

**Contextualising the emergence and impacts of the
AIDS epidemic on rural livelihoods and
household food security in Masaka, Uganda**

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Contextualising the emergence and impacts of the AIDS epidemic on rural livelihoods and household food security in Masaka, Uganda

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Dedication

To my dear family, living and deceased, with deep gratitude for their support. Most especially to my mother Jovia Bwagiro, wife Florence Epodoi, daughters Jayden Epodoi Tumwine, Jensine Kyobugabe and son Joachim Tumwine for their love, encouragement, patience and sacrifices during the study period.

Table of Contents

Chapter 1: General Introduction to the Study

1.1	Evolution of the study.....	1
1.2	General and theoretical background.....	2
1.2.1	Africa and the geography of disease.....	5
1.2.2	Linking Ford to Stillwaggon's work on HIV/AIDS.....	9
1.2.3	AIDS impacts as documented in the literature.....	13
1.3	Problem statement and research questions.....	16
1.4	Conceptual framework.....	18
1.5	Study design and data collection.....	20
1.5.1	Study design, study area, and time frame of the study.....	20
1.5.2	Description of the methods used.....	21
1.5.3	Data analysis.....	26
1.6	Outline of the dissertation.....	27

Chapter 2: Contextualizing the Ecology of AIDS in Uganda and Masaka

2.1	Factors that shaped the epidemic in Uganda.....	29
2.1.1	Uganda's governance crisis: 1962-1986.....	29
2.1.2	Economic decline, poverty, and people's vulnerability to diseases: 1972-1986.....	32
2.1.3	The decline of health services: 1972 to 1986.....	35
2.1.4	AIDS and the demographic picture in Uganda.....	39
2.2	The local context of Masaka.....	40
2.2.1	Geographical location and history.....	40
2.2.2	The decline of farm-based livelihood opportunities and the alternative of fishing....	42
2.2.3	Labour migration and population mobility.....	43
2.3	Discussion and conclusion.....	47

Chapter 3: The General and AIDS-related Profiles of the Survey Households

3.1	General profile of the households in the survey.....	54
3.2	AIDS-related profile of the survey households.....	57
3.3	Discussion and conclusion.....	66

Chapter 4: Agricultural Production, Land Ownership and Utilisation

4.1	AIDS and the context of agriculture in Uganda and Masaka.....	72
4.2	Landownership.....	74
4.3	Land utilisation and farming practices.....	77
4.4	Changes in crops and livestock.....	80
4.5	Determinants of land use other than household HIV and AIDS status.....	84
4.6	Discussion and conclusion.....	86

Chapter 5: AIDS and Household Food Security	
5.1 The concept of food security and its indicators.....	90
5.2 Food availability and consumption.....	95
5.3 Households' weekly food intake.....	97
5.3.1 Discussion of the different food groups consumed.....	100
5.4 Households' perception of dietary intake and food security status.....	103
5.5 Household food shortages and coping strategies.....	107
5.6 Determinants of household food security.....	108
5.7 Discussion and conclusion.....	110
 Chapter 6: Households' Resilience to AIDS Impacts	
6.1 The concept of resilience.....	115
6.1.1 Social capital and resilience.....	115
6.1.2 Livelihood, vulnerability and resilience.....	116
6.2 Presentation of the cases.....	118
6.3 Analysis and discussion.....	130
6.4 Conclusion.....	135
 Chapter 7: Conclusion and Discussion	
7.1 Objective of the study and approach.....	137
7.2 Overview of the findings.....	138
7.3 Theoretical and policy implications.....	150
7.4 Looking ahead and concluding remarks.....	153
 References	156
 Appendices	167
 Thesis summary	177
 Acknowledgement	181
 About the author	182
 WASS Training and Supervision Plan	183

