.g., living with an HIV-positive partner, multiple sex partners, migration for work, alcohol and drug abuse, low status and economic dependence of women, and the exchange of cash or favors for casual sex) and vulnerability to AIDS impact (e.g., drought, limited range of crops, little or no access to cultivatable land, low food surplus reserves, and limited opportunities for off-farm income).

Re-emergence of Communal Agriculture. The northern region of Uganda has a tradition of collective agricultural cultivation as well as sharing meals communally. Some stakeholders indicated that over time, this tradition had been slowly disappearing. However, recent field observations have suggested that perhaps this tradition is being resumed and communal gardens are re-emerging in the north as a way to mitigate the multiple stresses exacerbated by HIV/AIDS. This same trend has not been observed in other regions of the country where collective labor traditions are not common.

Orphan Care. One of the largest burdens for extended families is the care for the orphaned children of relatives who have succumbed to AIDS. Families headed by single mothers, grandparents, and older children are especially vulnerable to livelihood and food insecurity. Some stakeholders indicated that extended families are reluctant to take responsibility for these orphans because they have insufficient resources to provide adequate care. HIV/AIDS is not only a cause of an increased orphan burden but also a constraint on orphan care. Research conducted in Masaka reveal that there is a strong need to provide psychological support to orphans but that cultural norms often hinder the grieving process after the loss of their parents (Nanteza et al. 2000).

An orphan study in the Luweero district indicated that many unanticipated problems emerged for extended and foster families providing orphan care. The findings suggest that families who have survived mainly by subsistence presently have an urgent need to increase cash income to pay for extra commodities that can only be purchased with cash and are needed due to extra dependents in the household. This study suggests that orphans living in an area of high AIDS mortality will be affected because of the additional burden that non-consanguineous fostering of orphans places on all children within AIDS-afflicted or -affected households (forthcoming...2000).

Some communities in the Rakai and Masaka districts, realize that the orphan burden cannot be addressed in isolation from the economic, health, and social impact of AIDS. One positive coping response that has emerged in some of these communities is guided by the *munomukabi* spirit (a friend in need) that provides mutual assistance for the collective care of orphans such as vocational training and primary health care (Nakate et al. 2000).

For others, property grabbing is worsening the orphan problem frequently leaving children with little or no assets after the death of their parents. Due to cultural barriers and the weak enforcement of legislation protecting women and children's property rights, property grabbing often forces them to migrate to urban areas. The children orphaned by HIV/AIDS are more likely to live on the streets and engage in high-risk behaviors for contracting STI including HIV. A newly emerging response to reduce the ramifications of property grabbing is *succession planning*, whereby children in AIDS-affected families are reached before

their parents die to ensure more hopeful futures. Succession planning involves a package of services such as: appointing future guardians, counseling and disclosure of HIV status, will writing and legal training, community sensitization, and involving them in IGA (Gilborn et al. 2000).

Adequacy of Coping Strategies

Stigma around HIV infection is less problematic in Uganda at community level because of sustained awareness campaigns delivering simple messages stressing compassion, solidarity, and hope for PLWHA. Messages such as “give love and care to people with AIDS” and “people with AIDS need your care and compassion” created a supportive environment that reduced HIV-related stigma and denial (Kaleeba et al. 2000). Even though Uganda has made great strides in reducing stigma within communities, it is still a problem at the individual and household levels. AIDS stigma may be so persistent that it prevents PLWHA from accessing care and support services early when they are HIV positive and asymptomatic. By the time they finally access services, they may have progressed to symptomatic AIDS, which can undermine both their productivity and role as household head.

Another example drawn from the visit to Mulago Hospital is that women may discover on the same day that they are pregnant and HIV positive. Though the first choice for feeding that UNICEF and the Ministry of Health supports is exclusive breastfeeding, HIV-positive women are counseled on their options for preventing MTCT and are given a range of choices that also include infant formula. However, these mothers are faced with a complex dilemma. If they choose the option of infant formula instead of exclusively breastfeeding, but have not yet disclosed their status to their partner, they may fear violence or even abandonment. So they may return home and not disclose their HIV status and breastfeed but not exclusively, which increases the risk of HIV transmission to their infant.

Little is known about how HIV/AIDS impacts intra-household decision-making traditionally influenced by men. As household males become sick and debilitated from HIV disease, women are taking on greater responsibility for household decisions. For instance, disagreements may arise between a husband and wife about how to spend limited amounts of money (e.g., food or medications, food or school fees, or other essential versus non-essential material items). Strategies that strengthen the support system within an AIDS-afflicted household are needed to assist with partners’ ability to cope with these dilemmas.

Attempts to identify indicators to assess vulnerability to HIV have been limited. Drawing from one study of coping strategies conducted in rural southwest Uganda, household size and composition, land area, household possessions, and the cohesion of a family support network were identified as possible indicators of vulnerability. However, it must be acknowledged that a household’s circumstances may change over time and thus vulnerability needs to be periodically assessed (Seeley 1993).

As previously discussed, transactional sex is a coping response to food insecurity and poverty particularly among the absolute poor and those living in conflict areas. Casual or transactional sex is a strategy often used to secure basic survival needs, sex is also used as a weapon between fighting groups in conflict areas, and is frequently accompanied by high rates of alcohol and substance abuse (Silva-Barbeau 2001). A deeper understanding of this phenomenon is needed to assess how to provide alternatives for those in high-risk situations. Finally, certain coping strategies have negative ramifications because they are irreversible such as selling off productive assets (e.g., land and animals), withdrawing children from

school, and migrating from one's home. It is necessary to identify critical points in time to provide assistance so that these types of coping responses are less likely to happen.

