

**HOME GARDENS AS A FOOD SECURITY STRATEGY FOR HIV/
AIDS AFFLICTED AND NON-AFFLICTED HOUSEHOLDS:**

A CASE OF LYANTONDE DISTRICT IN UGANDA



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LIST OF ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
CBOS	Community Based Organizations
DFID	The Department For International Development
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GOU	Government of Uganda
HIV	Human Immunodeficiency Virus
HSRC	Human Science Research Council
IEC	Information, Education and Communication materials
IFAD	International Fund for Agricultural Development
IFSP	Integrated Food Security Programme Trincomalee
LC	Local Council
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries in Uganda
MADDO	Masaka Dioceses Development Organisation
NAADS	National Agricultural Advisory Services
NGOs	Non Governmental Organization
NOGAMU	National
OPM	Oxford Policy Management
PEAP	Poverty Eradication Action Plan in Uganda
PLWAs	People Living with HIV and AIDS
PMA	Plan for the Modernisation of Agriculture
RACOB AO	Rakai Community Based Organization
SPSS	Statistical Package for Social Sciences
SWAP	Sector-Wide Approach
UAC	Uganda Aids Commissioner
UNAIDS	The Joint United Nations Programme on HIV and AID
UNDP	United Nations Development Programme

SUMMARY

Gardening remains the most important method of food production for a majority of people in the developing world, yet high population density has put a lot of pressure on land more of it is required for settlement. High HIV/AIDS prevalence rates and drought have as well negatively affected food production, hence, resulted in food insecurity. In many parts of Uganda today food insecurity is of a great concern. Home gardening has then been identified as a means of providing all year round access to food for rural households. Home gardens can make a significant contribution in meeting daily household needs for better nutrition and health. A study was carried out among 80 HIV/AIDS afflicted and non afflicted rural households in Kinuuka and Kaliiro sub counties with the objective to determine the contribution of home gardens to food security at household level. Purposive sampling was used to get the respondents. The primary data was collected by use of a survey and interviews while visiting households after the survey was held. Interviews with other stakeholders' majority of who had agriculture education background were also held. The secondary data consisted of reports by local government structures and NGO's. The interviews with 80 respondents took place either in their homes or out in their fields and in a language of their choice as a mode of communication. Data obtained were analyzed qualitatively using SPSS computer software in order to have frequencies and descriptive statistics that were used to establish the pattern of findings.

Results obtained showed that home gardening was a very familiar concept to both households. The traditional home gardens were more prevalent than the promoted type of home gardens. Households that planted more than two types of vegetable crops were viewed and identified more in connection to HIV affliction. Adoption of promoted home gardening was more prevalent among the afflicted households a fact that was seen because most intervening organizations and health workers put emphasis on the contribution of vegetables to their wellbeing. By the fact that a majority of the respondents were women, home gardening situation at their households was better than for the males. However, female HIV/AIDS married afflicted households were generally food insecure and results showed that those affected, their husbands were not contributing to household labor. Results also show that the strong social ties that exist between extended families and kinship based networks over time get replaced. The implication here is that, most individuals find social support in villages and community based networks like from neighbors and church membership.

Though training played a role in engaging in home gardening, sustainability still remained as a challenge to the community. When monitoring and supervision of particular activities stopped due to limited funds by intervening agencies, beneficiaries tend to withdraw from the practice. Findings revealed that three quarters of those trained especially non HIV afflicted households did not continue with the promoted home gardens but rather preferred to scatter one or two crops in the banana plantation. The results also showed that there was no significant relationship ($p>0.05$) between the level of education and type of affliction. Neither was there any significant relation between the age of the household and gardening strategy. A significant relationship ($p<0.05$) existed between the marital status and source of household

income and between age and meaning of food security at household level. The implication was that as people grow older they attach more value to food security in terms of both members in the household having equal access to food for sale and household consumption. It was also found out that the market was an alternative source of food incase a household was food insecure.

The analyses of the findings suggest a need for action both from individuals and development agencies. The extensive training of both households on value of home gardening can be a critical intervention. The establishment of demonstrative sites at village level to act as educational sites, identification and training of village nutrition monitors within the community to ensure adoption and sustainability is another essential initiative. Retrieving culture on home gardening implies early involvement of the young generation on home gardening so that as they grow up, it becomes part of them.

Key words: Home gardening, household food security, HIV/AIDS, Affliction, Uganda

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CHAPTER 1: INTRODUCTION

1.0 Background to the study

This thesis explores the potential of home gardening as a food security strategy for HIV/AIDS afflicted and non-afflicted households alike. The thesis hinges on three building blocks: home gardening, food security and HIV/AIDS. The synthesis or analytical bridge between the three building blocks is the notion of livelihood.

The introductory chapter aims to elaborate shortly issues of home gardening, food security and HIV/AIDS and how they are seen to be productive, linked by numerous development agencies. The notion of livelihood will be explored in some detail in chapter two followed by the formulation of research questions and methodology. In chapter three the literature about the social and geographical profile of the research area is presented. Findings from the survey and discussion on impact of home gardening on livelihoods and food security is presented in section four and five. And finally the paper ends by giving the conclusions and recommendations for action.

1.1 Home gardens

Home gardens are considered a community's most adaptable and accessible land resource and are an important component in reducing vulnerability and ensuring food security, (Buchmann, 2009). Home gardens form an integral part of urban and rural livelihoods. For many generations, small plots of land near the homestead have been used as home gardens (Sigot, 2001). This production sites provide members of the household with direct access to a variety of nutritionally rich foods, which include roots, tubers, green leafy vegetables, condiments, nuts, legumes, fruits and livestock products (FAO, 2001). Whereas the practice of home gardening is a supplementary food production system and not the household's primary source of food, it is increasingly becoming popular with households but mostly getting attention from development agencies (Action Aid, 2005; Nordin, 2005; HSRC 2003; Steiner *et al.*, 2004). While developed countries exhibit high technological advancement in food production, gardening remains the most important method of food production for a majority of the HIV/AIDS afflicted and non- afflicted households in developing countries, Uganda no exception.

Mula and Gayao (1991) assert that the cultural value attached to home gardens has been reinforced by their important contribution to household food security over the past 50 years. Small-scales, intensive gardens utilizing many indigenous varieties and sustainable agriculture systems, are said to have an enormous potential to support HIV/AIDS afflicted households and their communities in many ways. Home gardens then fill major gaps in the food supply. These gardens are usually considered to be close to the home thus minimizing transport and inconvenience for the fragmented female gardener's workday. They are sites that people grow not only staple foods but where they also cultivate plants for income and for medicine (Gari, 2004, Nordin, 2005). Thus home gardens may be important to families in that they provide income and sustenance year-round from the diversity of crops contained within them which are harvested at different times.

1.2 Food Security

Gardens play a role in food security for many people but however for a number of households, this remains unattained. Research findings on food production in Uganda have shown that over the last decade there has been a decline in food production, while the population size has been increasing (Oniang, 2001). This has created a food gap, with 89% of the population being food poor and a majority of these people being in the rural areas. The issue of concern is why this is happening despite the focus of the country's food policy being to encourage food self-sufficiency as the means of achieving food security. Seasonal hunger has been rampant in many parts of Uganda year in year out during which household food needs are not adequately met. Some indicators of seasonal hunger at household level include depletion of food stocks; reduction in number of meals eaten daily and increased dependence on home garden crops (FAO, 2000). Achieving food security is definitely not easy. Food insecurity is primarily a distributional issue and a matter of getting available food to people who need it, when they need it, and of ensuring their regular, appropriate and affordable access to food. More broadly food security is threatened by war, poverty, population growth, environmental degradation, limited agricultural technology, ineffective policies and the HIV /AIDS epidemic (Rosegran and Cline, 2003). Food security is achieved not only by the supply of necessary food but also by linking from production to consumption that can supply food continually from one generation to the next. That is to say, sustainability that provides not only economic efficiency but also social and environmental protection is necessary for the food supply sector (Kiminami and Kiminami, 2006).

The food insecurity situation in Uganda has led to government and non-governmental agencies proposing the empowerment of individuals and households to intensify food production on the small lands available in order to achieve sustainable rural livelihoods and also aim at preventing the current situation from degenerating into a chronic state. The challenge of this thesis is to explore the role of gardening in providing food security.

1.3 HIV/AIDS

The HIV/AIDS epidemic touches the lives of millions of households in rural sub-Saharan Africa through direct infection or the indirect impacts of illness, care and mortality (UNAIDS, 2007). In doing so, it changes the nature of rural farm labour, livelihoods, and resources. Sub Saharan Africa, no doubt bears the heaviest burden of the epidemic accounting for 67% of those living with HIV/AIDS while about 75% of the AIDS related deaths. HIV/AIDS represents not only a health threat to the individuals, socio-economic threat to families and communities, but also destroys national developmental gains acquired with difficulty over decades. According to FAO (2005), HIV/AIDS is becoming a greater threat in rural areas, with the epidemic spreading with alarming speed into the remotest villages, negatively affecting production and threatening the very life of rural communities. Therefore, HIV/AIDS is and still remains a very big challenge to development and food security in particular. Households afflicted by HIV/AIDS experience a substantial income reduction of 40% to 60% (UNAIDS, 2008; 1999).

The epidemic threatens the food security of millions of people in terms of their capacity both to produce and to purchase their food. The decrease in a household's ability to produce food is due to the high death toll among productive adults (FAO, 2002; UNAIDS, 2008). For example a majority of those infected in Uganda are within the 15-49 age groups with a disproportionate number of women affected, and in particular young women. HIV/AIDS impoverishes affected families as it reduces their ability to produce and buy food. Poor rural families often sell their productive assets to care for afflicted members or pay funeral costs, thus compromising their future livelihoods. In households coping with HIV/AIDS, food consumption generally decreases (FAO, 2002). It is abundantly clear that HIV/AIDS makes a serious negative impact on agricultural production and food availability, which is felt in terms of both quantity and quality of food. All dimensions of food security - availability, stability, access and use of food - are affected where the prevalence of HIV/AIDS is high (FAO, 2001). The consequences of AIDS illness on agriculture include reduction in available labor for on-farm activities; land preparation, planting, weeding and harvesting of crops are delayed, which subsequently reduces crop yields. Household food availability becomes threatened since rural households obtain the bulk of the food they consume through their own production (Du Guerny, 2002; Barnett and Whiteside, 2003). Labor constraints in HIV/AIDS afflicted households can result in a decrease in the diversity of field crops cultivated and in abandoning the more labor-demanding yet more nutritional crops (De Waal and Tumushabe, 2003; Gari, 2003).

The decrease in the labor force, workers' productivity, agricultural outputs, skills, support services and overall economic growth may well lead to a decline in national food supplies and a rise in food prices, culminating in greatly reduced food security, particularly at the household level (FAO, 2002).

1.4 Uganda's response to HIV/AIDS in the Agricultural sector

Uganda's HIV/AIDS response has commonly been described as 'open' in many ways, with numerous groups such as NGOs, church-based organizations, donors and self-help groups operating alongside government interventions in the county (Parkhurst, 2001). The primary focus is on agriculture because the sector is less able than others (the education sector and health sector) to absorb the human resource losses associated with the pandemic. As a result, the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF), was mandated to develop guidelines for mainstreaming HIV/AIDS responses in the agricultural sector (MAAIF, 2003). The aim was ensuring that HIV/AIDS initiatives in agricultural sectors are mainstreamed in programs of the sector at all levels; national and local Governments. The implication would be that, HIV/AIDS sector initiatives are incorporated in to agricultural extension work plans, implemented and monitored to enable full sector response to HIV/AIDS pandemic.

As a response to the multi-sectoral approach towards HIV/AIDS of the Uganda AIDS Commission (UAC), MAAIF has developed a Plan of Action that concentrates on training of agricultural extension staff in dealing with HIV/AIDS in farming communities. As part of the development, MAAIF has appointed an HIV/AIDS Task Force to support the focal point to the UAC with representatives from various stakeholders such as the Department of Animal

Resources, Planning, Crop Production, Fisheries and Extension. The initial takeoff stage for implementing the above was to empower the agricultural extension workers throughout the country Lyantonde district inclusive, with skills and knowledge on various areas of HIV/AIDS. With trainings, the agricultural production staffs are then seen to be having competent skills required to handle the impacts of AIDS epidemic on agricultural production.

1.5 Research Problem

Vitamin and micronutrient deficiency in human diet are becoming severe problems in the developing world. Many populations subsist on diet based on staple plants that are lacking in diversity, which contributes to micronutrient deficiency and further results in severe diseases especially in young, pregnant women, children and HIV/AIDS infected persons (Chadha and Oluoch, 2003). Lack of vegetables and fruits in an individual's diet would imply that there would be deficiency in iron and vitamins. The HIV/AIDS epidemic is having a major impact on nutrition, food security, agricultural production and rural societies in many countries especially where the prevalence of HIV/AIDS is high. This research then aims to investigate the contribution of home gardening practice on food security among the HIV/AIDS afflicted and non afflicted households in Lyantonde district given a fact that mal-nutrition and seasonal hunger prevail among the vulnerable groups in the study population.

1.6 Rational of the Study

Home gardens are seen as a promising entry point for interventions aiming at supporting afflicted and non-afflicted households (Niehof and Price, 2008). Home gardens are said to have the potential to enhance the nutritional value of the daily menu of both affected and poor households. It also increases the household income and plausible strategies to help households who have lost labor, income sources and practical knowledge to better manage their scarce capital, to enhance nutrition for HIV afflicted individuals and to help ensure food and livelihood security for both households. The land under crops in Uganda is being cultivated primarily by small-scale farmers, with an average farm size of 2.5 ha (Zake *et al.*, 1999). Poverty Eradication Action Plan (PEAP) is one of Uganda Government's national goals. The Plan for Modernization of Agriculture (PMA), launched in 2000 is Uganda's strategic and operational framework for poverty eradication and improving food security situation among the households.

Key concepts

HIV/AIDS afflicted and non-afflicted

HIV/AIDS afflicted household in this study referred to a household where at least one member suffered from confirmed HIV/AIDS infection and or had orphans within the household whose parents had died of confirmed HIV/AIDS infection.