List of tables

Table 1.1	Cereal production in countries with a generalised AIDS epidemic 1989-2004.....	5
Table 1.2	Time frame for the study.....	21
Table 2.1	National coverage of ART services by type and level of facility, September 2014.....	39
Table 2.2	ART data for Masaka district in 2005-2011.....	47
Table 3.1	General profile of survey households according to AIDS status, 2007-2009(*).....	55
Table 3.2	Household economic status by Household HIV and AIDs status in 2007-2009.....	58
Table 3.3	Education of household members by household HIV/AIDS status 2007-2009.....	59
Table 3.4	Household morbidity and HIV/AIDS status in the last 5-10 years prior to 2007.....	59
Table 3.5	Morbidity in the households 2008 and 2009 by household HIV/AIDS status.....	60
Table 3.6	Household mortality by HIV/AIDS status in the last 5-10 years prior to 2007.....	60
Table 3.7	Mortality in the households in 2008 and 2009 by household HIV/AIDS status.....	61
Table 3.8	Causes of deaths by household status in the last 5-10 years prior to 2007.....	62
Table 3.9	Members leaving the household in the last 5-10 years prior to 2007.....	62
Table 3.10	Members leaving the household by HIV/AIDS status in 2008 and 2009.....	63
Table 3.11	Members who moved into the household in the last 5-10 years prior to 2007.....	63
Table 3.12	Members who have moved into the household in 2008 and 2009.....	64
Table 3.13	Fostering in of children by household status in the last 5-10 years prior to 2007.....	64
Table 3.14	Fostering in of children by household HIV/AIDS status in 2008 and 2009.....	65
Table 3.15	Fostering out of children in the last 5-10 years prior to 2007.....	65
Table 3.16	Household fostering out of children in 2008 and 2009	66
Table 4.1	The impact of HIV/AIDS on agrarian communities and households.....	73
Table 4.2	Landownership in acres by household HIV and AIDS status 2007-2009.....	75
Table 4.3	Land ownership by socio-economic status 2007-2009.....	75
Table 4.4	Changes in the land owned by household HIV/AIDS status 2007-2009.....	76
Table 4.5	Causes of the change in land owned by household status 2007-2009.....	76
Table 4.6	Changes in the amount of land owned by socio-economic status 2007-2009.....	76
Table 4.7	Causes of changes in amount of land owned by socio-economic status 2007-2009.....	77
Table 4.8	Amount of land under use 2007-2009 by household HIV and AIDS status.....	78
Table 4.9	Changes in the amount of land under use in 2007-2009.....	78
Table 4.10	Changes in land use 2007-2009 by household HIV and AIDS status.....	79
Table 4.11	Land use by socio-economic status 2007-2009.....	79
Table 4.12	Changes in land use by socio-economic status 2007-2009.....	80
Table 4.13	Type of changes in amount of land utilised by socio-economic status.....	80
Table 4.14	Changes in crops and livestock by household HIV and AIDS status.....	81
Table 4.15	Constraints to agricultural production in the household.....	83
Table 4.16	Chi-square tests for association between selected explanatory variables and amount of land under use.....	84
Table 4.17	T-test of variance on some of the explanatory variables and land use.....	85
Table 5.1	Household food availability during 2007-2009 by household HIV and AIDS status...	95
Table 5.2	Average weekly food consumption by household status in 2007-2009.....	97
Table 5.3	Household consumption of selected foods by gender of the household head in 2007-2009.....	99
Table 5.4	Consumption of selected foods according to household socio-economic status in 2007-2009.....	100
Table 5.5	Households' rating of their food security by household HIV and AIDS status in 2007-2009.....	106
Table 5.6	Self-rated food security status by gender of the household head in 2007-2009.....	106
Table 5.7	Reported causes of food shortage by household HIV/AIDS status in 2007-2009.....	106

Table 5.8	Major coping strategies by household HIV/AIDs status in 2007-2009.....	108
Table 5.9	Chi-square tests for associations between some of the explanatory variables and food security.....	108
Table 5.10	T-Tests of some explanatory variables association with food security.....	110

List of figures

Figure 2.1	HIV prevalence in selected antenatal sites 1989-2002.....	37
Figure 2.2	Number of active ART clients in Uganda 2003-2014.....	38
Figure 2.3	Crude Prevalence by sex in Masaka since 1990-2005.....	45
Figure 2.4	New HIV infection rate in Rural Masaka district.....	46
Figure 2.5	HIV incidence by sex in rural Masaka.....	46
Figure 6.1	Resilience as the product of impact and adaptive capacity.....	131

Chapter 1: General Introduction to the Study

This chapter introduces the evolution of the study, general introduction and theoretical background to the study, the AID impacts as documented in the literature, problem statement and research questions, conceptual framework, study design and data collection, study area and time frame for the study, description of the methods used, data analysis and outline of the thesis.