A Model of Coping Strategies in Response to HIV/AIDS

FAO and UNAIDS (1999) have constructed a useful model of coping strategies that reflect behavioral changes of HIV-afflicted families over time and their potential for reversibility (Figure 3 on the following page). These coping responses impact household resources, including income, expenditure, and agricultural production for consumption and market sale, reflecting the three progressive stages identified above. However, it should be noted that this model does not reflect some of the more positive mitigating strategies that have been discussed. These strategies have evolved from communities through experience with HIV/AIDS and include the re-emergence of communal agriculture in the north, mutual assistance provided by the community for the collective care of orphans (*munomukabi spirit*), succession planning for AIDS-afflicted families before parents die, and multi-faceted home-based care programs. A more inclusive model is needed that reflects the types of coping strategies used and the sequence in which they happen.

Policy Implications for Targeting Vulnerable Groups

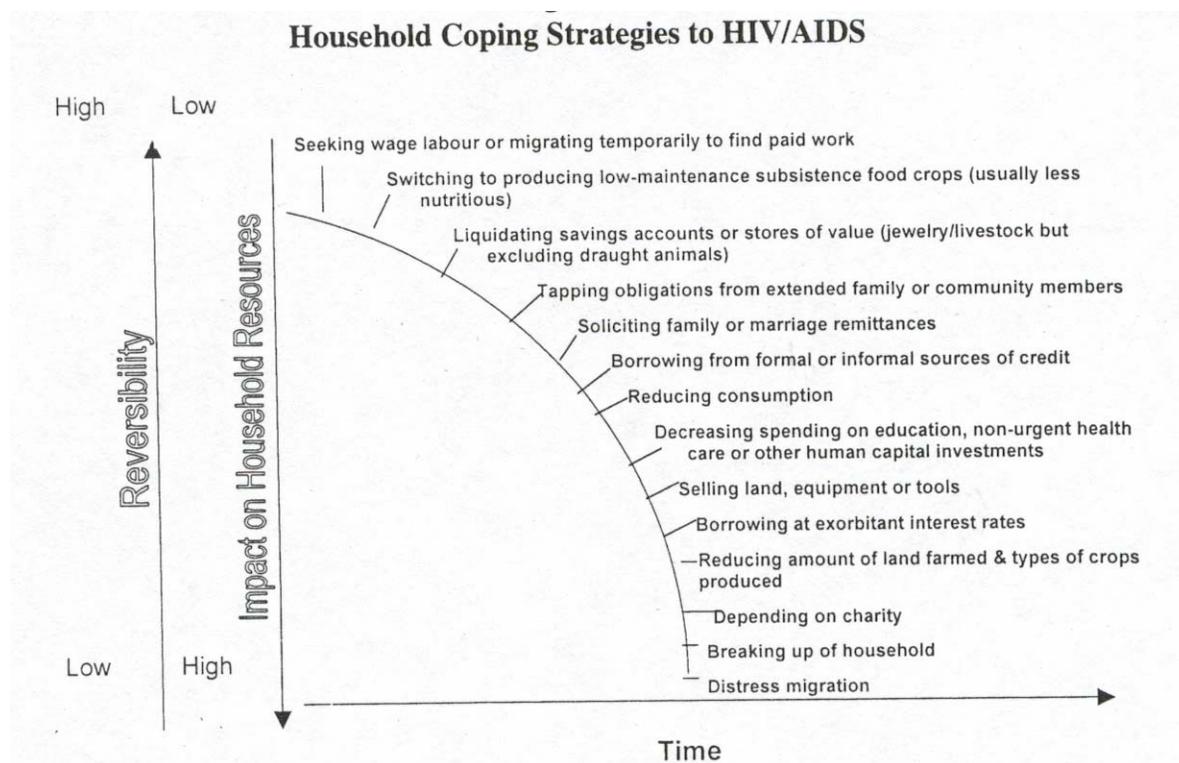
Several key findings of the UNAIDS report (1999) and the model have important policy implications:

- There is a need to have a combination of relief and mitigation activities;
- Timing of support is critical to strengthen household and community responses to reduce their vulnerability to HIV/AIDS and to help families avoid jeopardizing long-term survival to meet short-term needs;
- Affected households that are failing to cope (e.g., are extremely vulnerable or lack basic assets) will need relief support to help prevent them from entering permanent destitution;
- Once signs of recovery appear, relief support can be gradually replaced with AIDS mitigation support for longer-term needs.

Findings from Other Sub-Saharan African Countries. Exploratory studies have been conducted in Zimbabwe (Jackson 1994) and Tanzania (World Bank 1997) examining the impact of HIV/AIDS on household and community coping responses. The Zimbabwe study helped to identify the most critical points of stress and social breakdown in order to target scarce resources in the most cost-effective way and to involve families and communities so that the assistance was more sustainable. This study confirmed that women are more economically and socially vulnerable in the context of HIV/AIDS because they provide most of the care giving in the family even if they are HIV-positive themselves. The researchers conclude that a careful analysis should be undertaken before designing service interventions to reduce the risk of undermining emergent coping mechanisms (Jackson 1994).