Non-HIV/AIDS afflicted household was one in which no member was known to have HIV/AIDS infection, (Barnett and Blaikie, 1992)

CHAPTER 2: THE THEORETICAL FRAMEWORK AND RESEARCH METHODOLOGY

2.0 Introduction

This chapter lays the analytical foundation for the analysis of impacts of HIV/AIDS on food availability for the households and impacts that it has on livelihood security in the study area. It also highlights the methodology that was used to collect data from the respondents and the key informants.

2.1 The Sustainable Livelihood Framework

This study has adopted livelihood perspective. The important feature of this notion is that it helps to link between assets and the options people have in practice to pursue alternative activities that can generate monetary and non-monetary sources of income required for survival (Ellis, 2000). HIV/AIDS strips individuals and households networks of their different assets: capital, human, financial, social, physical and natural. HIV/AIDS reshapes the pool of resources that people use to make a living and to remain or become food secure. The HIV/AIDS epidemic does not only reform the pool of resources but it also affects the interrelations between the resources people use or have access to. All this is based on the assumption that a livelihood is based on the use of resources and the internal consistency and interconnectedness as a key to survival and a good and prosperous livelihood. If the resources become unbalanced and begin to lose their interconnectedness, people or livelihood makers become vulnerable and lose their ability to remain food secure. Food insecurity is their fate. This thesis shows that the livelihood frame work is viewed as a useful tool as it can describe and visualize the livelihoods of those HIV/AIDS Afflicted and non-afflicted households.

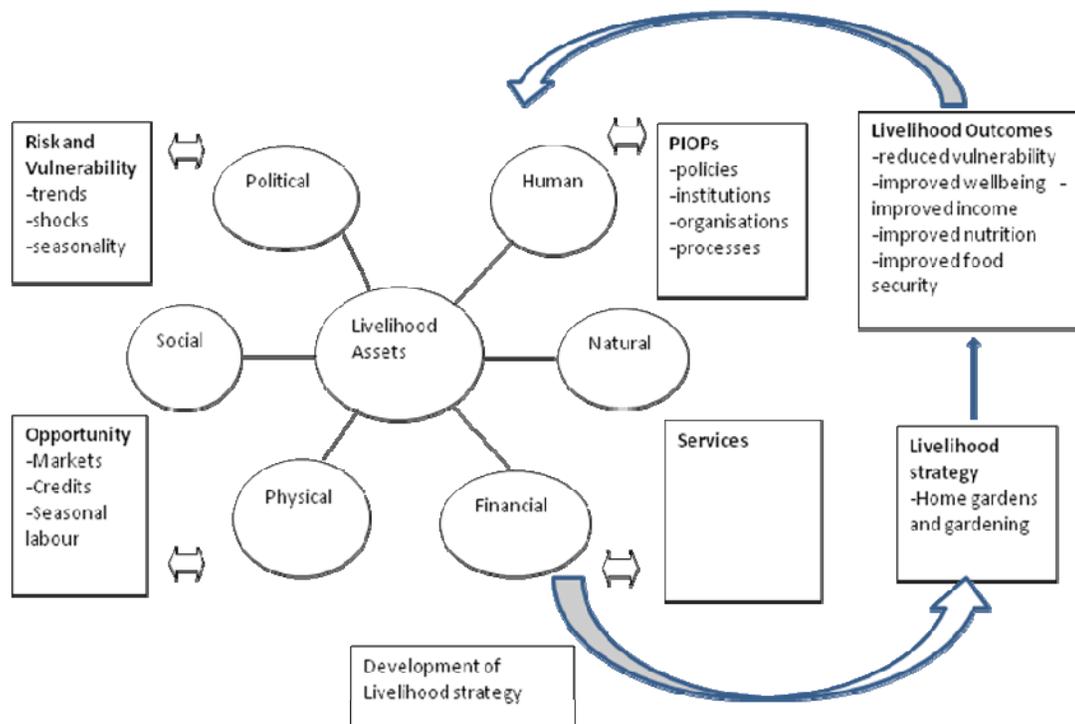


Figure 1: Sustainable Livelihoods Framework

Source: Sustainable Livelihoods Guidance Sheets (DFID, 2007)

A livelihood represents the interaction between assets and transforming processes and structures that generate a means of living, all conditioned by the context that individuals find themselves in (Carney, 1998). The notion of livelihood provides the opportunity to discuss the assets as well as the ways in which people manage them in co-operation and competition with others (Hebinck and Bourdilon, 2002). A livelihood is then sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base (Chambers and Conway, 1992).

DFID 2007 differentiates between three groups of components in the livelihood framework: (1) the Asset Portfolio forming the core element of livelihood, (2) the Vulnerability Context and Policy, Institutions and Processes, and (3) the loop linking livelihood strategies and livelihood outcomes. The Vulnerability Context of Livelihoods refers to shocks, trends and seasonality with their potential impact on people's livelihoods, while Policies, Institutions, organizations and Processes (PIOPs) on the other side comprise the context of the political and institutional factors and forces in government and the private and the civil sectors that affect livelihoods.

The livelihoods framework (Figure1), assumes that people pursue a range of livelihood outcomes such as health, income, reduced vulnerability and others by drawing on a range of assets to pursue a variety of activities. The activities they adopt and the way they reinvest in

asset-building are driven in part by their own preferences and priorities. People make certain value choices in their pursuit of a livelihood. However, they are also influenced by the types of vulnerability, including shocks (drought and sickness), overall trends for instance, resource stocks and seasonal variations. Options are also determined by the structures such as the roles of government or of the private sector and processes such as institutional, policy and cultural factors which people face. In aggregate, their conditions shape their access to assets and livelihood opportunities, and the way in which these can be converted into outcomes.

The framework identifies five types of capital assets which people can build up and or draw upon: human, natural, financial, social and physical. These assets constitute livelihood building blocks. To a limited extent they can be substituted for each other. Thus, the poor may draw on social capital such as family or neighbourhood security mechanisms at times when financial capital is in short supply.

Within this context, people are likely to pursue multiple activities and outcomes. They may, for instance, depend on their own farming, on selling their labour locally, or on migration, all within the same year (DFID, 2007). Outcomes will not be simply monetary, or even tangible in all cases. They may include, for instance, a sense of being empowered to make wider, or clearer, choices. This strategy has some positive outcomes on the livelihoods of the people for example reduced vulnerability to food insecurity; incomes improve, and also improved nutrition and wellbeing (as given in the right-hand box of Figure 1). The outcomes have an influence on the livelihood assets and in turn the assets can be affected by the vulnerabilities and risks and the reverse. Due to better livelihood assets, the people can take advantage of the opportunities that exist and in turn this can lead to improved assets, (DFID 2007).

2.2 HIV/AIDS and Livelihood assets

The HIV/AIDS epidemic in sub Saharan Africa is increasingly becoming one of the major impediments to sustainable development. The increased mortality and morbidity of prime-age adults caused by the HIV/AIDS pandemic has brought wide ranging socio-economic impacts on all aspects of rural livelihoods that includes erosion of food security, the livelihood asset base and other productive assets thereby exacerbating poverty (Mutangadura, 2005). It is widely acknowledged that the impacts of HIV/AIDS on rural livelihoods are not gender neutral, they deepen and widen existing gender inequalities. HIV/AIDS affects food security and livelihoods in very different ways for different households. The impacts will vary according to the assets of the household, its demographic composition and the circumstances in question i.e. whether they are affected by the chronic illness of a member, the recent death of a member, or whether they are supporting orphans (O'Donnel, 2004). The mechanisms by which households are affected are best understood considering impacts on each of the different types of assets available to the household. During chronic illness the main effects are: loss of labour due to illness; loss of labour due to increased caring; increased requirements for spending on healthcare. Death leads to an immediate loss of labour, but can lead to other changes in household composition that can positively or negatively affect labour availability (O'Donnel, 2004).

There can be changes in livelihood patterns as remaining members try to optimise their available assets. This can lead to successful coping, or following a period of unsustainable response (e.g. by selling productive assets) could ultimately result in the dissolution of the household. The economic effects of taking in an orphan depend on the existing composition of the household and then on the age, gender and skills of the incoming orphan, which determines the net contribution of the orphan to the household (O'Donnel, 2004).

Recent research on livelihoods in rural Africa has highlighted the crucial role that assets play in anchoring livelihoods and imposing constraints on the repertoire of livelihood strategies open to different households (Ellis and Freeman, 2002; Ellis *et al.*, 2003; Mcdonagh, 2002). Although the most immediate impact of HIV/AIDS falls on human capital, the epidemic equally depreciates other categories of a household's livelihood assets—financial, social, physical and natural.

- With respect to human capital, the AIDS epidemic generates new poverty as affected households suffer reductions in total income owing to illness, the diversion of household resources to caring for those affected or total loss of income due to death of a breadwinner (Serpell, 1999). AIDS -related illnesses also have a depressing effect on overall labour productivity due to absenteeism by the ill or care-giving and attending funerals by the healthy.
- The HIV/AIDS epidemic also negatively impacts the household's financial capital. When faced with the costs associated with increase in morbidity and mortality due to HIV/AIDS, households cope by using up savings, borrowing money, taking additional debt at penal rates of interest or searching for additional sources of income (Koestle, 2002). Similarly, debilitating HIV/AIDS-linked illness also contribute to the erosion of physical and natural capital. When households deplete their financial assets, the next step in the course of impoverishment is to dispose of unproductive assets (a reversible strategy) before finally disposing of productive assets like land, draft animals and equipment (Mutangadura, 2000).
- The AIDS epidemic also depreciates social capital in that death and sickness erode social networks. In the AIDS era, the rate at which friends and relatives are lost is very high making the maintenance of the kin group more difficult. In addition, since AIDS may result in social exclusion resulting from stigma on the part of those affected by the HIV or fear others may have of AIDS-related illness, some cultural and social events may change because of the risk of HIV/AIDS or become less attractive to those afraid that social activity may spread the virus (Seeley,2002). Similarly, due to traditional inheritance patterns and economic subordination of women, AIDS-induced transformations of the household may not only worsen pre-existing gender inequities but the loss of a breadwinner may result in the dissolution of an entire household.

2.3 HIV/AIDS and Vulnerability

HIV/AIDS makes it difficult for the afflicted households to use their assets to the fullest potential. The HIV/AIDS impacts on the available labor, land and other resources to produce adequate food. It drains the financial resources to invest on land and other productive assets. Vulnerabilities will increase in quantity as well as intensity. More analytically, HIV/AIDS upsets and affects the consistency in the relations between the resources as well as the potential to use them. Vulnerability is a concept that combines exposure to a threat with susceptibility or sensitivity to its adverse consequences. Vulnerability may be defined as the potential for loss, (Luers *et al.*, 2003) and it is always said to have two sides; an external side of shocks and perturbations to which a system is exposed, and an internal side which represents the ability or lack of ability to adequately respond to and recover from external stresses (Chambers, 1989). It regards the ability of households to cope with the effects produced by shocks. The ability to cope depends on the household's or individual's capacity to deal with the crisis as well as the existence and magnitude of other shocks at the time of the new crisis which in this case is food insecurity.

In this research, vulnerability regards the ability of households to cope with the effects produced by food insecurity. The ability to cope depends on the household's or individual's capacity to deal with the crisis as well as the existence and magnitude of other shocks. According to the report by NAADS (2001), it relates the level of vulnerability to food insecurity impacts to household characteristics like; wealth status, household size, age of household member or head, household asset base, the length of time the household member has been sick, nature of support net work engaged, community characteristics (that is socio-economic and socio-political factors). The situation is complex, and means that the service providers should give more attention to and respond more to the problems households affected by AIDS face in trying to meet their food and income needs.

One explanation to the vulnerability to food insecurity can be found in the growing population in some parts of the country. For example, the average population density in Uganda is 85 people per square kilometre. Nevertheless population densities reach up to 300 people per square kilometre in the south-western highlands. As non-agricultural livelihoods are limited and out-migration is not attractive, more people compete over the same area of land. This implies then that most households are not able to effectively produce enough food to sustain them all year through. The fate is seasonal hunger. One other possible consequence is land fragmentation. Pressure on land resources due to rising population densities has reached critical levels in most of the Ugandan highlands. If the quality of natural resources is low, then its vulnerability to weather shocks increases. For example, unpredictable weather and erratic rainfall has disrupted farmers' traditional cropping calendars over the past decade. Unreliable precipitation has been observed in areas with unimodal and bimodal rainfall pattern. Unexpected dry spells following the first rains is a frequent cause for crop failure. If farmers lack sufficient amounts of stocked seeds and planting material, the ability for replanting is limited. Under such conditions farmers tend to become more risk averse rather than increase agricultural productivity and in return their livelihood security is threatened.

2.4 Food security, food insecurity and HIV/AIDS

The International Fund for Agricultural Development (IFAD) defines household food security as the capacity of households to procure a stable and sustainable basket of adequate food (IFAD, 1996).

It incorporates the following:

- Measures to enhance and stabilise household access to and availability of food across seasons and transitory shortages
- Activities that would sustain food supply in the long term and
- Constant attention to the adequacy of food while complying with nutrient and safety requirements and cultural preferences.

Households are said to be food-secure when food availability, equal access to food, stability of food supplies and quality of food are in balance with each other. For rural households, the equitable availability of stable quantities of nutritious food depends on:

- Food production using mainly family labour, land and other resources
- Food purchase using household income
- Assets that can be quickly turned into food or cash as necessary and social claims on others through custom and societal structures such as family and community networks.

However, all aspects of this are affected by both the household-level impact of HIV /AIDS and the wider impacts of a generalised HIV/AIDS epidemic. HIV/AIDS threatens and transforms the asset base of the afflicted. The FAO recognizes that the HIV/AIDS epidemic is slowly eroding food security, ravaging rural livelihoods and exacerbating poverty. In many rural areas, it is clear that the HIV/AIDS epidemic has contributed seriously to expanding poverty and increasing food insecurity. The tragic irony is that the AIDS erodes the main assets of the poor, their time and their labor capacity. Malnutrition leads to faster progression from HIV to AIDS, and poverty and food insecurity can lead to risky survival strategies which then again increase the risk of HIV infection – completing the deadly cycle. The demographic projections for Lyantonde district with high HIV prevalence rate, the epidemic is likely to have the following effects on the household food and livelihood security:

- Increased food insecurity in HIV/AIDS afflicted households as a result of loss of productive labour and through morbidity, mortality and diversion of the labour through caring for the sick.
- Increased rural inequality as a result of disproportionately severe effects of AIDS on poor households; AIDS strips families of their assets and income earners.
- A reduction in household assets and wealth, leading to less capital-intensive cropping systems for severely affected communities and households; and thus further impoverishing the poor and making the more vulnerable to HIV and other shocks.