1.1 Evolution of the study

My interest in the linkages between AIDS, food and nutrition security, and rural development arose in 1998, when I worked as a rural sociologist on the CGIAR system-wide programme on participatory research, gender and stakeholder analysis (PRGA). The International Centre for Tropical Agriculture (CIAT) Africa and the African Highlands Initiatives World Agro-forestry (ICRAF-AHI) implemented the programme. During this period, I lived in a rural farming community in southwestern Uganda. There, I was often faced with the realities of AIDS-related morbidity and mortality in the communities and I observed that AIDS was a big problem. At the same time, I also realised that there were other problems, such as crop pests and diseases, seasonal droughts and floods, soil degradation, land fragmentation, and many others. All of these had important implications for the welfare and food and nutrition security of households.

The problem of AIDS morbidity and mortality in the rural farming communities informed my graduate research work in 2001, which focused on the effects of AIDS on agricultural production and livelihoods (Tumwine, 2004). The major findings of that study suggested that there were growing linkages between poverty, gender inequality, natural resource degradation, and agricultural production, and food, nutrition and livelihood insecurity in the rural farming communities. These constituted a challenge to development policy and practice.

As my interest in AIDS and livelihoods developed, I also became increasingly intrigued by the fact that some parts of Uganda faced bigger AIDS-related problems than others. While studies on the impact of AIDS on agriculture and rural livelihoods were accumulating, I felt that such analyses were telling only part of the story, and that the reality was more complex. I felt that the impact of AIDS on rural households, albeit important, needed to be placed in the wider context of the history of the epidemic and the communities it affected.

This prompted my interest to look into AIDS more broadly, particularly through exploration of the ecological context. For this thesis, my ambition was to study the complex interactions between historical, political, demographic, socio-economic, cultural and environmental factors in which the AIDS epidemic emerged and spread, and its impacts on household food and

nutrition security. This also implied that I would ask myself questions, which later become this study's research questions: Is the context changing over time? If so, how is it changing? What was the ecological context that shaped the AIDS epidemic in Uganda in general and in Masaka (the chosen study area) in particular? The ecological context within which the AIDS epidemic emerged in Uganda in the early 1980s unleashed a big livelihood crisis in rural farming communities. I became convinced that analysing this ecological context by linking historical, political, demographic, socio-economic, cultural and environmental factors, might yield important theoretical and policy insights. The objective of this thesis was to investigate the political, economic, cultural, historical and geographical factors in which the AIDS epidemic emerged in Uganda in the early 1980s and became a big livelihood and social crisis. The study explored how the AIDS epidemic had affected the livelihood and food and nutrition security of households in affected communities and how in this context households had been attempting to cope with the impacts of AIDS over time. In order to unveil this context and the mechanisms behind the spread of AIDS in Uganda, as well as its impact on the household food and nutrition security and households' coping mechanisms, empirical research was conducted in Masaka district in south-western Uganda in the period 2007 to 2011 by using a combination of methods.

This chapter begins with an introduction to AIDS, and a discussion of the impacts on agriculture and food and nutrition security. It then defines the research problem and states the case for bringing in more contextual factors, including history. An argument is advanced here that as an epidemic evolves its impact changes and so does the societal response to it. Such changes could only be understood by conducting a broad study covering a range of information sources. The second part of the chapters discusses the methods that were used in the data collection.

1.2 General and theoretical background

The world has experienced the effects of the AIDS pandemic for over two decades. Global statistics indicate that sub-Saharan Africa is the world's most affected region (UNAIDS, 2004; Walker *et al.*, 2004). Although the global rate of new infections appears to have stabilised for the first time in the history of HIV/AIDS, the pandemic will still have a deep, long-term impact on affected communities and nations (UNAIDS, 2002). The threat of AIDS is not in figures *per se*, but in the misery it inflicts on the affected individuals and families. Studies commissioned by FAO, RENEWAL and IFPRI have documented the impact of AIDS on agriculture, industry, education and the business sectors. In the agricultural sector, many farmers and agricultural extension workers have died and many others are ill. This situation has led to a drastic fall in agricultural production levels, which are linked to a drop in labour force, a determinant factor of agricultural production in most parts of Africa (FAO, 2003; Topouzis, 2003). Households

sell most of their assets in order to have access to food and medicine, especially for children. AIDS, therefore, has been a serious threat to fragile livelihoods.