Two prospective studies in Tanzania examined the short-term impacts of adult deaths on food expenditure and consumption from 1991-93 (World Bank 1997). Key findings suggest that AIDS-afflicted households are at greater risk of experiencing food insecurity based on these findings:

Exhibit 4-3: A Model of Household Coping Strategies in Response to HIV/AIDS



Source: D. Topouzis, 1999, based on Jill Donahue, Community-based Economic Support for Households Affected by HIV/AIDS, Discussion Paper on HIV/AIDS Care and Support #6, USAID, June 1998, pp. 6-7; and Thomson and Metz, Implications of Economic Policy for Food Security, FAO, 1997, Figure 3.4: Responses to Household Food Shortage, *op. cit.*, p. 97.

- The average medical expenses for adult males with AIDS was four times higher than for other causes of death;
- Poor households had a 32% decline in food expenditures and 15% decline in food consumption six months following an adult death;
- 50% of orphaned children below 5 years of age were stunted compared to 29% of children who were not orphans living in households with more assets and not affected by HIV/AIDS, and 39% of children who were not orphans living in households with less assets and not affected by HIV/AIDS.

A follow-up study examined the provision of assistance to AIDS survivors in the Kagera region of northwestern Tanzania, focusing specifically on the consequences of targeting for household welfare, income distribution, and poverty in response to a death. The investigators examined the impact of cash transfers on mitigating poverty by assessing the distribution of income, targeting criteria of donors, and the combined impact of private and public assistance. The results suggest that assistance may not be

sufficiently targeted to reach the most needy households and that neither formal assistance nor informal transfers have any significant impact on improving poverty or inequality (Lundberg 2000).

Targeting Resources to Vulnerable Groups affected by HIV/AIDS in Uganda. Approaches are needed that can reach the short-term relief needs as well as to strengthen the longer-term livelihood needs of PLWHA and AIDS-afflicted households. In developing interventions to improve income-generating capacities and activities (IGA), it is essential to recognize as Seeley (1993) demonstrates that the composition, vulnerabilities, and capacities of households differ and change over time necessitating that the impact of programs and policies are periodically evaluated by the organizations implementing them. Donors can help NGO engage in longer-term planning and to help build the capacity of communities. CARE and Save the Children UK are examples of NGO in Uganda that promote capacity building and civic engagement among local stakeholders to help them gain a deeper understanding and personal investment in the problems and possible solutions within their own communities.

One very important objective is to help PLWHA and AIDS-afflicted households gain skills and employment opportunities. Many NGO and ASO such as TASO, NACWOLA, AIC, UWESO, CRS, and WV are involved in promoting IGA and “asset creation” among HIV-afflicted and -affected groups in Uganda. One example is UWESO that has evolved from providing direct relief 15 years ago to the area of programming sustainable interventions to improve the quality of life of needy orphans. By improving the standard of living of foster families there is a greater likelihood of a sustainable positive impact on orphans. UWESO provides foster families with business training and MFI. This NGO helps to organize self-selected groups of five members each in communities where it has established branches and usually provides 10 weeks of training. Foster families pay back loans in small installments that usually take them about four months. If any of the group members needs assistance in meeting their foster children’s material needs (e.g., medical expenses or school fees) the group members help one another. Although foster families may not be pulled out of poverty, their self-esteem is improved and they are not destitute.

If programs are to be effective it is crucial to target households that are most needy. However, targeting only AIDS-affected households is unethical since it may leave out households that are equally in need for other reasons. Thus, it is imperative that programs target a wider group of households based on both poverty and other HIV/AIDS-related indicators such as a high prevalence of TB and/or households with a high dependency ratio or headed by single parents, grandparents, or older children. Developing targeting criteria can be achieved by working through communities to identify the most needy. Establish targeting criteria to assist hard-hit communities and households may be one of the most sensitive aspects of AIDS mitigation especially concerning the provision food aid (Kraak et al. 1999).

Selective targeting may increase the risk of stigmatization that might lead to discrimination. One approach may be to use adult deaths as a targeting criterion to reduce the likelihood of stigma, although communities, in partnership with NGO, must be involved in identifying other vulnerable groups. It is also important to bear in mind that to foster a meaningful dialogue about food aid’s potential uses in the context of HIV/AIDS, the objectives, target groups, distribution channels, and combination of food sources must be identified at the outset before programs are implemented and the assistance must be connected to a larger development package such as providing IGA (Kraak et al. 1999).

Save the Children UK is seeking donor support to develop an assessment methodology based on their food economy model that has been used in other countries (such as in Sudan and Kenya) to examine more

systematically various household coping strategies that emerge in response to HIV/AIDS in Uganda. Empirical knowledge about regional differences and needs is presently limited, although the research cited in this section, especially that of Barnett and Blaikie (1992), has been insightful to inform the extent of AIDS impact in hard-hit regions. A more comprehensive analysis may reveal that certain households may be more resilient in using resources than one might presume.

4.5 Initiatives Using HIV/AIDS Vulnerability Reduction Strategies

There are three basic approaches that have been used to reduce HIV/AIDS vulnerability: disseminating information, education, and communication (IEC); providing short-term material care and support; and creating or strengthening livelihood security. Initiatives that strive to integrate more than one of these types of programs or activities will be more successful in reducing HIV/AIDS risk and impact vulnerability. Table 4-2 provides a brief description of some of the most relevant initiatives of organizations involved in HIV/AIDS in Uganda. The information is based on the stakeholders visited during this consultancy and also drawn from the documents collected.