- Problems in transferring knowledge of crop husbandry and marketing to the succeeding generation of farmers.

Food security as a term in this research is used as a condition resulting from the ability of a household to produce own food and have other financial resource opportunities to access food incase what a household produced is not sufficient enough. Household food security is therefore influenced by social vulnerability factors such as household health, household composition, household head (female head or child head) and availability of labor and social standing in the community and culture.

However, it is also assumed that, there is enough food on our planet to assure everyone of an adequate supply of food, yet this does not guarantee food security for all. More than 180 million people in Africa cannot lead a healthy life because they do not have enough to eat (FAO, 2002). Food security as against food production is concerned with access to food. If food is in fields or in the markets, but families cannot afford to acquire it, then they are food insecure. A household is food secure if it can reliably gain access to food in sufficient quantity and quality for all its members to enjoy a healthy and active life. Lack of availability of and access to food are the key behind food insecurity and it remains a central concern for most countries (MAAIF, 2005). Food insecurity however exists whenever food security is limited or uncertain. Broadly speaking, food insecurity is seen less as sufficient global and national agricultural food production, and increasingly as livelihoods that are sufficient to provide enough food for individuals and households (Maxwell, 2001).

Sen (1981) understands food insecurity from a failure in entitlements that are a right to obtain sufficient amounts of the food that is available. He argues that people go hungry because of the breakdown in the relations governing their access to food, following a shift in exchange mappings or a loss of possessions. The entitlements fall in four categories for example: ownership through commodity exchange (commodity based entitlements), the right to own what one grows in the farm (production based entitlements), the sale of one's labor power for the purposes of earning an income so as to purchase food (own labor entitlements) and the right to own what is given by others (inheritance and transfer entitlements).

Particularly in rural Uganda, agriculture and the market system are important components of whether individuals and households can be food secure. However, poverty constrains the ability of farming households to invest in productive assets and agricultural technologies. Moreover, poor market systems result in high costs of inputs and low prices for farm outputs, providing poor economic incentives for farmers to invest in yield-enhancing sustainable agricultural production systems. Moreover, for both rural and urban Ugandans, stable access to food through the market requires that the food marketing system is effective in supplying food, while also providing benefits to farmers who have food to sell. Yet efforts within agriculture alone, if conducted in isolation from activities in other sectors such as marketing, health and education, will not bring food security to the many under-nourished Ugandans, (MAAIF, 2005).

2.5 Age, gender and HIV/AIDS

HIV/AIDS affects both sexes but is not gender neutral. Gender inequality is both a factor fuelling the epidemic in rural areas, and is further exacerbated by the impact of the epidemic. In the age group of 15-19 years old, the prevalence rate for girls is four times higher than for boys (UNAIDS, 2007). HIV/AIDS worsens gender-based differences in access to land and other productive resources like labor, technology, credit and water. Typically, female-headed households, and increasingly children-headed households, have less access to such productive resources, (Ekaas, 2003). These gender differences become more acute when productive resources are eroded thus make female and children-headed households the most vulnerable of the rural poor. Furthermore, HIV/AIDS disproportionately adds to women's workload as, in addition to their productive work, women are expected to be caregivers when people are sick.

2.6 Research Objective and questions

The objectives of this study are to:

- Investigate if the practice of home gardening contributes to food security among the HIV/AIDS afflicted and non afflicted households in Lyantonde District of Uganda.
- Examine the asset base of the HIV/AIDS afflicted and non afflicted households.
- To investigate how home gardens improve the composition of asset bases of the HIV/AIDS afflicted and non afflicted households
- To explore the coping strategies due to shocks and vulnerabilities among the afflicted and non afflicted households

These objectives will be addressed by the following research questions:

- What is the contribution of home gardening practice to food security among the HIV/AIDS afflicted and non afflicted households in Lyantonde district?
- What is the asset base of afflicted and non-afflicted households composed off?
- Do home gardens improve the composition of the asset bases of the HIV/AIDS afflicted and non afflicted households?
- Is there a difference between coping strategies due to shocks and vulnerabilities among the HIV/AIDS afflicted and non afflicted households to food security in Lyantonde district?

2.7 Research methodology

This section highlights how the data was collected and analyzed, reasons for the choice and appropriateness of the research method, in order to answer the research questions and full fill the objective of the study.

2.7.1 Planning and Study Area

The first stage involved preparation and clarifying the research proposal with the research supervisor, plenary presentation to the students (course mates) plus consultations from fellow

students. The study was then conducted in Lyantonde district which has got a high sentinel surveillance of 12% which is higher than the national level of 6.4% (RACOBAAO,2008).This percentage represents a category above most of the rural districts of Uganda. Besides, most of the occupants of this district are pastoralists and they occupy semi arid area that makes especially the men to move to near by places/districts in search for water and pasture for the animals. Because of their occupation and the nature of the area, it places them at a very vulnerable state of contracting HIV and food insecurity (seasonal hunger). This can be because when they move to another place/district, they are most likely to have other sexual partners and their labor towards food production is missed placing the household to a vulnerable state not only to food but also HIV infection.

2.7.2 Target Population

The target population of this study was two sub-county based National Agricultural Advisory Services (NAADS) extension staff, one coordinator of an Association that deals with orphans and widows, the district Agricultural officer and one agricultural extension staff in a community based organization. The choice of these respondents was because they are at the fore front in making decisions that affect household food security. The researcher was also interested in finding out how they contribute to food security among the HIV/AIDS afflicted and non- afflicted households, what action they have taken to reduce HIV/AIDS impacts on agricultural production at household level, how they promote home gardening, who their target is and why that (their) choice.

The researcher also got information from 32 HIV/AIDS afflicted households and 48 HIV/AIDS non- afflicted households. The choice of the respondents was however purposive implying that a total of 80 households chosen for in-depth interview meant basically those households that had home gardens.

Table 1: Summary of identified respondents

Category	Number	Type of response
HIV/AIDS afflicted HHS	32 (8 males,24 females)	Respondent
Non HIV/AIDS afflicted HHS	48(13 male,35 female)	Respondent
District Agric officer	1 male	Key informant
NAADS Agricultural Extension Officers	2 (male and Female)	Key informant
Founder of Widows and Orphans Development Association	1 male	Key informant
Agricultural extension staff with CBO	1 male	Key informant

Source: Researcher 2010

2.7.3 Data Collection

The total period of data collection spanned three months during which primary and secondary data was collected. The primary data consisted of a survey and interviews while visiting households after the survey was held. Interviews with other stakeholders were also held. The secondary data consisted of reports by or from local government structures and NGO's with

the intension of getting a clear understanding of food security, HIV/AIDS and home gardening situation in Lyantonde district. In-depth interviews were conducted with the aim of collecting life narratives. Relevant information was collected through informal discussions and field visits paid on a regular basis to informants in their homes. Semi-structured interviews were employed as a means of collecting data. Open-ended questions were posed and a number of standard cues put to the respondents who were free to respond in their own words. Respondents were interviewed in a language of their choice, in their homes and or outdoors in their gardens. The interviews lasted approximately one hour.

In terms of the real content of the interview, a wide range of issues relating to gardening was covered. Interviewees were probed to describe their experiences as garden cultivators, especially the benefits obtained from the gardening, the obstacles encountered in gardening, the contributions made by gardening to their livelihoods and the motivations for taking up gardening. This study was gender sensitive implying that both men and women were purposively selected to participate in the interview implying that stratified sampling was a method used to sample the respondents.

A semi structured questionnaire was administered to HIV/AIDS afflicted and non-afflicted households with the intension of getting to know their understanding on the meaning of food security, the coping mechanisms, benefits and constraints of home gardening. Observation was yet another tool used to gather the information.

2.7.4 Survey

A pretest exercise of the questionnaire was done on three respondents in Lyantonde Rural Sub County before the final survey that was done in Kinuuka and Kaliiro sub counties in Lyantonde district on 80 respondents from HIV/AIDS afflicted and non-afflicted households. Different categories of households (male headed, female headed, HIV/AIDS afflicted and HIV/AIDS non-afflicted) were interviewed. However, many of the persons that were interviewed were women even in instances of male headed households and if it so happened that the husband was around in their home or out in the fields working with other household members, they would prefer the wife to be interviewed. On occasions that the men were interviewed, they would talk less, continuously said *“I do not know. Ask the wife because she is the one who is more involved in household food production and cooking”*, said one male respondent during one on one interview 2010. This is indicated by the 59 women interviewed as compared to only 21 men. This however supports the idea that three quarters of the women contribute to agricultural sector.

Table 2: Summary of different categories of households interviewed

Affliction	Female headed household	Male headed household
HIV/AIDS afflicted	17	15
HIV/AIDS non-afflicted	14	34
Total	31	49

Source: Household survey 2010

Due to the sensitivity of the HIV/AIDS topic, the questionnaire was administered in accompaniment with staff from the host organization that implements both food security activities and HIV/AIDS for both afflicted and non-afflicted households. The field staff of the host organisation selected all the 80 respondents and they too acted as translators for the researcher.

The second part of the data collection process involved one case study in which key informants were interviewed using a checklist of questions. These key informants included at least two Sub County NAADS Extension staff (one female and one male); Agricultural Extension staff from CBO working with HIV/AIDS affected households, 1 Co-ordinator of Orphans and Women Association and acting District Agricultural Production officer.

2.8 Units of analysis

The unit of analysis for this study was the household and the members of that household. The household has been taken as a point of departure in many livelihood focused studies. It is claimed that the household fulfills an important role in generating a livelihood and providing food and shelter for its members. The household is taken as the unit of analysis because it is assumed that decisions about production, investment and consumption are taken primarily at the household level. In many studies of the organization of rural life in developing countries, the household is often referred to as a unit in which production and consumption as well as reproduction and residence take place (Carney, 1998). In the West, the 'normal' household is the conjugal nuclear family, which derives from a bilateral descent pathway, whereas in African context, households are based on patriarchal command in patrilineal extended households (Naidu and Harris, 2006). This means a much wider range of possibilities for residence in a physical household, as well as for who is expected to contribute to the pool of resources which sustains its residents and who is entitled to use these resources. Taking this into consideration, the units of analysis for this study are:

- The household
- The members of that household
- Social relationships between members of that household and
- Social relationships between members of other households.

2.9 Data analyses

Data were entered into Excel sheet every day after administering questionnaires on the field to prevent loss of data and it was continually checked for precision and reliability. It was then coded and imported into SPSS (Statistical Package for Social Sciences) for further analyses in order to have frequencies and descriptive statistics that were used to establish the pattern of findings. Chi-square tests were used to ascertain the significant relationships that existed between the different variables.

2.10 Limitations of the study

The timing of the research was not appropriate because that was a period when the region experiences drought and most home gardens had dried up. Besides, the male respondents were not able to fully express themselves in terms of food security situation in their household, let alone not being free to share their HIV status with a third party. On several occasions they called upon their wives to ask for the response or continuously said I do not know. Involving the males to freely express themselves on food security issues remains a big challenge because the concept is more looked at as a female activity.

CHAPTER 3: SOCIAL AND GEOGRAPHICAL PROFILE OF THE RESEARCH AREA

3.0 Introduction

This chapter sets a background for the research zooming in from the national level to district level. It highlights the problematic issue that impinges on national development of the country and Lyantonde district in particular. It also presents the geographical, social economic profile of the district.

3.1 HIV/AIDS in Uganda

Uganda is one of the regions that have suffered from a lot of disasters and the worst is the influx of HIV and AIDS epidemic that threatens to reverse the gains made towards human development over the past decades. The potential damage of the pandemic becomes considerably worse in the country like Uganda which is still recovering from wars and natural disasters ranging from floods, droughts and pest infestations which have occurred in the last decade. Though considerable efforts have been made in ensuring that vulnerability of households affected by drought and consequently food insecurity is minimized, there is need to revisit the interventions in terms of the consequences that HIV and AIDS pandemic has caused in places like Lyantonde where the prevalence rate of the disease is higher than the national level. Rural development programmes and efforts have had to take new dimensions as it has become necessary to integrate HIV/AIDS in the design of interventions to address poverty. Similarly, small-scale agriculture has had to adapt to the various challenges and constraints to productivity that are a result of the pandemic.

Many HIV/AIDS afflicted households depend on agriculture for their livelihood in sub-Saharan Africa. HIV/AIDS often reduces agricultural productivity and threatens household food security (UNAIDS, 2008). The situation of food insecurity and income degeneration is further aggravated by loss of productive labor, loss of income, loss of food reserves, savings and assets which are diverted to meet health care and funeral costs. Additionally, educational opportunities are reduced as children are withdrawn from school to care for the sick or to do odd jobs for extra income. Reduced levels of nutrition have been found in poor households (UNAIDS 1999).

Uganda in particular has been affected by HIV /AIDS epidemic since 1981 when the first case was discovered in Rakai district. There after the HIV spread quickly in major urban areas and along highways and by no doubt in 1986, HIV had reached all districts in the country, resulting to what is classified as the generalized epidemic. Uganda is now considered to be in the late stages of the HIV/AIDS epidemic (Granich and Mermin, 2001 and Mermin, 2001), as adult prevalence rates have dropped from 18% in the early 1990s, to 6-7% today. While the proportion of infected people and the rate of spread of HIV/AIDS are decreasing, many people are still affected by the epidemic with devastating health,

psychosocial and economic consequences. It is also the leading cause of death amongst 15 to 49 year olds and contributes to an estimated 1% reduction in GDP each year (UAC, 2003).

With a population of almost 33 million, Ministry of Health estimated that by the end of 2000, 2 million people had been infected with HIV and an estimated number of over 1.1 million people living with the disease while close to 900,000 have died since the onset of the AIDS epidemic, Uganda is no doubt severely affected by AIDS.

According to RACOBABO organization profile 2008, the prevalence of HIV in Lyantonde district (the study area) as per 2007 was however estimated at 12% which is higher, than the national average. Despite a huge investment in IEC relative to HIV prevention, the rate at which people are changing behaviors is still low. Subsequently more people especially women continue to be infected.