Disease, food and livelihood insecurity, and poverty are intricately linked. Food and nutrition security determines health, and health determines productivity. People who are ill are not able to work on the farms, and chronically hungry people have more than their fair share of health-related problems. When it came to the AIDS epidemic, it was originally perceived as a medical problem and as a disease of unorthodox life styles (Leach *et al.*, 2010). It was later viewed as a disease of deprivation that affected marginalised groups such as sex workers and poor migrants (Biraro *et al.*, 2009). A later variant of this idea perceived AIDS as a disease of the general population, but concentrated among the poor (Stillwaggon, 2006; Seeley *et al.*, 2008). As a consequence, the interaction between pathogen, ecological context and social worlds was given less attention.

For over 25 years, AIDS has been spreading across the world. Since its detection in Uganda in 1982, several studies have been conducted on the impact of AIDS on various social and economic sectors of Uganda (Barnett and Blaikie, 1992; Barnett *et al.*, 1995; Barnett, 2006). The overall conclusion from the studies by Barnett and Blaikie (1992) and Gillespie and Kadiyala (2005) and others was that the livelihoods of rural farming households were seriously affected by the epidemic. Such studies have influenced and continue to influence policy and programmes (Rugalema, 2000). Rau *et al.* (2008) and Barnett and Blaikie (1992) list the following major impacts of AIDS:

- Agricultural production declines owing to loss of labour and other critical inputs.
- Nutrition among household members in the affected households is undermined because of decreased food security and shifts to less nutritious but easier-to-cultivate crops such as cassava, which exacerbates malnutrition.
- Household demography changes from fragmentation to dissolution.
- The population age-structure of the affected countries is altered, as the share of adults in the productive age's decreases and that of children (1-14 years) increases.
- The population of orphans is high and this affects the plight of orphans.
- Property rights are affected, particularly those of widows and orphans.
- Wealth and asset structures change, and people sell assets for medical care and food.
- The elderly shoulder the high burden of caring for the sick and raising the orphans.
- Social capital declines.
- Loss of household labour affects income and crop production potential.
- Rural inequality and poverty rise due to the disproportionately severe effects of AIDS on relatively poor households.

- A reduction in household assets and wealth due to AIDS occurs, leading to less capital-intensive cropping systems for severely affected households.
- The death of rural women and men from AIDS-related illnesses undermines the transfer of knowledge of crop and husbandry and marketing to subsequent generations of farmers.
- Gender inequalities increase, particularly regarding access to productive resources.
- The general picture is that AIDS has a very grave impact on the social and economic lives of individuals, households and communities.

This thesis starts from the view that in order to analyse and understand the impact of an epidemic on society, the ecological contexts in which an epidemic emerges, spreads, affects society, and either persists, declines or disappears, have to be analysed. In other words, an epidemic is always also a context-dependent phenomenon. When the context changes, the course of an epidemic is likely to change too. The outbreak of an epidemic requires a combination of favourable factors. Thus, different communities within a locality or a country are often affected differently by an epidemic, and the ways in which communities respond may differ from community to community (Gillespie *et al.*, 2010). Understanding the dynamics of an epidemic and its impacts on agrarian households over time requires a grasp of this context, because it is the context that often switches on or off some of the key mechanisms affecting social welfare.