Exhibit 4-4: Selected Programs, Projects, and Activities of Organizations to Reduce HIV/AIDS Vulnerability

Organization	Districts	Strategies	Activities
TASO	8 centers in Mulago, Mbale, Mbarara, Masaka, Entebbe, Jinja, Arura, and Torora.	IEC, care and material support, IGA	Provides a continuum of care for PLWHA and their families including psychosocial support. Trains community health workers for better care management and complementary home-based care. Provides technical support including community sensitization.
World Vision	Gulu The food security umbrella program was developed in Kabale and is moving into Karamoja.	IEC	Promotes "asset creation" and encourage people in rural areas to consume animal products (e.g., eat eggs rather than just selling the chickens).
CRS		IEC, care and material support, IGA	Support partners that provide home-based care and counseling: Kamwokya Christian Caring Community Support to HIV/AIDS, Villa Maria Hospital Community AIDS Care, Rubaga Hospital Counseling and Care; and Nsamya Hospital Integrated AIDS Care.
Africare	Integrated food security project in Kabale Health project with HIV/AIDS component in	IEC	Through food security project, promotes micronutrient-rich vegetable production and increases the availability of animal food protein in household daily diets through animal rearing and improved utilization through nutrition education at health centers.

FAMINE EARLY WARNING SYSTEM NETWORK (FEWSNET)

Organization	Districts	Strategies	Activities
ACDI/VOCA	Districts where partner NGO operate.		Grants manager for the 2001-2006 HIV/AIDS Title II LIFE initiative providing CSB and oil to 4 NGO providing care and support to PLWHA (WV, CRS, TASO, Africare).
AIC	In collaboration with MOH, operates 47 VTC sites in 22 districts. Support groups are located in Jinja, Kampala, Mbarara, and Mbale.	IEC, care and support	Provides support groups for street children, discordant couples, and sex workers. Provides care and support through four post-test clubs as well as "positive and public" support groups.
NACWOLA	Has an extensive network at AIDS support centers including all of the TASO centers, and Nsambya, Rubaga, Mengo home care programs. Also works in the north.	IEC, material support and food to home-bound women, IGA	Provides support and funding for women's self-help groups, life skills to women and children, and a range of IGA for women and children (rabbit, pig, heifer raising, and tailoring). Provides IEC through drama, publications, networking, advocacy, and capacity building.
NGEN+		IEC	Provides nutrition education and support, counseling, community sensitization.
THETA	Active in 7 districts – Kampala, Mukono, Katakwi, Mbarara, Kiboga, Hoima, Kamuli	IEC	Provides information about traditional medicine in Uganda and Africa and promotes collaboration between TH and biomedical health practitioners. Maintains an herb garden and is collaborating with TASO-Mulago on a clinical study of herbal treatments for HZV and chronic diarrhea.
UWESO	Has established branches in 34 of Uganda's 56 districts.	IEC, material support, IGA	Has evolved into the area of IGA to empower foster families to assist orphans in a sustainable manner.
UNICEF	5 (current) are Mulago, Masambia, Mengo, Lacho, Iganga, Arua. Expansion by the end of 2001 to Masaka, Jinja, Barara, Kabarole, Hoyma, Iganga	IEC	PMCTC - Currently provides a package of services to mothers attending antenatal care at five sites. Most receive AZT but mothers at Mulago Hospital receive nevirapine. By the end of the year it will be expanded to 13 sites and offer nevirapine in place of AZT which requires less sophisticated infrastructure and health monitoring of mothers. Women are counseled on infant feeding options.
World Bank		Providing institutional support, capacity building, and financial support.	Pledged US \$47.5 million to support the GOU's National Strategic Framework for HIV/AIDS for HIV prevention, AIDS mitigation, and capacity building. The total cost of the five-year National HIV/AIDS response is US \$181,466,030 (WB 2000).

USAID/CDC LIFE Model District Programs

The five-year, \$20 million USAID/Uganda and CDC LIFE model district program is expected to begin in May/June 2001. This initiative will support the development of “one stop” integrated HIV/AIDS service delivery centers in Uganda providing a continuum of comprehensive HIV/AIDS services. It is anticipated that there will be a combination of 10 “ready-to-go” districts that have supportive health infrastructures and HIV prevention and AIDS care services already established that can be enhanced, as well as “underserved” districts with very little infrastructure that will require major resource commitments. The four components of LIFE are primary HIV prevention, care and support, care for vulnerable children affected by HIV/AIDS, and capacity and infrastructure development. The purpose of this initiative is to facilitate the expansion and replication of Uganda’s successful examples of HIV prevention, VCT, and caring for people affected by HIV/AIDS (USAID 2000).