3.2 Social Economic Trends of HIV/AIDS in Lyantonde district

According to the district's Administration Report, 2007 records show that, the district has high HIV prevalence of about 12% compared to the national average of 6.4%. The high prevalence is partly attributed to low behavioral change despite high awareness; harmful cultural practices, domestic violence, and denial of sexual and reproductive health rights for women are sited as factors that facilitate the spread of HIV. The limited access to health care services among community members is also fuelling the problem. The higher prevalence rate is also attributed to the area being a transit town and the presence of fishing communities. The effects of HIV on women, fishing and pastoral communities and young people are still huge including the increase in the number of widows, widowers, orphans, homelessness and landlessness among the affected with high medical costs leading to poverty, reduced labor force and productivity. This eventually leads to food insecurity, school drop out of orphans and strain on the existing social services

3.4 Livelihood strategies

Households follow livelihood strategies based on the opportunities afforded by their livelihood assets, their vulnerability context and the transforming structures and processes they experience. According to Scoones (1998) there are three broad clusters of livelihood strategies, namely:

- Agricultural intensification/ extensification
- Livelihood diversification and
- Migration.

These livelihood strategies are seen to cover the range of options open to rural people. Either rural households gain more of their livelihood from agriculture through Processes of intensification or labour loaning, or they have the option to diversify via off-farm income earning activities. Another strategy is to migrate and seek a livelihood elsewhere. Often rural households pursue a combination of strategies. The women mainly work on their land to safeguard food production and they take care of the cooking, cleaning and nursing of children.

3.5 Government policy on food security in Uganda

With the objective of increasing food security at household level for both the HIV/AIDS afflicted and non-afflicted alike, Uganda has adopted a Sector-Wide Approach (SWAP) to agricultural development; the ‘Plan for the Modernisation of Agriculture’ (PMA, issued in 2000 and implemented since 2001) is a core initiative emerging from the PEAP. Agricultural extension is given a new lease of life in the PMA, which recognises a central role for decentralised, demand-driven extension services in the sector’s development, to be backed by public funds through the National Agricultural Advisory Services (NAADS) programme. The responsibility for extension is further delegated from districts to sub-counties. Advisory services demanded by farmer organisations at sub-county level will be contracted-out to private sector agencies. At present the NAADS programme is operating in almost all the districts in the country. Lyantonde district is no exceptional from the benefits of government programmes on Planning for Modernisation of Agriculture and NAADS programmes that are seen down up to the sub county.

Table 3:

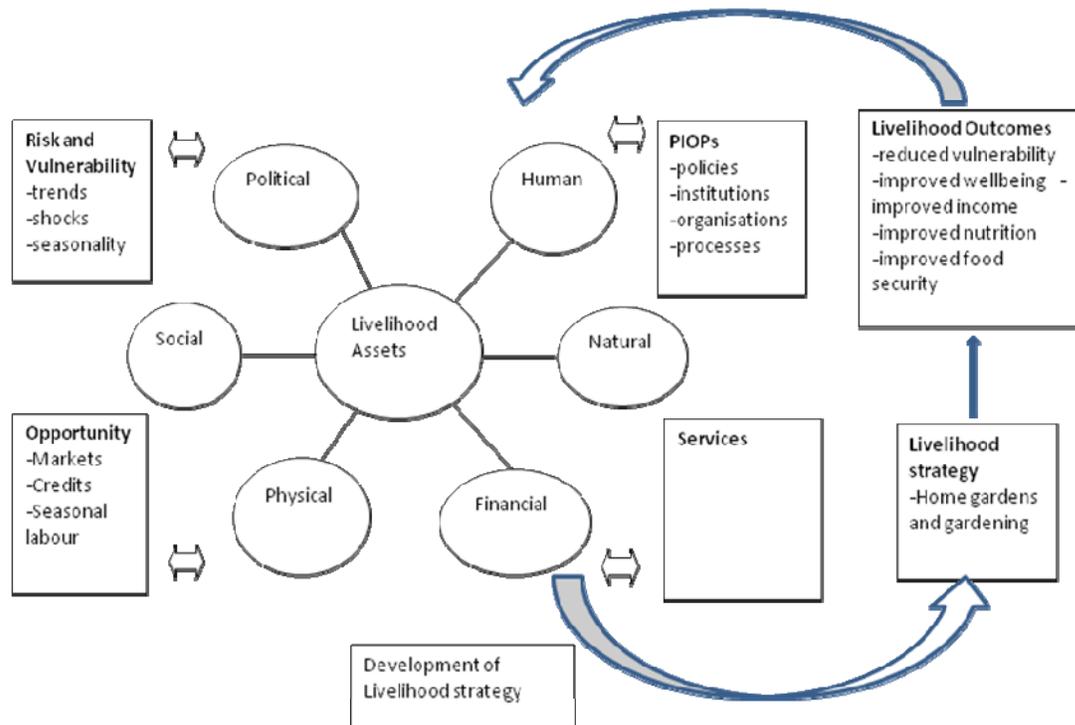


FIGURE 1: SUSTAINABLE LIVELIHOODS FRAMEWORK6
FIGURE 2: MAP OF LYANTONDE DISTRICT22

Responsible organs for Food Security in Uganda

Lead ministry	Autonomus agencies	Indicative action areas
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Ministry of agriculture <ul style="list-style-type: none"> • Crop Production Department • Animal Production Department 	<ul style="list-style-type: none"> • Plan for the modernisation of Agriculture • National Agricultural Advisory Services 	<ul style="list-style-type: none"> • Agricultural Policy • Advisory services • Planning/budgeting • Policy monitoring • Market development • Research and development
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Source: Researcher 2010

However, HIV/AIDS afflicted farming households have not as well significantly benefited from the extension programs like NAADS and yet one of the principles of NAADS is to mainstream HIV/AIDS into its work, (NAADS, 2001). This is attributed to the fact that NAADS provides universal nature of services, yet HIV/AIDS places unique demands of services to the afflicted households. In NAADS, services are demand-driven, and target the economically active (NAADS, 2000) households with agricultural productive assets that make agriculture become commercially viable. This has not helped the HIV/AIDS afflicted households (OPM, 2008) as most afflicted households lack the assets, time and labor to make their farms meet minimum criteria to be targeted by NAADS. The NAADS programme recognizes that the HIV/AIDS epidemic can undermine agricultural and economic productivity (NAADS, 2001). However, specific strategies to mitigate the impacts of HIV/AIDS of afflicted households are absent (FAO, 2002; OPM, 2008). The appropriate technology to support AIDS-affected rural communities is thus probably not strictly “labor-saving,” as suggested by some literature on AIDS mitigation (du Guerny, 2002; Mutangadura *et al.*, 1999; Steiner *et al.*, 2004; Jayne *et al.*, 2005). Better approaches to ‘labor management’ are needed (du Guerny, 2003; Action Aid, 2005) and individual household and community-managed home gardens can be a part of this adaptive strategy.

3.6 Geographical Location of Lyantonde district

Lyantonde district is located in the south central part of the country. It is bordered by Rakai district to the south, Kiruhura district to the west, Sembabule district on the north and Masaka district to the east. The chief town of the district, Lyantonde, is located 75 kilometers by road, west of the city of Masaka. The administrative units in Lyantonde District are County, Sub Counties and Parishes. The District is made up of one County-Kabula, five sub-counties, one town council, twenty three parishes and two wards.

Table 4: Summary of Administrative and Political Units in Lyantonde District

Administrative Unit	Number in District
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Counties (LC. IV)	1
Sub-counties (LC.III Rural)	5
Town Councils (L.C.III Urban)	1
Parishes/Wards (LC.II)	23
Villages (LC.I)	188

Source: Planning Unit Lyantonde District 2008

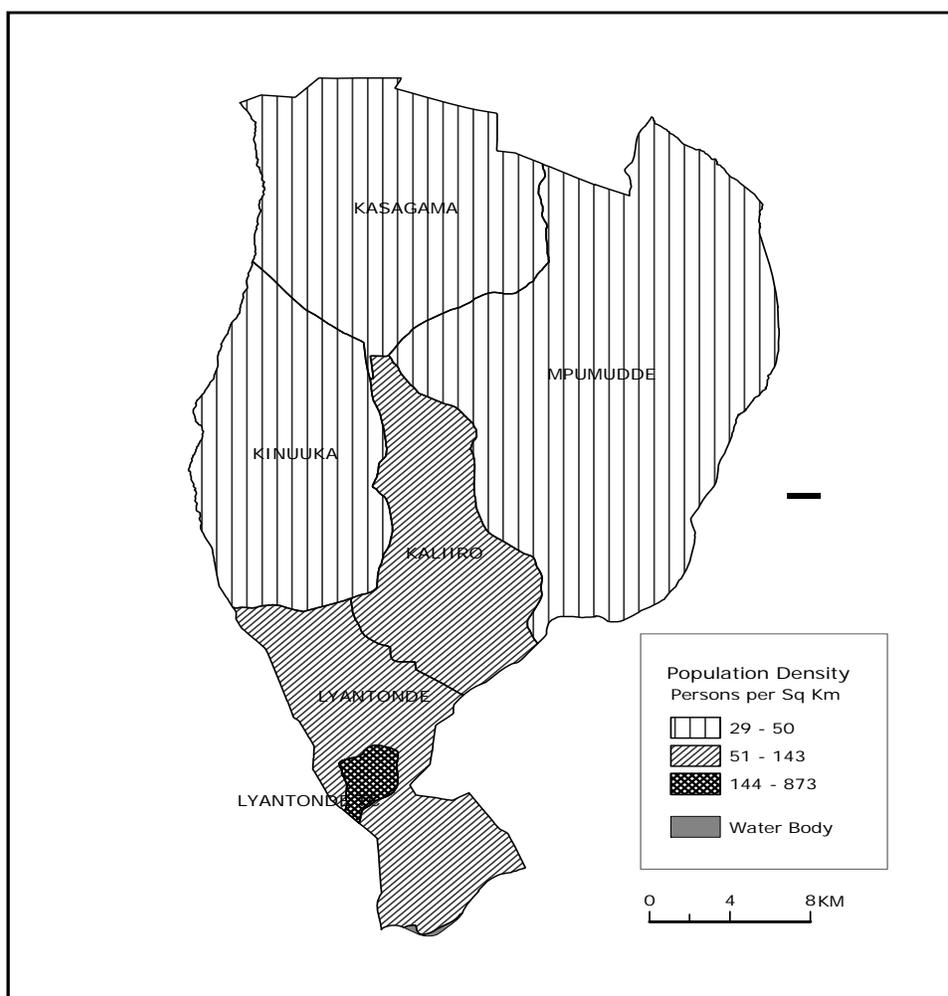


Figure 2: Map of Lyantonde district

3.7.1 District Population

According to the statistics in 2002 the population was estimated at about 66,039 with an annual population growth of 1.9%. Lyantonde District has a total area of 864.62 km². The population density was 76.4 persons per square kilometre of land in 2002.

Lyantonde was carved off from Rakai District in 2006 and it got the district status in 2007 and currently comprised of 5(five) sub counties which include; Lyantonde Rural, Kaliiro, Kinuuka, Mpumude and Kasagama. The table below shows details of the population by Sub County as per 2002.

Table 5: Distribution of Population by Sub County and Sex

Sub-county	Households	Percent			Numbers		
		Male	Female	Total	Male	Female	Total
Kaliiro	3211	22.5	23.1	22.8	7344	7696	15040
Kasagama	1063	8.3	7.4	7.8	2706	2458	5164
Kinuuka	1451	11.3	10.7	11.0	3683	3577	7260
Lyantonde	3012	21.6	21.9	21.8	7076	7290	14366
Lyantonde TC	2344	11.0	11.7	11.4	3596	3912	7508
Mpumudde	3444	25.3	25.2	25.3	8282	8419	16701
District	14525	100.0	100.0	100.0	32687	33352	66039

Source: Uganda Population & Housing Census, 2002

3.7.2 Cropping calendar

The district has been under severe drought in the last few years. Two dry seasons that occurred and which more pronounced were one during June-July -August and September 2009, while the other is between December and February 2009/2010. The District generally record mean monthly maximum temperatures between 25oC and 29oC. This leads to prolonged perennial drought mainly from April to October, partly because the District has not received enough rainfall for the past years. The high temperatures cause severe shortage of food and water for human and animal consumption and vegetation growth. The District has no big natural water bodies, most water sources like ponds, valley tanks, boreholes which harvest rain water have dried up, crops wilt (dry up) prematurely and the soils become bare.

According to secondary sources got from NGOs, there are two main seasons that is to say dry and wet. Land preparations for the long rains maize crop is expected to take place between December and February. Planting sets in from February through March and weeding and top dressing are underway between March and June. Harvesting starts in July through August. During the short rains, land preparations begin in July-August and planting takes place in August. Weeding and top dressing are expected between September and October and harvesting begins in the month of December through January. Farmers are advised to take up line planting, proper spacing and any acceptable inter-cropping.

The main economic activity of the area is agriculture as the major source of livelihood for the population. Variety of crops is grown both for subsistence and economic purposes. Cattle are the main livestock kept by farmers in Lyantonde district. In the dry period, May to September strong winds blow up the dry grass leaving bare soils. Lyantonde District is generally poorly endowed in terms of surface and subsurface water sources. This partly explains the severe water shortages often experienced especially during the dry season.

CHAPTER 4: FINDINGS OF THE SURVEY

This chapter is devoted to the discussion of different aspects according to the objectives of the study. The findings are elaborated under relevant topics from the survey with discussions. It's presented by first brief demographic characteristics of the respondents, source of livelihood to the household, then proceeds to find the relationship between the different aspects among the HIV afflicted and non afflicted households. The data is also presented by looking at the different assets and how they influence the level of food security in the household.

4.1 Demographic characteristics

4.1.1 Gender

Table 5 below shows the respondents male to female ratio in home garden production in two sub counties of Kinuuka and Kaliiro. The table indicates that, of the 80 HIV/AIDS afflicted and non-afflicted household individuals interviewed 59 were female (74%) compared to 21 males (26%). Furthermore, out of 32 HIV/AIDS afflicted household individuals interviewed 24 were female HIV/AIDS afflicted households (75%) while only 8 were male HIV/AIDS afflicted households (25%). The identification of the HIV/AIDS afflicted and non-afflicted households was by the help of the staff of the host organization because they had information regarding such households. During the field visits, the researcher was only taking note of only those households that were free to disclose their sero-status and were able to use themselves (households) as a case study during one on one interview. Only on such grounds was the household taken as HIV/AIDS afflicted.