Prior to starting the LIFE district programs, the recipient of this cooperative agreement will be responsible for identifying gaps, addressing needs, recommending solutions, and coordinating and implementing innovative and comprehensive HIV/AIDS prevention and care model building on the existing infrastructure. Through LIFE, a variety of ASO and NGO partners will be identified. Among the array of services that LIFE can provide for PLWHA in selected districts are:

- Promoting access to prophylactic medications (e.g., pneumonia, anti-diarrheal, and TB) and anti-retroviral therapy combination (ART);
- Expanding PLWHAs’ knowledge of and access to complementary and alternative therapies through linkages with traditional healers (TH);
- Adopting and strengthening innovative strategies developed by communities in response to HIV/AIDS (e.g., succession planning for children in AIDS-afflicted families and community care approaches for orphans);
- Enhancing PLWHAs’ access to supplementary food baskets containing food aid commodities secured through Title II of the HIV/AIDS LIFE initiative; and
- Increasing PLWHAs’ knowledge about the role that sound nutrition can play in HIV disease management (through the provision of nutrition education and counseling) and supporting behaviors that reinforce these principles.

The section below describes some of these services that need to play a prominent role in order to support the LIFE objectives.

ART Access and Other Treatment Options. UNAIDS, in collaboration with the MOH and four pharmaceutical companies, launched a pilot project aimed at delivering improved access to HIV-related medical care in Uganda from 1998-99. Approximately 1,170 PLWHA have accessed to ART from five centers. Unless insurance covers their medical costs, most HIV-positive patients pay for ART costing an average of \$700/patient/year, which is still unaffordable for most Ugandans. There is also the issue of combination ART requiring close monitoring because it is complicated, is not effective for all PLWHA, and has many side-effects that influence medication compliance. UNAIDS is helping to establish a system that will support the safe and effective use of ART. This undertaking will involve improving the medical infrastructure, creating a reliable drug distribution system, and training to strengthen the capacity of health providers (Ochola et al. 2000).

The ratio of physician to patient is approximately 1:18,500 in Uganda, thereby necessitating more creative and accessible ways to deliver health care to PLWHA. Home-based care is one of the approaches that is proven to be successful and cost-effective and is built into the LIFE initiative. In the area of increasing access to community and home-based care, LIFE acknowledges the important role of the involvement and training of traditional healers (TH). TH may represent the first level of health care provider accessible and affordable to a large percentage of PLWHA in rural Africa. Traditional healers have a considerable amount of knowledge about the community and the people who live in it, they have an understanding of the culture in which they operate, and they take a holistic approach. These practitioners are accessible, accepted, and affordable to most Ugandans. If TH are well-utilized, they have the capacity to play a very important role in prevention and home-based care (DeJong 1991, Chipfakacha 1997).

Our consultation with the MOH suggests that as many as two-thirds (70%) of Ugandans may be utilizing TH services. Certain herbal therapies used by TH have been studied with the support of Medicins Sans Frontiers (MSF) and the Rockefeller Institute. Findings suggest that it may be helpful to alleviate AIDS-related symptoms especially to manage chronic diarrhea and herpes zoster virus (shingles).

There is a need to strengthen programs involving TH, to provide training to TH (including nutrition education and counseling), and to conduct further research on the efficacy of herbal medicines to mitigate symptoms related to opportunistic infections (OI). Traditional and Modern Health Practitioners together Against AIDS (THETA) is a local NGO in Uganda committed to improving health care and health promotion through collaboration among TH, medical practitioners and communities, and can be integrated into the LIFE Initiative. The director of THETA also works at the MOH.

HIV/AIDS Title II LIFE Initiative

USAID's Office of Food for Peace has agreed to a one-year amendment to ACDI/VOCA's DAP to provide approximately \$5 million in FY 2001 food aid resources, both direct distribution commodities and foodstuffs for monetization, with the objective of improving the quality of life of PLWHAs and their dependents. ACDI/VOCA will receive and review proposals submitted by NGOs already implementing HIV/AIDS programs and make awards of food and cash resources to provide food assistance to needy households and to strengthen household coping responses. The program will improve the household food security of the beneficiaries, and also give them access to the HIV/AIDS prevention, care and support services provided by these NGO partners. The Mission anticipates that the program will continue under its Integrated Strategic Plan 2002-2007, again in collaboration with ACDI/VOCA and local partners.

4.6 Nutrition Care and Support Guidelines for HIV/AIDS

HIV targets the human immune system making an infected person susceptible to a variety of opportunistic infections (OI) because of the body's inability to provide an immune response. Poor nutrition, and its complications, can make a PLWHA more susceptible to infection and reduce the effectiveness and tolerance to medications and other therapies (ADA 2000). The effects of HIV and its complications on the nutritional status of an HIV-infected person as well as the effect of compromised nutrition on HIV disease progression has been extensively studied over the past 20 years. Malnutrition has been identified as a cofactor for HIV disease progression, and nutritional status has been found to influence the survival of PLWHA. Salient findings related to HIV-associated malnutrition are summarized below:

- Deficiencies of micro- and macronutrients can adversely affect immune function (both cell mediated and humoral immunity) and other body processes.
- The rate of weight loss (greater than 33% of ideal body weight) and magnitude of muscle wasting (greater than a 45% loss of body cell mass) have been correlated with timing of death.
- Causes of weight loss are multi-factorial and can be attributed to one or more of the following factors: inadequate intake, altered metabolism, and malabsorption.
- The greatest weight loss occurs with active untreated secondary OI.
- The type of weight loss is associated with different OI
 - Acute loss is associated with *Mycobacterium tuberculosis* and *Pneumocystis carinii* pneumonia
 - Chronic weight loss is associated with *Mycobacterium avium* complex and *Cryptosporidiosis*
- Weight stability and weight gain often occurs after the treatment of OI.

The AIDS wasting syndrome is defined by the CDC as a 10% weight loss from baseline in a six-month period accompanied by diarrhea or fever for more than a month without a known cause. In Africa, AIDS wasting was first observed and called “slim disease” because of the rapid weight loss that accompanied untreated OI. Malnutrition, however, is currently not an AIDS-defining diagnosis (ADA 2000).

Although there is limited research on the potential role of pre-existing malnutrition to increase one’s susceptibility to HIV infection (Allen 1993, Kraak 2000), malnutrition has been found to contribute to child mortality through its potentiating effect on infectious disease as one-half of all child deaths in developing countries are estimated to be attributed to this effect (Pelletier et al. 1995). This is an important finding for policymaking because some developing countries may address food insecurity problems exclusively by increasing food supply (improving availability) even when that solution is inconsistent with scientific findings and knowledge of local conditions indicating that resources allocated for maternal care and reduction of infectious diseases could more effectively reduce malnutrition and promote child survival.

Another area for further research is to examine the possible complications experienced by people who are malnourished and HIV positive because they are more likely to also have coexisting morbidities (e.g., anemia, malnutrition, and tuberculosis) that influence drug-drug interactions, drug-nutrient interactions, and increases the risk of drug toxicities (Kraak 2000). This has important implications for the success of the LIFE initiative because some evidence exists that medication compliance is related to food access and utilization.

A recent study of HIV-positive Ugandan children found that stunted children had a greater number of HIV-related symptoms when compared to HIV-positive children of normal age, concluding that compromised nutritional status has a negative impact on the symptom severity and response to treatment of HIV-positive children (Rowland et al. 2000). This finding is relevant because of the high stunting prevalence among children living in rural areas of Uganda. According to the 1995 UDHS, national stunting rates are 40% among boys and 36.7% among girls. Stunting, which can be used as an indicator of poverty, is more prevalent in rural areas as revealed by 40.3% among boys versus 22.5% among girls.

The western region of Uganda appears to have the highest rates of child stunting at 42.8% versus 33.5% in the central region, 35.6% in the eastern region, and 41.9% in the north of the country.⁵

As was previously discussed, the rural areas tend to bear a large proportion of the cost of AIDS care as many urban dwellers often return to their home village when they become symptomatic with HIV disease. Food costs, health care costs, other material needs, and funeral expenses are frequently incurred by rural families. Compounding this problem is the fact that more than 40% of rural households live below the poverty line (UNHS 1999-2000), more than one-half (56%) of rural Ugandans do not have access to health services or safe drinking water (UNDP 1998).

Rationale for Nutrition Support in HIV/AIDS

Studies have suggested that early attention to maintaining good nutritional health and by providing early and aggressive nutrition support to correct deficiencies can improve medical management, minimize the severity of symptoms, promote a faster recovery from OI, and reduce the need and frequency of hospitalizations. Nutrition can enhance the overall quality of life of PLWHA by improving psychological well-being, reducing social isolation, increasing independence, and maintaining one's normal lifestyle as long as possible. An international survey of personal care strategies adopted by PLWHA worldwide found that more than two-thirds (71%) of PLWHA in developing countries ranked nutrition as their most important personal care strategy whereas PLWHA in industrialized nations ranked nutrition third after peer support and prayer (Mann and Tarantola 1996).

FAO research in East and West Africa reveals that the most immediate problem for many AIDS-afflicted rural households is not medical treatment but lack of food and poor nutrition (Topouzis 1998b). Thus, food security is a vital concern for PLWHA and AIDS-afflicted and -affected households in Uganda. All three aspects of food security are challenged by HIV/AIDS-related illness and death of adult household members. As the previous section on coping strategies indicated, households experiencing disability and death are less able to grow and/or harvest adequate amounts of food affecting *food availability*; households are less likely to have surplus crops to sell for increasing household income or to be engaged in IGA affecting *food access*; and households may have inadequate amounts of nutritious food for PLWHA and their family to consume for all members to remain in good health affecting *food utilization*.

The lack of national or regional consumption data precludes making any in-depth assessment of the dietary adequacy of the Ugandan population. However, anecdotal evidence obtained through this consultation suggests that dietary diversity is a problem for Ugandans, particularly for certain groups such as older men and school children. For instance, fruits and vegetables that are rich sources vitamins A and C (e.g., mangoes, paw-paw) have an important role to play in supporting immune function. These foods may not be consumed by men because of the cultural attitude that they are intended for children. Another example is that children may not receive adequate calories and/or protein within a household either because there is not sufficient food for all members, coupled with cultural practices where men and women eat before children.

⁵ For a more in-depth discussion about child stunting and wasting rates, please refer to the nutrition component addressing health and nutrition issues in Uganda (Shorr et al. 2001).

The UNHS (1999/2000) indicates that the average household in Uganda eats meat or fish at least twice a week. Examples of indigenous foods that are nutrient-dense are groundnuts, sim-sim seeds or balls, roasted soybeans, avocados, bananas, boiled eggs, milk, yogurt, fresh fruit juice, and dried skimmed milk to promote adequate calories and protein to maintain weight. Ugandans living below the poverty line may not be able to afford a diet that provides nutritional density and diversity, a point that becomes more critical for supporting the immune function of PLWHA in the absence of medications to treat HIV and OI. The provision of supplementary food—either through local or a combination of donated sources such as food aid—reinforced by appropriate and timely nutrition education and counseling, can be valuable in the overall management of HIV disease and a household's resiliency to cope with vulnerabilities to the risk and impact of AIDS if targeted carefully to needy households.