By the fact that a big number of respondents were women, FAO, (2003), reported that 70% of women are employed in agricultural production. IFAD, (2000), revealed that agriculture is the main occupation of women and that 90% of all rural women work in agriculture and 53% of rural men only do so. In Sub Saharan Africa, in general 80% of economically active women work in agricultural sector and the share of female agricultural labor is increasing rapidly (World Bank, 2002; Karuhanga, 2008). Increasingly, both worldwide and in Africa (and visible in the study site), AIDS is a female epidemic with more women than men infected and on treatment (UNAIDS, 2007). Moreover, most of the additional burdens of responding to the household level impacts of AIDS fall upon women. They are the main producers of food and they bear the greater burden of economic production and social reproduction in rural societies (De Waal and Tumushabe, 2003).

Gender then plays a key role in determining both the impact of HIV/AIDS on household food security and the ability of a household to cope with it. The implication here is that vulnerability of a household depends on who is infected in a household. In the Ugandan context this has an implication on the household food and livelihood security as the women

are the most engaged in food production (IFAD, 2003). The study revealed that the women who are living with HIV/AIDS were more compared to the men possibly because women easily accept and disclose their HIV status and also do not easily get remarried after the death of their husbands unlike if a woman dies, a man is likely to remarry and may therefore not declare his status.

Table 6: Male to Female ratio of respondents surveyed

Type of Affliction	Gender	
	Female	Male
HIV/AIDS afflicted	24	8
Non-Afflicted	35	13
Total	59	21

Source: Household survey 2010

4.1.2 Age

The table below shows the ages of the respondents. The researcher ascertained that 33.8% were found to be between the ages of 31-43 years, 28.8% were found between the ages of 44-56 years. Age is however an important factor in determining the availability of labor that in turn influences the food security situation in the household. This implies that in the absence of sufficient adult workers to productively engage in food production, the household must or would fill labor gaps by utilizing children or the elderly, by hiring in labor or by exchanging labor with other households. Dependency ratios increase where households comprise of more children and the elderly (Barnett and Whiteside, 2005). This has the implication for other households because of interdependence, resulting to increase weakening of coping mechanisms because more households in the community are affected.

In this study a majority of the household individuals interviewed were between the ages of 31- 43 years. 25 out of the 32 afflicted individuals were between the ages of 31-50. The age, HIV status and the number of the household members determines the contribution to labor and eventually to food security in the household.

Table 7: Age of respondents surveyed

Age	Frequency	Percent
18-30	15	18.8
31-43	27	33.8
44-56	23	28.8
57-69	12	15.0
70-82	2	2.5
83-100	1	1.2
Total	80	100.0

Source: Household survey 2010

4.1.3 Source of livelihood/income

The study showed that 43% of the respondents depended on agriculture as their main source of livelihood, 19% were involved in agriculture and animal rearing, 15% depended on agriculture and petty trade and formal employment 9%. However 6% indicated that they did not have any source of income or livelihood. This category of respondents included those who stated that they were entirely dependent on handouts from either organizations or friends for survival. The ill health could not allow this category to effectively engage in productive labor. This category then depended on charity and donations from churches, social networks and ties with in the community for survival.

The findings confirm that in Uganda, 85% of the estimated 33 million Uganda's total population live in rural areas and depend mainly on agriculture (GOU, 2000). Rural households gain the major share of their income from agriculture and each of these people who earn a livelihood from agriculture have access to an average of three hectares each. Agriculture is then the main contributor to the national economy and provides employment to over 80% of the rural dwellers (MAAIF, 2004). Dependency on agriculture as shown in table below, as a main source of livelihood would imply that any factor that undermines the capacity of the household to productively engage in agriculture production will directly affect the livelihood security of that particular household. These findings relay with the secondary data got from desk study which indicated that, the two sub counties of Kinuuka and Kaliiro are largely involved in both food and cash crop production and also the fact that animal rearing is the main livestock activity. Given the high HIV prevalence rate stated at 12%, in Lyantonde district, there is no wonder that some households are left vulnerable by the disease and thus limiting their ability to make any meaningful contribution to household income. Factors Such as labor insufficiency through high numbers of dependants (young and old), physical weakness, inadequate land, and death of the bread earner will translate to livelihood insecurity.

Table 8: Different livelihood strategies of the households surveyed

	Type of affliction		Total	Percent
	HIV/AIDS afflicted	Non-HIV/AIDS afflicted		
Source of income/Livelihood				
Agriculture	11	23	34	43
Petty trade	1	0	1	1
Labor loaning	1	0	1	1
Charity, remittances	1	0	1	1
Formal employment	1	6	7	9
Agriculture and petty trade	5	7	12	15
Agriculture and labor loaning	2	2	4	5
Agriculture and animal rearing	6	9	15	19
Nothing/No source	4	1	5	6
Total	32	48	80	100

Source: Household survey 2010

4.2 Responses from respondents

4.2.0 Contribution of home gardening to food security

4.2.1 Views and opinions to home gardening by respondents surveyed

Respondents were asked what their views and opinions were on home gardening, but they had varying suggestions on what is motivating them to undertake gardening. Among the HIV/AIDS afflicted households: easy access was ranked highest, source of income, medicine and HIV status were seen as driving factors. Non-afflicted however cited that the training they obtained from different organizations perhaps played a role in home gardening. Surprisingly 12 of the households were less motivated given the fact that they could access home garden crops in the market. This category also said home vegetable crops were for the poor and for the HIV afflicted.

Table 9: Views and opinions on home gardening of the respondents surveyed

Views and opinion	HIV/AIDS Afflicted (n=32)	Non-Afflicted (n=48)
Easy access	8	11
Terminal sickness	1	1
Use of family labor	0	1
Use of small piece of land and the belief that it helps in soil fertility	0	2
Trained by some organizations	6	13
HIV status	6	0
Less motivated because we can buy	0	12
Source of income and are medicinal	7	3
Nutritious (<i>Want my family to be healthy</i>)	4	5

Source: Household survey 2010

4.2.2 Patterns of home gardens

Respondents were asked if they “maintain a home garden”, 100% of all respondents reported “Yes,” but my own observations during fieldwork indicates that many are seasonal and involve majorly Bitter berries (*Entulah*) a crop which is easy to grow and resistant to drought. In line with what the researcher observed, the findings revealed that 27% had established home gardens within the home yard, 70% had home gardens but preferred to scatter especially the vegetable crops in the banana plantation and 3% revealed that they have only had one type of crop throughout their life time. It’s evident therefore that traditional home gardens are more prevalent among the households. Traditional gardens are those gardens that are cultivated independently from any intervention. The 27% represent the promoted gardens which have been supported from different organisations, are typically small, and mixed vegetable gardens with varying degrees of biodiversity and land use intensity. Findings from this research show that most home gardening projects are implemented by Non-government organisations like RACOBABO, MADDU, VI agro Forestry, NOGAMU among others that are effective in these two communities not only in home gardening but also on organic agriculture and tree planting. Target groups varied from organisation to organisation but with much emphasis put on HIV/AIDS afflicted households. It is evident that promoted gardens were more seen among the HIV/AIDS afflicted households. The contribution made by the intervening organisations to food security through home gardens among the HIV/AIDS afflicted and non-afflicted households is in terms of:

- Offering training to a few selected persons in the community with the expectation that there would be a spill over effect
- Provision of agricultural inputs (seeds)
- Provision of advisory services
- Encourage producers to keep their produce for the market for the next season

However the involvement of government in supporting vegetable crop gardening is minimal.

4.2.3 Type of crops grown

The primary objective of home gardens is to improve on food and vegetable availability, access and use in the household by growing and maintaining variety of crops. Food security is looked at in terms of the quantity of crops one has both in the farm (garden) or at home (stored after harvest). Table 9 shows the distribution of households by crops raised in the home gardens while table 10 summarized the distribution of households by the number of vegetable crops. There were no regular farming activities due to the drought.

Table 10: Home garden crops planted by households surveyed

Crop	Number of households (n=80)	Percent
Maize	70	87.5
Fruits and Vegetables	80	100
Legumes	60	75
Root crops	45	56.3
Bananas	78	97.5
Millet	35	43.8
Sorghum	7	8.8

Note: Percentages are not adding up to 100 because households planted more than one crop

Source: Household survey 2010

From the findings from the study,91% of the respondents totally grew vegetables in their home gardens, 8% had fruits and vegetables and 1% had basically fruits. The table below, shows the percentage of each crop that had been planted by the respondents in the study area.100% of the respondents had bitter berries, 37.5% had local tomatoes, 25% had onions and African spider herb and 10% had only cowpeas. While half of the respondents(50%) had avocados and jack fruit. From the findings of the observation, HIV/AIDS afflicted households tend to have more than three varieties of vegetable and fruit crops a fact that can be attributed to increased awareness of the contribution of vegetables to their wellbeing. Due to the increased awareness and value attached to home gardens among the HIV/AIDS afflicted, home gardens are therefore viewed and more associated to HIV affliction by the community members.

Table 11: Vegetable crops planted by the respondents surveyed

Name of vegetable crop	Frequency (n=80)	Percent (%)
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Local tomatoes	30	37.5
Onions	20	25
Cabbages	10	12.5
Bitter berries (<i>Entulah</i>)	80	100
Nakati (<i>Solanum aethiopicum</i>)	10	12.5
African spider herb (<i>Jobio</i>)	20	25
Pumpkin (<i>Ensujju</i>)	12	15
Bitter berries(<i>Katikumah</i>)	15	18.8
Ebbuga (<i>Amaranthus</i> spinach)	14	17.5
Cowpeas (<i>Ggobe</i>)	8	10
Paw paws	20	25
Jack fruit(<i>Fenesi</i>)	40	50
Sugar cane	10	12.5
Guavas	10	12.5
Pineapples	10	12.5
Mangoes	15	18.8
Avocadoes	40	50

Note: Percentages are not adding up to 100 because households planted more than one crop

Source: Household survey 2010

4.2.4 Constraints to home gardening

Gardeners face many barriers to improving fields and farms, and the burdens of AIDS are only part of the problem. In general both types of household experience pests, diseases, destruction from animals and children, drought and labor shortages as hindrances to gardening. Among the HIV/AIDS non-afflicted households; the greatest challenge is on knowledge and skills. This perhaps explains;

- Why they have few vegetable crops most of which are mainly consumed during the rainy season
- Attaching vegetable gardening to HIV affliction and
- Looking at vegetable gardening as for the poor.

However to the afflicted, knowledge and skills was not a big challenge. Though not through formal training, health workers put a lot of emphasis on vegetable growing. The PLWAS associations at parish level also play a role in sensitization on home gardening. Labor and theft remain a challenge to them, but solved by having two vegetable crops in the home yard then the rest were hidden in the plantation. The ones in the plantation act as a reserve in case someone came and picked what was grown at home. Neighbors, friends and at times children provide the labor. While the non-afflicted households got most of their home gardening crops from the market, none of the afflicted household reported any purchases from the market.

Table 12: Constraints to home gardening

Constraints	HIV/AIDS afflicted (n=32)	Non-HIV/AIDS afflicted (n=48)
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Seeds	3	2
Knowledge and skills	2	15
Labor	6	4
Pests, diseases, destruction from animals and children	10	6
Drought	8	14
Theft	3	1

Source: Household survey 2010

4.2.5 Management of home gardens

Findings reveal that home gardens are majorly managed by women; there are 23 respondents who said the family was responsible while one said that it was by friends and neighbours. Out of the 21 males interviewed, seven of them said it was basically their wives who maintained the garden. AIDS afflicted gardeners have a range of able-bodied working age adults, from virtually none (e.g. an elderly woman living alone). The HIV/AIDS afflicted gardeners are somehow most times labour-short on average, but their situations vary dramatically. An elderly widow may have to fend for the household in instances where there are no more responsible adults to take care of the orphans and at times elderly people have been abandoned by grown children. In this situation then the management of the home garden is entirely on them (elders). This was a great challenge because the community has in most cases to come in and support amidst the limited resources.

The burdens of managing a garden are largest for such elderly single women or men and those recently dealing with adult death. They are modest for a younger couple managing to live with AIDS and with children able to work. Male and female gardeners alike value home gardens for food security, nutrition and income. While gardens were once solely the domain of women, however they are often now managed by the family.

4.2.6 Benefits of Home gardening

Most of the respondents surveyed revealed that home garden yields are important for food. Results showed that the non-afflicted households tend to sell more of their produce. This was the reverse to the afflicted that had basically put much priority on consumption than for sale. It was also cited out that home garden yields were valued for social network, income and for building the social capital. Findings revealed that the longer the duration of a household on home gardening, the more value they attached to it. This had an influence on the duration that a particular household took consuming the home garden yields. The relationship was that, the longer the duration and experience in home gardening, the longer the time taken to consume home garden crops and the better or secure the food situation at a particular household.

Table 13: Benefit of home gardens to the households surveyed

Benefits	HIV/AIDS	Non HIV/AIDS
	Afflicted (n=32)	Afflicted (n=48)
Source of food	22	32
Source of income	1	8
Source of medicine	1	3
Source of social network	3	2
Source of income and social capital	3	2
Source of food and income	2	1

Source: Household survey 2010

4.2.7 Duration taken in home gardening practice

From this finding, it shows that most households do not keep records of the gardening activity in their households. The men who were interviewed revealed that they are less aware of household food security in the family. The table 10 below summarizes how long each category has taken in home gardening. This also had a direct link with length of time that they were able to have home gardening in their household.

Table 14: Duration taken by households surveyed on home garden practice

Type of affliction:	Duration in practicing home gardening							Total
	6 months-1 year	1-2 year	3 years and above	I remember (for so long)	don't know (wife knows)	I don't know	Once in awhile	
Afflicted	0	2	18	12	0	0	32	
Non-afflicted	5	5	17	17	2	2	48	
Total	5	7	35	29		2	80	

Source: Household survey 2010

Table 15: Period taken to consume the yield by the respondents surveyed

	Period taken to consume the yield						Total
	2-4 months	5-8 months	Throughout the year	Only during dry season	I don't keep records	I have just started	
Type of affliction:							
Positive	0	8	8	7	8	1	32
Negative	2	21	13	3	6	3	48
Total	2	29	21	10	14	4	80

Source: Household survey 2010

4.3 Livelihood Asset base

This section explores the different assets that individuals (HIV/AIDS afflicted and non-afflicted households) are able to take advantage of so as to improve and or maintain the food security situation in their households by use of home gardens. A discussion on how home gardening improves the asset base is also highlighted here. However, only three assets are of great contribution and this will be elaborated below;

4.3.1 Human Capital

It relates to the skills, knowledge, ability to labor and also good health that are necessary to pursue different livelihood strategies. Skills and knowledge in this study are referred to as training. 48.8% of the sampled population had an external intervention on home gardening from different organizations while the remaining 51.2% had no intervention. Specifically this had an impact on home gardening. Households that had attained trainings were able to appreciate the value of home gardens and they ensured they had a regular supply and consumption of vegetable crops in their household. The nature and pattern of home gardens in their households was better compared to the households that had no intervention.

The table below shows the different kinds of interventions that the study population received. Findings in this research suggest that only specific individuals who have tapped into HIV/AIDS networks are those who are more likely to have improved gardens: semi-permanent and irrigated by hand to overcome poor rain, with a greater diversity of plants grown around the homestead. An intervention on home gardening in form of training, sensitization meetings and provision of seeds to the afflicted households had a direct impact on the garden strategy and livelihood security. These resources make more intensive and productive gardens more feasible despite AIDS-related labor shortages and other costs. This as well can be attributed to the fact that most intervening organisations put emphasis on the value of vegetables of mostly the afflicted.

The training received was geared towards better agronomic practices with the intension of increasing household food production. A total of 39(18 HIV/AIDS afflicted and 21 non-

HIV/AIDS afflicted) households attained the different interventions. The impact of such interventions was seen in terms of:

- Adoption of better agronomic practices
- The use of improved seeds
- The use of composed manure to improve the soil fertility
- Extended and shared the skills and knowledge attained
- Increased awareness on the importance of home vegetable crops

Table 16: Examples of the interventions that surveyed respondents received

	Frequency	Per cent
Training	17	21.2
sensitisation meetings	2	2.5
Training and inputs	20	25.0
Total	39	48.8
No training	41	51.2
Total	80	100.0

Source: Household survey 2010

One respondent said he had a sensitization on home gardening but it did not have any impact and benefit on his gardening because it was so brief. Results show that only 38 households were able to benefit from the intervention. Forty one households did not have any intervention on home gardening and therefore followed the traditional pattern of gardening which involved scattering vegetable crops in the banana plantation. From the observation, despite the training that 48.8% attained, the issue of sustainability still remained as a challenge. This is attributed to the fact that when funding from intervening agencies end and there is no close supervision and monitoring on activities being implemented, the household members go back to the former practise of scattering especially vegetable crops in the banana plantation. While still, the non-afflicted households heavily depended and consumed vegetable crops during the wet season, the afflicted had crops grown and consumed throughout the year. Despite the constraints associated with setting up standard home gardens, at least 13 had still followed the recommendations and were having regular supply of vegetable crops. The table below shows how the intervention has benefited the households that had an intervention on home gardening strategy.

Table 17: Benefits from intervention

Benefits	Frequency	Percent
Better agronomic practices	19	48.7
Use of improved seeds	1	2.6
Use of mature for soil fertility	3	7.7
Knowledge and skill sharing	7	17.9
Training others	4	10.2
Better agronomy practices and soil fertility	1	2.6
Learnt value of vegetables	3	7.7
No benefit gained	1	2.6
Total	39	100

Source: Household survey 2010

4.3.2 Social Capital

This relates to the social resources upon which people draw in pursuit of livelihoods (i.e. networks, membership of groups, relationships of trust, access to wider institutions of society). Key connections are therefore, through family and traditional leadership structures, through which land access, informal safety nets and contract labour is accessed. What can be observed in the research villages is that in the two communities, namely Kinuuka and Kaliiro, there seems to be a more intrinsic network of connectedness amongst each other where cash transfers are common and where neighbours help each other on their gardening activities particularly during weeding and in harvesting time. The labor offered can be for free especially to the HIV/AIDS afflicted households while on non-afflicted households this was for money or exchange of labor for food. The strong social ties that exist in the community help to improve the way home gardens are managed. In instances where a household member was sick and there was no one to maintain the garden, regular supplies were from the neighbourhood. When the sick person recovered, the planting seeds were given out for free to start up with the expectation that the person is able to recycle for the next season. In general it can be asserted that solidarity goes beyond the family per se. This is more seen from individual persons and churches.

In the table below, food aid is basically from organizations and this takes the form of nutritional support that lasts for a specific period of time. However, during the time of data collection, this component was not active. The food support received was basically from the church and the neighbors and this could be in form of maize, matooke and or beans. Seedlings were basically from the church and the neighbours.

Table 18: Different kinds of support that HIV/AIDS afflicted households receive

Type of support	Number of household(n=32)	Where support is got
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Food aid	20	RACOBABO, Health centre IV,
Food support	28	Church and neighbours
Planting seeds/seedlings	18	Church and neighbours
Giving in labor to weed and harvest home grown crops	10	Church members and neighbours

Source: Household survey 2010

4.3.3 Financial Capital

This refers to the financial resources which are available to people (whether savings, supplies of credit or regular remittances or pensions) and which provide them with different livelihood options. Though data was not collected specifically in relation to this, one on one interviews showed that households with remittances were generally better off in terms of food security but however pointed out that despite having money, people to be hired in, were scarce and unreliable. A new trend involved that one had to pay the labourer in advance for the work to be done but still it was not guaranteed the person would be available at the critical time of either weeding or harvesting. This was a great challenge cited by a category that had regular income. Generally, men were engaged in off- farm activities.

It was also discovered that village saving schemes, associations and or groups acted as banks. Households would save money on weekly basis on the associations or groups that they belonged to and during times of emergencies they would borrow. Limited households however borrowed money to increase on home gardening practice. While the HIV/AIDS afflicted households were not very comfortable borrowing money from the groups because of the uncertainty in paying back, the non- afflicted took this as an opportunity especially to diversify on their livelihoods. Amongst the afflicted households, the married category was financially more constrained making their households more vulnerable to food insecurity. This limited the physical availability and economic access to food in their households. In general, households who had interventions on home gardening were able to produce excess for home consumption and sale. The money got from the sale of the gardening crops was utilised mainly on buying household basics.

4.4 Coping strategies to shocks and vulnerabilities

In general, 18.8% of both afflicted and non afflicted respondents said they pray to God to help them, 16.2% seek for support elsewhere or move to places with better resources, they labor loan and also can sell of their assets, 15% use earnings from business or from the formal employment. It was also found out that 5% looked unto their husbands to provide and the same percent resorted to borrowing money from associations and groups that operated in the village. Those who said that they look unto their husbands for any support were basically the non-HIV/AIDS afflicted. The findings also show variation in coping strategies between the afflicted and non-afflicted household members. While the non- afflicted find it easy to

borrow money from the groups, the afflicted were quiet unsure of repaying on time and did not want to venture into that because it would affect other assets in the household.

4.4.1 Meaning of HIV

When respondents were asked if they have ever had or known what HIV was, 99% responded ‘yes’. However when they were asked what in their understanding HIV meant, 34% said it was a virus, 59 % attributed it to a disease, 5% said it was both virus and disease and 2% did not know. This could have been possible because of the awareness creation on HIV/AIDS going on through media, NGOs, CBOS’ and government institutions. UNDP reported that 80-90% Ugandan men and women are aware of HIV and AIDS.

4.4.2 Impact of HIV on home gardening

Because of increased awareness on HIV/AIDS, the respondents were able to cite that the epidemic (HIV) has adverse effects on gardening. In the table below, the survey revealed that both the afflicted and the non-HIV/AIDS afflicted households are knowledgeable on the impacts of HIV/AIDS on agricultural production with reduced food security at household level as being the highest rated impact with 33.8% percent and reduced labor at 31.2% as shown in the table below . This could have been attributed to the fact that when an individual has been diagnosed of HIV, the immediate impact is less food in the household which could have been caused by the second variable, reduced labor. Food production at household level consists of series of complex activities and tasks, which include ploughing, sowing, weeding, harvesting and post harvest handling. All these activities however require a lot of time and attention. In rural areas, time spent on patient-care often directly impacts on time available for agricultural production and for pursuing other non-farm income generating activities. The outcome might be less timely farming practice resulting in reduced yields or reduced land under cultivation, threatening household and eventually national food security. Most of the percentage response of the HIV/AIDS afflicted households for example; reduced food security, reduced labor and land under cultivation at household level are higher than the non-HIV/AIDS afflicted responses.

Table 19: Reported most important impact of HIV/AIDS on home gardening according to the respondents surveyed

Impact on home gardening	Afflicted	Non-afflicted
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	(n=32)	(n=48)
Reduced land under cultivation	3	7
Reduced Labor	10	8
Increased workload on the healthy members	0	3
Loss of agric. knowledge and skills	3	5
Sell of agric. assets and food	0	2
Reduction in the number of crops grown	1	3
Reduced food security at household level	15	10
Money wasted taking care of the sick	0	10

Source: Household survey 2010

4.5 Reviving the gardening culture

At the end of the interview, respondents were invited to make suggestions on how to encourage everyone have a vegetable garden around the home yard. A number of ideas were put forward. Proposals ranged from community gardens to help the vulnerable people in the community, educational campaigns to rekindle interest, to start-up incentives such as free seed, fencing materials, low cost technology and tools. Drawing on their own experience, respondents were convinced that scattering vegetable crops in the banana plantation would solve the problem of labour shortages because you only manage both at once. Besides, during drought, the plantation is a little cool so the vegetables can survive the harsh weather. The whole issue of having a standard home garden is so expensive to maintain.

However, young people should be encouraged more to participate for as they grow up, it becomes a way of life. You cannot teach a person to grow a garden at an old age. They need to grow up doing gardening and they must love and enjoy it.

CHAPTER 5: HOME GARDENING AS A PRACTICE AND FOOD SECURITY

5.0 Introduction

This section elaborates on home gardening as a practice that development agencies have promoted over decades. This could be because home garden agriculture is seen mainly as a need-oriented, self-provisioning system with minimal use of chemicals. The system is, by and large, therefore environmentally clean and sustainable. However as an agricultural practice, it has also received very minimal attention from Ugandan government. This section then tries to define and enlist what constitutes a home garden, what role women play in gardening and mentions what the possible contribution of home gardens to food security could be.

5.1 Elements of a home garden

For many generations, small plots of land near the homestead have been used as home gardens for the cultivation of different vegetables. Home gardens, school gardens, community gardens and the growing of vegetables on containers are accepted methods (Reuben *et al.*, 1993). With the community gardens each household can have an individual plot but shares the water and fence with other participating community members. However, this particular method of gardening is not common in Uganda due to the fact that land is owned by a household and every one would prefer to utilise his or her own piece of land. Community gardens seem then to be a solution when land is a limiting factor. The growing of vegetables and other crops on containers is however ideal when land is very limited and for urban and semi urban conditions (www.fao.org).

Home gardens can be defined as any agricultural land use located around the house that makes use of solely of family labor and integrates in the small plots annual (herbaceous), semi perennial, and perennial(woody) crops and or animals (Tchatat,1996).The home garden in this study represents a small-scale supplementary food production system (Hoogerbrugge and Fresco, 1993) located within the homestead or within a 10-minute walk from the homestead, continuously cultivated by and for household members, and comprising a complex and diverse mixture of annual and perennial plants (Fernandes and Nair, 1986). As opposed to other agricultural land and communal gardens they are normally located within the individual homestead and irrigated with domestic water. While in shifting cultivation the land is abandoned and allowed to rest in a fallow for several years (2-20 years) after only two cropping seasons to recover it's fertility and productivity (Nye and Greenland, 1960; Ahan 1970; Tonye *et al.*, 1987) .The practise of home gardens is said to be sustained over a long period with little or no use of mineral fertilizers (Tchatat *et al.*, 1996) depending on their past and present management. In the case of this research, the home garden will only be limited to the growing of root crops, fruit crops and vegetable crops. The Helen Keller international Foundation Bangladesh, defined home garden as the area around the home where different vegetables and fruits are grown throughout the year to meet the family nutritional requirements.

In Uganda, female extension officers have a most important role to play in home or household gardens because women are usually responsible for planting fruits and vegetables as part of domestic food production and for feeding the family with adequate diet. Traditionally leafy vegetables are gathered at random from cultivated land near the homestead or uncultivated bush nearby. Sometimes a small plot of one or two different vegetables is found near the home. Today fewer of this wild species are being gathered or brought into cultivation in rural areas. This trend is reflected by the death of local leafy vegetables in the town markets. Considering the above definition, the following characteristics can be seen in the home garden:

Table 20: Salient characteristics of home gardens

Characteristics	Home garden agriculture
Holding size	Extremely small; maximum size < 1 ha
Major objective	Meeting home demand (food, fodder, fuel, timber, organic mulch and medicines)
Resource use level	Intensive
Labour use	Mostly family, supplemented by hired labour
Species diversity	Usually High
Integration of farm enterprises	Usually High
Organic and nutrient cycling	Usually High
Dependence on market- purchased inputs	Usually Low-recycled inputs
Nutritional security of household members	Usually High-diversity
Environmental sustainability	Usually High
Market linkages	Usually Poor because the priority is home consumption

Source: Household survey 2010

Home gardens consist of several cropping systems like mono cropping, mixed cropping, multiple cropping, and relay cropping among others. Households use this cropping system to select ideal cropping patterns and crops for their homesteads. The selected production unit gives the best for food security, nutritional requirements and economic benefits.

Encompassing the characteristics described above, home garden agriculture as practiced may be defined as a need-oriented, intensive and integrated, multi-species production system around the dwellings in smallholdings (not exceeding 1 ha or 6 by 6 m), aimed to achieve greater resource use efficiency with biological productivity and environmental sustainability.