Nutrition Education Resources for Uganda

Feeding Guidelines for People Living with HIV/AIDS were developed by the MAAIF in October 1997 but have not been widely disseminated to NGO thus their application has likely been limited to clinical settings. In January 2001, the Academy for Educational Development in Washington, DC compiled *Nutrition Care and Support for Persons Living with HIV/AIDS and Other Affected Household Members*. This resource contains six modules encompassing basic facts about nutrition and HIV, coping with HIV, symptom management, traditional therapies and modern medications, special considerations for feeding infants and children, and designing the contents of a food basket.

Both the MAAIF and Academy for Educational Development's nutrition care and support guidelines contain valuable information. However, a simplified version of this type of guide is needed that draws from each resource and conveys concrete information more effectively so that program managers and technical staff of organizations for whom it is intended do not have to spend a great deal of time translating its contents into simpler messages for PLWHA and family members. Both resources are at a very high reading level and contain too much information that might hinder its accessibility for program staff. Additionally, the incorporation of graphics and photographs combined with simplified targeted messages such as those developed by other ASO for PLWHA in different settings (e.g., *Eating Right to Fight HIV, God's Love We Deliver*) could make it more functional for counselors, educators, and recipients.

Qualitative Nutrition Needs Assessment. If time and resources permit, it would be valuable to conduct a qualitative needs assessment utilizing participatory methods such as open-ended interviews, peer support groups, and/or focus groups to gain insight into the perceived nutrition needs, concerns, and interests of PLWHA, AIDS-afflicted families, orphans, and direct care providers including community health workers and home-based care staff. The results of a needs assessment would help to formulate concrete and culturally competent nutrition messages that are realistic, relevant, and practical based on the eating habits and life circumstances of the intended recipients in different settings (e.g., urban versus rural, regional) and that are also consistent with the Positive Living Guidelines endorsed by several indigenous grassroots ASO.

A revised resource may be able to serve a dual purpose of sensitizing staff of the implementing organizations to a broad array of nutrition issues specific to HIV disease in the Ugandan setting, reinforce aspects of the LIFE initiative, and also serve as an educational tool for PLWHA and their family members. It may also be appropriate to translate components of it into the local languages of the clients

served. Key messages could be delivered verbally through a variety of channels including home-based care visits, drama groups, and radio for limited literacy groups.

The National Guidance and Empowerment Network of People Living with HIV/AIDS (NGEN+) has formulated a proposal which has not yet been funded to explore the nutrition knowledge, attitudes, and practices of health educators and counselors at HIV service providing centers including AIC and TASO. The proposal could be modified and broadened to include PLWHA and family members with the intent to incorporate the results into more culturally competent care and support guidelines and/or an educational tool for recipients. Discussions held with staff at TASO, AIC, NGEN+, NACWOLA, and THETA during this consultancy reveal a high level of interest among these stakeholders to better serve their clients and to enhance the impacts of the Title II Life Initiative through improved targeted nutrition education materials.

Infant and Child Feeding Guidelines

The Nutrition and Early Childhood Development Project, also known as the Community and Home Initiatives for Long-term Development (CHILD), sponsored by the World Bank, contributes to poverty alleviation and building human capital by working with mothers and pre-school children to improve the health, nutritional, and cognitive status of their children in Uganda. This project has developed a series of engaging culturally competent materials for feeding infants and children that integrate issues related to HIV disease such as how to manage symptoms related to opportunistic infections, as well as preparing indigenous foods for promoting proper growth. These materials would be very appropriate to use or adapt, if possible, in the Title II LIFE as a great deal of effort has been invested in its development.

In 1997, UNICEF/WHO/UNAIDS developed policy recommendations on infant feeding for HIV/AIDS. In October 2000, the MOH drafted a document, *National Policy and Guidelines on Feeding Infants and Young Children of HIV Positive Mothers in Uganda* (MOH 2000c). The goal of both groups converge: to prevent HIV transmission through breastfeeding (as there is a 15% risk) while continuing to protect, promote, and support breastfeeding and ensuring the optimal nutritional status of infants and young children. Both institutions promote *exclusive breastfeeding* for at least 3 months but up to 6 months as the first choice for optimal infant feeding. The second option is heat-treated expressed breast milk; the third option is wet nursing; and the fourth option, depending on circumstances and the mother's choice, is the use of commercial infant formula, in accordance with the Ugandan code of Regulation of Marketing of Breast Milk substitutes.

4.7 Conclusions and Recommendations

The perspectives developed in this component suggest that HIV is still a problem in Uganda despite a marked decline in prevalence. The knowledge of HIV surveillance in all 56 districts is incomplete, especially for the rural areas and conflict regions where it is expected to be higher than urban sites. The LIFE initiative will provide support to strengthen the HIV/AIDS surveillance system in Uganda. The decline in HIV to 8.3% in 1999 needs to be viewed as a vulnerable success because of conditions that could lead to a second epidemic. HIV/AIDS needs to be placed within a broader developmental context. It has implications for national security, due to a steady rise in the number of orphans who may be at risk of being drawn into military insurgency groups because they may lack strong extended family support networks that are being strained by the impact of AIDS.