5.2 Food security through home gardening

Home gardening is a family production system widely practiced in many developing countries. Its contribution to over all food supply is generally over looked in national and international consumption statistics. Home gardens contribute an important percentage on

non-grain food supply in many developing countries, adding significantly to urban food sufficiency (UNDP, 1996).

Home gardening is one of the most potential interventions for enhancing food security for the poor and needs to be incorporated in the context of a broader national food security strategy. Traditionally the households feed their families first and then sell the rest. However, in some occasions income generation is also a primary objective of the home garden. Home gardens are therefore assumed to contribute to household food security by providing direct access to food that can be harvested, prepared and fed to family members, often on a daily basis. Even very poor, landless or near landless people practice gardening on small patches of homestead land, vacant lots, roadsides or edges of a field, or in containers. Gardening may be done with virtually no economic resources, using locally available planting materials, green manures, live fencing and indigenous methods of pest control, Marsh, (NA). Thus, home gardening at some level is a production system that the poor can easily enter because it provides a diversity of fresh foods that improve the quantity and quality of nutrients available to the family.

5.3 Role of women in home gardening

Although it is often assumed that women are the principal home gardeners, the role of women in gardening varies by region and culture and by the fact that 3/4s of the women are engaged in agriculture food production is evidence enough that the very percent are still active on home gardening. In Sub Saharan Africa, eighty percent of economically active women work in agricultural sector and the share of female agricultural labor is increasing rapidly (World Bank, 2002; Karuhanga,.2008). In Uganda, women produce over 70% of the country food products (MAAIF, 2000) and provide 68% of the labor force for food crop cultivation and 53% of the labor needed for cash crop cultivation (MAAIF, 2000; World Bank, 1993 Karuhanga, 2008).

Gardening is typically a family activity involving women, men, children and the elderly, with some tasks carried out separately and others jointly. Men generally participate in the heavier tasks (bed establishment, fence building, well digging and tree harvesting), while women tend to manage the day-to-day maintenance tasks. Women and children typically care for small livestock. The elderly have a special role in passing down traditional gardening knowledge to the next generations, especially their understanding of the care and use of indigenous plants. Accordingly, it is important to involve the whole family in gardening.

5.4 Home garden crops and food security

Results indicate that home gardening is a known concept among the HIV/AIDS afflicted and non-afflicted households in Kinuuka and Kaliiro sub counties in Lyantonde district. However, the results of the observation checklist revealed that:

- Most of the home gardening activities were done in a haphazard way,
- Scattering the vegetables in the banana plantation (traditional farming method) with one or two seeds wide spread in the garden,
- Very little or no use of manure or fertilizers on home gardens except on other commercial farms especially those who got training on organic agriculture by organisations like NORGAM and VI and Agro Forestry and
- Lack of a fence around the home garden.

It is highly possible that this may affect the amount of food produced thus impacting negatively on the household food supply. Modern ways thus embrace the use of certified seeds, planting in rows, use of manure or fertilizers and fencing to protect the garden from domestic animals and livestock.

Findings from this research also show that home gardening contributes to food security. Both the respondents and key informants were asked what their suggestion was. The respondents said it did play a role in food security but only the home garden crops. This could be evidenced by the big number of households that had engaged in home garden crops than on vegetable crops. However, the HIV/AIDS afflicted households said both the vegetable and home gardening crops were essential in ensuring food security in their households. To the afflicted households, this was attributed to the fact that the vegetable crops were seen as emergency food reserves, in case one had received a visitor late in the evening or when the crop yield had failed. On the other hand, key informants however did not agree that home gardening plays a role in food security. One key informant, NAADS extension staff said *'Households should be encouraged to increase their household food produce, so that there is enough to consume, to preserve for future use and sell surpluses for income as this is the only means to achieve household food security. Home gardens are just to be used for the provision of healthy foods but not a strategy to food security'*.

It is an indication that commercial farming is the only means of achieving food security. However, there is evidence from other studies revealing that there is a potential for home gardening to enhance food and nutrient security, as well as for income generation (FAO, 1997; Muelhoff, 2001; Midmore *et al.*, 1991). Studies done to promote home gardening in Nepal and in Kinshasa revealed that home gardening can be used for year round supply of food to households. In Northern Thailand, home gardens were successfully used in a study to control vitamin A deficiency (Mpoyi and Paulus, 1997; Midmore *et al.*, 1991; Shrestha *et al.*, 2001). In urban areas the use of container gardening that require little land, minimal cash resources have been shown to be effective in improving household food security (Urban Agriculture, 1993). According to the review of literature on the role of traditional and promoted home gardens in Asia and Central America reveal that food production in small quantities close to the house contributes significantly to household food supply and cash savings on food or on income generation thereby to overall food security (Midmore *et al.*, 1991; Soleri *et al.*, 1991). These cases show that home gardening can improve livelihoods of rural communities if promoted and supported.

It is evident then that agricultural production is recognised as the main method of food security for households and apparently home gardening is not an established practice in Lyantonde district. The neglect of home gardens in favour of other field crops (commercial agriculture production) could have adverse effects on the food security status of households. The study findings show that food security varies from one season to the next depending mainly on the weather pattern. Homestead production is then a main source of food and supplementary income for poor rural and urban household in the world in the period of stress. For example, Uganda in particular relied on gardening to provide for many of their nutritional needs after the civil war (UNDP, 1996). Home gardens provide a diversity of fresh foods that improve the quantity and quality of nutrients available to the family. Home gardens appear to be advantageous against the externally supported programmes such as relief food distribution, targeted subsidies, and supplementation and fortification schemes. None of this can be as sustainable as home gardens (www.fao.org).

5.5 HIV/AIDS and vulnerability to food security

The difference on the percentage responses on impact of HIV/AIDS on home gardening practice among the households implied that the HIV/AIDS afflicted households feel the direct impact in the household, so they are able to mention what expertly happens to their households. These are evidenced by three of the HIV/AIDS afflicted persons whose accounts are provided below:

Mary, a married woman of 45 years narrated the following story

HIV is a very big challenge to my household especially on what to eat. Am on ARVS but Several times I fail to get what to feed and this forces me to abandon my life saving drugs for that particular day and only resume when am sure I have what to cook. The situation is even worsened when I cannot afford what to drink and yet in hospital we are advised to take food and drink a lot of juice and water each time you take the medicine. I have a husband alright but he does not support me to do any activity. You see now people are in their gardens working but for me, am sitted at home because I have multiple problems. This house you see leaks a lot when it rains so I sit until it stops and because of the much cold the following morning iam not able to go to my garden. Yesterday(meaning 16th of March) I spent the whole day cutting grass that you see over that hut(she points at the hut opposite us) to repair the house, now today because the eyes are painng me, I cannot go and dig because I have to attend to my health. I was supported by RACOBABO with nutritional food but they have also stopped. Now I only depend on the village counselor who gives me food whenever I go and beg her. One child in my household was sick yesterday (meaning 16th March 2010) so my husband took her for treatment but when they asked him for money, he had to come back to me to ask for money so that the child would be treated. I gave him the only 8,000 Uganda shillings I had (equivalent of almost 2.50 dollars).When he came back from hospital he asked me for food which I served but I had not added salt. He asked me why I cooked food without salt. You see Iam almost the household head because my husband does nothing. The only role of my husband and I appreciate is that he collects water and ARVS for me. Most of the times i sit at home that is why I am food insecure''.

Josephine is a married woman of 43 year and had this to say

Last year (2009) was a terrible year for me. I had no food to eat. And what worsens the situation is that I have a husband but he does not support me. In times of famine or lack of food in the house, my husband runs away without informing me and only returns when the situation is better. Am actually almost the household head because I have to calculate the number of people I expect to feed and try to cultivate basing on that. But also my health does not allow me to dig for long so am forced to return home early while others are still working on their farms. I only appreciate that my husband brings in little once in awhile especially for paraffin and salt. But otherwise I struggle alone on my own without his contribution''.

Christina is a married woman of 38 years and gave the following impression of her living with AIDS

My household is one of those unfortunate one's in this village. Iam infected but my husband does not bother himself to provide for the family. He does not stay at home and help me cultivate what to feed the family. He goes very early in the morning and only returns in the night to sleep. That is his daily program .On many occasions i do not get what to eat and even sometimes when I try to go out and labor loan, I return without food because my health could not allow me dig for long hours. However on such occasions I send my children to any body's home in the neighborhood to go stay with them and after some time they return with or without food''.

These individual stories show how the married HIV/AIDS afflicted households were more vulnerable to food insecurity than any other category (6 out of the 9 interviewed).No doubt that the women in this study area were over burdened with so many daily household activities. They also encountered so many social problems .This can be justified by the above cases. AIDS can thus be viewed as a “long wave crisis” (Barnett, 2005), where people don't recover well in between crises, a “slow- onset disaster” (Wisner *et al.*, 2004) as well as an urgent development challenge that requires massive short- and medium-term support and capacity strengthening.

Results also showed that the access, ownership and size of land by households had significance in determining food security but however it never influenced the number of meals taken daily by that household. This finding could be explained by the fact that other methods of procuring food may be employed, such as buying. This method was identified by households as the most important method used to supplement household food shortages during times of seasonal hunger. The main foods bought are maize, rice and root crops while foods gathered are wild vegetables and fruits. However, buying food is expensive for a majority poor in Kinuuka and Kaliiro especially the HIV/AIDS afflicted households. Gathering is affected by reduction of plant species from the wilderness thus not feasible method for ensuring household food security. It is of utmost importance; therefore, that households produce sufficient food from their gardens to last the year round.

5.6 Livelihood assets base

The findings show that, there is substantial social cohesion among the community and this helps to strengthen the asset base of households. In instances when a particular household was in lack of food, it was easy for those with better resources to mobilise themselves and contribute either food or labor to the affected household. One of the afflicted household had this to say

“When I separated with my wife some few years back ,she decided to take the children with her and I was left alone .I fell sick and there was no one to support me but my neighbours Were available for me. My sister came and took some vegetable seeds from me and she planted in her home where she could be able to manage. When I recovered, I started planting in a few crops but still I had very little energy so the neighbours provided free labour for me. I also got some money from the well-wishers and from the association that I had been saving from. I was given a long period to repay without any interest on it. This support helped me recover from my sickness because I knew I had people who cared about me. From that time I have never relaxed and every season I tend to plant a lot so that I can save some for the next season and given my personal experience, am able to share with those who are not able to have.”

This is an indication that the greater and stronger the asset base, the better the home garden practice and the reverse. Being afflicted or not has the effect that the social relationships are transformed and or that social capital gets constituted differently. The extended family and kinship based networks are replaced as it were by village and in most occasions community based networks like neighbors, church membership and to a small extent the village savings groups and associations. In general terms, the church plays a big role in building social capital and networks for especially the vulnerable groups. An account of one of the church based associations shows that the churches and related organizations meet, felt needs and create social cohesion among church members. An interview with a church pastor who founded one association for the widows and orphans gives an idea on how the church is seen to meet daily needs of vulnerable groups.

“This association started in 2005 targeting only widows and orphans in church. The choice of this target is because it is a command from the bible and the early church supported this vulnerable group so today it’s a call upon us Christians to fulfil the same. Given the fact that this group is susceptible to food insecurity, attempts are geared towards this. Demonstration site and nursery bed are set within the church so that all Christians would have an opportunity to visit the farm and where possible the targeted widows and orphans are provided with the seedlings as a start up so that they can get food and improve on their nutrition intake and also earn some money. The idea behind home gardening is for the target group to understand that wealth is at their disposable and that they utilise a small plot and get much. For example the small demonstration plots in church have generated income which we have invested in a weaving project owned by the widows. This has helped improve the wellbeing at the household. Having a diversity of sources of income in the household reduces poverty and vulnerability to HIV infection because one has what to eat.

CHAPTER 6 CONCLUSIONS AND RECOMMENDATIONS

6.0 Introduction

This section draws from all the findings from the research and ends up giving recommendations for further studies. However, the conclusions relate first to what home gardens mean to afflicted and non- afflicted households. The second conclusion relates to what intervening organisations ought to do so as to make community members appreciate the contribution of home gardens to food security in their households.

6.1 Implications to the households

Home gardens provide a wide range of tangible and intangible benefits to the gardeners regardless of age, gender and or abilities. Exposure to gardening at an early age is however seen as a strong determinant to becoming an avid adult gardener. Despite the fact that HIV/AIDS epidemic brings with it large economic and psychosocial costs for example reduced labour, disruption of households in terms of household composition, and stigmatizing individuals and families who show signs of having the disease, this study reveals that the disease also helps to motivate the afflicted households to engage in home gardening.

HIV/AIDS-afflicted people desire to cultivate a greater diversity of vegetable crops, to grow them more often and throughout the year, to raise them without chemicals basically for home consumption than for income generation which was seen as secondary. Amongst the afflicted, home gardens is a must while to none afflicted this was seen as an option which would be done once in awhile. The role played by home garden crops on a number of meals eaten daily especially among the non HIV/AIDS afflicted was insignificant. This could be as a result of low consumption of these crops at household level. Many households depend on traditional food of beans and matooke.

In general, for the more market-oriented plants such as fruit trees, men tended to make the decisions, whereas food and subsistence-oriented plants such as roots, tubers, and vegetables fell more into the domain of women. In this case, women are using home gardens to protect the food security of their families. The contribution of home gardens to family nutrition was not specifically addressed in this study but can be assumed to be large given that home gardens can be the basis of subsistence; however, even when they are only supplementary, home gardens are often the main providers of key sources of vitamins and minerals such as vegetables, fruits and herbs.

6.2 Affliction and social relations in the community

Regardless of the type of affliction, the social relationships in the community are transformed meaning that social capital gets constituted differently. The strong social ties that exist between extended families and kinship based networks over time get replaced. This is attributed to the fact that most community vulnerable individuals find social capital in villages and community based networks like from neighbors and church membership. In here solidarity seems to go beyond the family per se. The stronger and bigger the social

relationships between the people, the better the home gardening pattern and eventually this contributes to a better food security situation at household level.

However what remains challenging is how extended families and kinship ties will be rekindled to meet the social and moral needs of its members?

6.3 Implication to development agencies

Improving rural livelihood security through local gardens and income-generation activities especially for the men in order to reduce the pressure on men to run away from their families when there is a crisis of food (famine).