HIV/AIDS is increasingly being recognized as a multi-sectoral issue that has causes and consequences beyond the health sector. It may have potential ramifications for developmental strategies in Uganda and could affect the economic growth and poverty alleviation plans that are outlined in the PEAP. This is especially relevant for the 35% of the rural population living below the poverty line who are engaged in labor-intensive subsistence agriculture and for the majority, lack access to modern technology, extension services, and micro-finance institutions. These rural poor may be burdened by the health, economic, and social costs of caring for their HIV-positive relatives who often return to their rural villages when they become sick. Many factors contribute to an increased vulnerability to the risk of HIV infection as well as the impact of AIDS. Conducting a high and low HIV prevalence analyses of the potential implications of HIV/AIDS for the economic, health, social service, public/private, and educational sectors may be valuable to policymakers.

Studies of coping strategies of AIDS-afflicted and -affected households indicate that they are adopted to improve the food security situation, raise and supplement incomes to maintain household expenditure patterns, and compensate for the loss of labor. Household coping mechanisms often occur in stages over time and include the disposal of insurance assets, disposal of productive assets, and destitution. Studies of household and farm-level coping strategies in response to HIV/AIDS reveal that household structure, domestic work organization, and quality of life is diminished for hard-hit households. AIDS can reduce agricultural output and may cause a switch from cultivating cash crops such as maize to less labor-intensive subsistence such as yams and cassava. It is important to account for these factors because what occurs at the household-farm system level may eventually influence farming systems at regional and national levels and ultimately development plans.

Further research is needed to explore more systematically the (1) range and timing of coping mechanisms adopted by vulnerable groups in different contexts including conflict regions; (2) intra-household decision-making around the use of limited resources that may jeopardize food security; (3) indicators of vulnerability to HIV risk and AIDS impacts for different types of households; (4) critical points in time to target short-term food aid and material assistance in addition to providing longer-term livelihood support; and (4) strategies that strengthen existing support systems and community coping responses.

Implications and Recommendations for the USAID/Uganda ISP. PLWHA and certain AIDS-afflicted groups are especially vulnerable to livelihood and food insecurity and will require short-term assistance such as food aid through the Title II LIFE and access to health services through the model district LIFE initiative. LIFE could be greatly enhanced by improving access to traditional healers through groups such as THETA, and by ensuring that nutrition education and counseling plays a prominent role in both the Title II LIFE and the model district program. Nutrition care and support guidelines have been developed by various groups for Uganda. However, they could be enhanced through participatory research to formulate concrete and culturally competent nutrition messages that are relevant and practical based on the eating habits and life circumstances of PLWHA. A simplified version of the nutrition care and support guidelines could be integrated within the *Positive Living Guidelines* already being used by indigenous NGO.

Assistance to special AIDS-afflicted groups falls under the domain of SO 8 (HIV/AIDS, nutrition, and health-related services). The groups that will need special targeting of short-term relief or material support are PLWHA; families headed by single mothers, grandparents, and older children; families with

high dependency ratios and those having experienced a recent adult death; needy orphans, and foster families that care for multiple orphans.

These groups will also need vocational and livelihood skills training and linking up with longer-term IGA. However, some institutions may not be willing to give them credit or loans because their needs may outweigh their ability to repay loans. It will be necessary to develop creative strategies to help these AIDS-afflicted groups. The NGO working through the LIFE initiative are an important mechanism to: support group IGA so that a few close members will jointly share in the repayment of a loan; organize community groups that can enforce accountability for loan repayment; or, provide loan guarantees to PLWHA and AIDS-afflicted household members so that they can gradually rebuild assets that have been drawn upon or lost as a result of HIV/AIDS.

Members of AIDS-affected families may be better off than PLWHA and AIDS-afflicted households because they are more likely to repay loans. These families need to be targeted by mainstream economic development strategies to alleviate poverty and to promote food security such as those supported by SO 7 (economic growth and agricultural productivity). Special targeting to this group would enhance the IGA and MFI opportunities with the goal of asset creation to improve resilience to cope with the challenges posed by poverty and HIV/AIDS.

PLWHA and AIDS-afflicted households in conflict areas face unique circumstances that will require a combination of short-term relief (e.g., food aid provided by WFP) and longer-term livelihood skills training and IGA opportunities. The transition from relief to development in these areas is complicated. The short-term relief often drags on longer than anticipated without any exit strategy, or, relief provisions may undermine creating incentives for self-sufficiency and sustainability. SO 9 (democracy, governance, and conflict) could work more closely with NGO that promote capacity building and civic engagement among local stakeholders to help them gain a deeper understanding and personal investment in food security problems within these areas.

Finally, women and children in AIDS-afflicted households may lose their assets after the death of the breadwinner through property grabbing, and may have no recourse if inheritance laws are not enforced at the local level. The issue of land ownership and property rights is complex, varies across ethnic groups and cultures, is exceedingly bureaucratic, and may not be resolved in the short-term. Nevertheless, property disinheritance is a common occurrence and is related to AIDS deaths. This trend focuses renewed attention on this issue. Another recommendation would be for SO9 to work closely with the Ministry of Gender, Labor, and Social Development to support national legislation around inheritance, and to support the enforcement of domestic inheritance laws at the local level.