Improved hybrid kitchen gardens not only to meet the practical needs for food, nutrition, but also cash that would be used to supplement on the income got from agriculture, and cheaper remedies; but also offer the chance to reclaim dignity, increase self-reliance, and regain respect for local traditional values embedded in the specific crops that have been abandoned.

Tackling the barrier to home gardens which are associated with HIV/AIDS in the community. Ideally, the imagination is that the presence and existence of a home garden with more than three different kinds of vegetable crops is an indication that one is HIV/AIDS infected. Others still believe home gardens are for the poor. There is no doubt therefore that the disease remains heavily stigmatized a source of shame and a silent looming presence in the villages. In Uganda there has been high commitment by the government to bring the epidemic under control (Booth, 2004; UNAIDS, 2005) but still there is greater need for openness about HIV and AIDS to alleviate much of the discomfort, denial and discrimination that tend to slow the uptake of innovative garden technologies.

6.4 Recommendations

There is need for extensive training of households on the value of home gardens especially on the non HIV and AIDS afflicted persons who tend to view and identify home gardens to HIV affliction.

Organisations implementing food security activities should have specific programmes that directly target the HIV/AIDS afflicted. Government programmes like NAADS extension services at the sub county should identify other intervention strategies that are seen to benefit HIV afflicted. This is because NAADS puts emphasis on the universal delivery of services and with main interest on the physically strong who can contribute to labor. A factor that leaves most HIV/AIDS afflicted households food insecure is their inability to continuously contribute to group labor that most intervention agencies prefer to support persons in groups than as individuals.

Establishment of demonstration sites at village level that will act as training centres. Cyclic production and crop rotation techniques should be promoted to ensure an adequate supply of vegetable foods throughout the year. Continuous monitoring of the home gardens should be done by nutrition monitors established at village level. Nutrition monitors should be trained on different aspects of home gardening and nutrition. This will ensure ownership,

acceptability and sustainability even when the funding for such activities has ended, the community will be able to sustain it. Use of easily adoptable technology that is labour intensive should be encouraged.

A common practise on preservation of home garden foods to ensure continuous supply during the dry season is one area of further research to ascertain nutritional status of households in the two sub counties of Kinuuka and Kaliiro so as to determine the role of home garden foods in nutrient security for both afflicted and non-afflicted persons.

REFERENCES

- Action Aid, (2005), Food security and HIV/AIDS in Southern Africa: Case studies and implications for future policy. Action Aid International—Southern African Partnership Programme. Johannesburg. (Available for download from <http://www.sarpn.org>)
- Barnett, T., (2005), Along-wave event. HIV/AIDS, Politics, governance and security. Sundering the intergenerational bond?
- Barnett, T. and A. Whiteside, (2003), *Aids in the Twenty-first Century: Disease and Globalization* (2nd edition). Palgrave Macmillan, New York, 416 pp
- Beegle, K. and Ozler, B., (2007), *Young Women, Rich(er) Men, and the Spread of HIV*, World Bank, Washington,
- Booth, K., (2004), Local women, global science. Fighting AIDS in Kenya. Indiana University Press
- Buchmann, C, (2009), Cuban Home Gardens and Their Role in Social-Ecological Resilience
- Carney, D, (1998), *Sustainable rural livelihoods: What contribution can we make?* London, U.K.: Department for International Development.
- Chadha, M.L. and Olouch, M.O. (2003), Home based vegetable gardens and other strategies to overcome micronutrient malnutrition in developing countries. p 17-21 In: *Food, Nutrition and Agriculture*
- Chambers, R, (1989), Vulnerability, coping and policy. *IDS Bulletin*. 20, 1–7
- Chambers, R. and G. Conway, (1992), Sustainable rural livelihoods: Practical concepts for the 21st century. IDS Discussion Paper 296. Brighton: IDS.
- De Waal, A. and J. Tumushabe, (2003), HIV/AIDS and food security for Africa. A report for DFID.
- DFID, (2007), Sustainable Livelihoods Guidance Sheets, URL: www.nssd.net [accessed 01-08-2009]
- O'Donnell., (2004), Food Security, Livelihoods and HIV/AIDS. A guide to the Linkages, Measurements and programming implications
- Du Guerny, J., (2002), Meeting the HIV/AIDS challenge to food security: the role of labor saving technologies in farm households. UNDP South East Asia HIV and Development Programme and FAO
- Ellis, Kutengule, M. and Nyasulu, A, (2003), Livelihoods and rural poverty reduction in Malawi, *World Development* pp. 1495–1510
- Ellis, F and Freeman, A, (2002), Rural livelihoods and poverty reduction in four African Countries, *Journal of Development Studies* 40 (2002) (4), pp. 1–30
- Ellis, F., (2000), *Rural Livelihoods and Diversity in Developing Countries*, Oxford University Press
- Hebinck, P and Bourdillon, M.F.C., (2002), *Women, Men and Work. Rural Livelihoods in Central-eastern Zimbabwe*, Harare Weaver
- HSRC, (2003), Mitigation of HIV/AIDS impacts through agricultural and rural development, success stories and future actions. Human Services Research Council (HSRC) Workshop Report, May 27–29, Pretoria, South Africa

- FAO, (2004), Integrated Support to Sustainable Development and Food Security Programme (IP) Food and Agriculture Organization of the United Nations (FAO). The impact of HIV/AIDS on agricultural production and mainstreaming HIV/AIDS
- FAO, (2003), Mitigating the Impacts of HIV/AIDS on Food Security and Rural Poverty. FAO HIV/AIDS programme Report.
- FAO,(2002), 'HIV/AIDS, agriculture and food security in mainland and small island countries of Africa', Twenty-Second Regional Conference for Africa, Cairo, 4–8 February
- FAO, (2001), Committee on World Food Security; Twenty-seventh Session Rome. The impact of HIV/AIDS on food security
- FAO, (2001), Improving Nutrition through Home Gardening. A training package for preparing field workers in Africa. Rome, pg11-22
- FAO,(2000),IFAD's Gender Strengthening for East and Southern Africa-Uganda Field Diagnostic Study. Rome
- FAO, (1997), Agriculture, food and nutrition for Africa. A resource book for teachers of agriculture. Rome
- FAO, (1996) ,World food summit plan of action', FAO Corporate Document Repository.
- Fylkesnes, K, Musonda RM, Sichone M *et al.*, (2001), Declining HIV prevalence and risk behaviours in Zambia: evidence from surveillance and population-based surveys.
- Gari, J., (2004), Agro biodiversity strategies to combat food insecurity and HIV/AIDS impact on rural Africa. Advancing grassroots responses for nutrition, health and sustainable livelihoods. FAO Population and Development Service, Rome. <http://www.fao.org/hivaids>
- Gari, J.A., (2003), Agro biodiversity Strategies to Combat Food Insecurity and HIV/AIDS Impact in Rural Africa: Advancing Grass root Responses for Nutrition, Health and Sustainable Livelihoods (preliminary edition). Food and Agriculture Organization of the United Nations (FAO), Rome, 154 pp.
- Government of Uganda, (2000), The national strategic framework for HIV/AIDS activities in Uganda: 2000/1–2005/6. U. GoU, UNAIDS, other partners, Uganda.
- Granich, R. and Mermin J, (2001), HIV, Health & Your Community: A Guide for Action, Berkeley: The Hesperian Foundation.
- Jayne, T., Pingali,P., Villarreal., and Hemrich,G., (2005), HIV/AIDS and the Agricultural Sector in eastern and Southern Africa: Anticipating the Consequences. Background paper for working on Agricultural Policy and HIV/AIDS
- Luers, A., Lobell D., Sklar, L., Addams L, Matson P., (2003), A method for quantifying vulnerability, applied to the agricultural system of the Yaqui Valley, Mexico. Global Environ. Change, 13, 255-267
- Kiminami, L.Y. and Kiminami, A., (2006), 'Sustainability of agriculture and urban quality of life in Japan: economic efficiency, sociality and environmental protection', Studies in Regional Science, Vol. 36, No. 2, pp.305–321
- Koestler, S. (2002), Rural livelihoods and illness: Case-studies in Tanzania and Malawi. LADDER Working Paper, No. 19
- MAAIF, (2005), Uganda food and nutrition strategy and investment plan

- MAAIF, (2004), The national Agricultural Research Policy, Ministry of Agriculture and Animal Industry and Fisheries, Entebbe, Uganda
- MAAIF (2003), Ministry of Agriculture, Animal Industry and Fisheries Uganda. Guideline for Mainstreaming HIV/AIDS Responses into Agricultural Sectors pp23- 30
- MAAIF, (2000), National Agricultural Advisory Services programme (NAADS); Master document of the NAADS task force and joint donor groups, MAAIF Entebbe – Uganda, October 2000
- Marsh.R., (NA), Building on traditional gardening to improve household food security
- McDonough, J., (2002), Crop-based farming livelihoods and policies in Malawi. Ladder Working Paper No. 23
- Mpoyi, K and Paulus, S.J.,(1997), Promoting home gardening in Kinshasa, Zaire. In Traditional African Vegetables. Proceedings of the IPGRI International Workshop on Genetic Resources of Traditional vegetables in Africa: Conservation and use. Rome
- Mula, R.P., Gayao, B.T., (1991), Urban and rural home garden in the highlands of the northern Philippines: The case of sweet potato. Benguet State University, La Trinidad, Benguet, Philippines
- Mutangadura, G., (2005), Gender, HIV/AIDS And Rural Livelihoods in Southern Africa: Addressing The Challenges. JENDA:A Journal Of Culture and African Women Studies ISSN: 1530-5686, Issue 7.
- Mutangadura, G., (2000), Household welfare impacts of mortality of adult females in Zimbabwe: Implications for policy and programme development. Paper presented at the AIDS and Economics Symposium organized by the IAEC Network, Durban
- Mutangadura, G., Jackson, H., Mukurazita, D., (1999). AIDS and African Smallholder Agriculture. Workshop report, Southern Africa AIDS Information Dissemination Service (SAfAIDS). Harare, Zimbabwe
- Maxwell, (2001), The evolution of thinking about food security. In: S. Devereux and S. Maxwell, Editors, Food Security in Sub-Saharan Africa, ITDG Publishing, London
- Midmore, D.J, Ninez V and R Venkataraman,(1991), Household gardening project in Asia, past experience and future direction. In Food, Nutrition and Agriculture: Strategies to combat micronutrient deficiencies. Rome
- Musotsi, A.A, Sigot, A.J., Onyango M, (2008), The Role of Home Gardening In Household Food Security In Butere Division of Western Kenya
- National Agricultural Advisory Services Program [www.naads.or.ug]
- NAADS,(2001), Poverty and gender
- NAADS, (2000), Master Document of the NAADS Task Force and Joint Donor Groups. Ministry of Agriculture, Animal Industry and Fisheries. Entebbe, Uganda
- Naidu, V., and Harris, G., (2006), Survival strategies of HIV/AIDS –affected households in Soweto
- Niehof, A., and Price, L., (2008), Etic and emic perspectives on HIV/AIDS Impacts on rural livelihoods and agricultural practice in Sub-Saharan Africa.
- Nordin, S., (2005), Permaculture network of Malawi. Personal communication with Stacia Nordin, World Food Program, Malawi, November 2005.
- Nye, P.H., and Green, D.J.,(1960), The soil under shifting cultivation
- OPM, (2008), Independent Evaluation Of Uganda’s Poverty Eradication Action Plan (PEAP)

- Parkhurst, (2001),The crisis of AIDS and the politics of response: The case of Uganda, *International Relations* 15 (6) (2001), pp. 69-87
- RACOBABO, (2008), Organization Profile
- Rosegrant,W., and Cline,S.A., (2003), *Global Food Security: Challenges and Policies.*
- Scoones.I.,(1998),Sustainable Rural Livelihoods. A Framework for Analysis, University of Sussex Institute of Development Studies, Brighton, IDS working paper 72
- Seeley, J., (2002), Thinking with the livelihoods framework in the context of the HIV/AIDS epidemic. Research Paper, Livelihoods Connect, Institute of Development Studies, University of Sussex.
- Sen,A.,(1981),Poverty and Famines: An essay on Entitlements and deprivation. Oxford Clarendon Press
- Serpell, N., (1999), Children orphaned by HIV/AIDS/AIDS in Zambia: Risk factors from premature parental death and policy implications. PhD dissertation, University of Maryland
- Shrestha, P., Gautama, R., Rana, B.R., Sthapit,B.,(2001), Home Gardens in Nepal, status and scope for research and development. In WJ. Watson & PB.Eyzaguirre (Eds). *Home Gardens and in situ conservation of plant genetic resources in farming systems.* Proceedings of the second international Home Gardens workshop. Rome, IPGRI 2001: 105-117.
- Sigot, A.J., (2001), Indigenous Food Systems: Creating and Promoting Sustainable Livelihoods. Proceedings of the International Conference on Indigenous Knowledge Systems: African Perspectives. Thohoyandou, South Africa,:1-6.
- Soleri D., Cleveland D.A and frankenberger T.R., (1991), Gardens and vitamin A.A review of the literature
- Steiner, K., J. Kienzel, F., Ribeiro., (2004), Mitigating the Impact of HIV/AIDS by labor-saving technologies.” GTZ. African Conservation Tillage Network Information Series No. 9.
- Tchatat,M., (1996), Agro forested home gardens of the humid low lands in Cameroon: A case of forested zones in Centre and southern provinces
- Tonye, J., Ambassa-K.R and Nsangou, M., (1987), Description of land use systems in the forest zones of Cameroon: Ways of improvement
- UAC, (2003), Mainstreaming HIV/AIDS Issues into the Poverty Eradication Action Plan: Guidance for Sector and PEAP Revision Teams, Kampala
- UNAIDS, (2008), Report on the global Aids Epidemic
- UNAIDS, (2007), Uniting the world against AIDS. Available from: www.unaids.org
- UNAIDS, (1999),A review of household and community responses to the HIV/AIDS in the rural areas of Sub-Saharan Africa. UNAIDS best practices collections
- UNDP, (1996), *Urban agriculture: food, jobs and sustainable cities.* New York, NY, USA
- United Nations Development Programme (UNDP), 1996. Human Development Report
- Wisner,B.,Blaikie,P.,Cannon,T.,and Davis,I., (2004),At risk: natural hazards,people’s vulnerabilities and disasters 2nd edition Routledge London.