In recent times, queries have been raised about past studies on the impacts of the AIDS epidemic and the validity of some of the conclusions emanating from those studies.¹ As will be discussed in the next two sections, Barnett's study showed that some of these issues stem from the methodological approaches employed in researching the linkages between AIDS and rural livelihoods (Barnett, 2006). Suffice to mention here that many of those past studies were cross-sectional and based on small (and sometimes non-randomised) samples, which were inadequate to show trajectories of the impact of AIDS on food and nutrition security over time (Barnett, 2006). Rau *et al.* (2008) conclude that some of the broad impacts of AIDS on rural livelihoods and food security seem to be changing over time and question the idea that there is a simple relationship between AIDS and food security. As Table 1 shows, in some African countries (Malawi, for example) agricultural production was higher in the years when AIDS was at its peak. In many cases, either the projected intensity of the epidemic trajectory has not occurred, or the

¹This issue is increasingly raised by AIDS researchers, including Professor Tony Barnett, who on 14 May 2009 organised a seminar at the London School of Economics to address the discrepancy between the predictions and conclusions reached by earlier studies about AIDS and rural livelihoods and the reality on the ground. The summary statement of the seminar was that "a number of the worst-case scenarios on the impact of AIDS in Africa have not come to pass."

cumulative impact on households and communities has been less intensive than previously estimated (Seeley *et al.*, 2010a). What appears to have happened is a more flexible and diverse set of responses to the epidemic than anticipated by many researchers and analysts in the 1990s (cf. Gillespie *et al.*, 2010).

Table 1.1: Cereal production in countries with a generalised AIDS epidemic 1989-2004

Country	1989-1991		1999-2001		2003		2004	
	Food production	Adult HIV prevalence ^a	Food production	Adult HIV prevalence ^a	Food production	Adult HIV prevalence ^a	Food production	Adult HIV prevalence ^a
Cameroon	890	1.3%	1272	6.0%	1584	5.7%	1684	5.5%
Kenya	2958	3.9-5.2%	2921	7.4-9.8%	3351	6.0-8.0%	2730	5.8-7.8%
Malawi	1560	3.6%	2336	13.3%	2142	12.8%	1843	12.5%
Mozambique	629	1.8%	1591	10.3%	1813	11.5%	2007	11.9%
Zambia	1467	11.8%	934	15.4%	1365	15.2%	1364	15.1%

Source: Rau *et al.*, 2008

Although the lesser severity of impacts than anticipated has been attributed to so-called “coping strategies”, it has been argued that little is known about the coping strategies that have been successful, as well as their duration and their conditions (cf. Rugalema, 2000). Such questions might be answered with the help of studies drawing on historical data, since this would help reveal how the context has been changing over time. The situation is summed up by Barnett thus:

“...we really do not have long-term evidence with the kind of detailed analysis necessary to understand the complexity and diversity of the impact of the epidemic on rural society in Africa. What we do have is a large and growing body of very uncertain ‘evidence’ about what has been happening” (Barnett, 2006: 344).

1.2.1 Africa and the geography of disease

Richards (1983) suggests that three points of view have dominated the study of the ecology of disease in Africa. The first viewpoint posits that tropical Africa is, and perhaps always has been, a place of particular unhealthiness. Richards argues that human groups have developed some biological defences, but largely at the expense of an exceptionally high infant mortality. Thus, Africa is largely seen as a continent trapped in a vicious circle of disease-underpopulation-low level of technological development-disease. Stillwaggon (2006) argued that HIV/AIDS epidemic in Sub-Saharan Africa is not an isolated phenomenon but a predictable outcome of an

environment of poverty, worsening nutrition, chronic parasites infection, and limited access to medical care. She argued that in such circumstances, people are more susceptible to all infectious diseases, no matter how they are transmitted. Related to this is the argument that tropical Africa is a zone of exceptional health risks, in large measure resulting from intensified contact with the rest of the world, especially during the period of the slave trade. Major epidemic diseases such as smallpox, venereal diseases, influenza and cholera are believed to have been introduced through ports and subsequently spread along major trade routes (Richards, 1983). According to Richards (1983), contact with the rest of the world continued to facilitate the spread of such diseases by allowing or encouraging new patterns of population mobility (such as long-distance labour migration). Interregional and international mobility in modern Africa has exacerbated this situation, the disease hazards associated with the airlifting of pilgrims to religious sacred places being one example.

The second view focuses on the interplay of political economies and political and economic conquests in relation to disease outbreaks. Take, for example, the early globalisation process in which the intensification of trade, military conflict, conquest and imperialism connected ancient zones of infection. As a result of this process, emergent world systems of political conquest and economic exploitation expanded to the great Asiatic heartlands for epidemic diseases such as the plague and cholera. This view is supported by the first viewpoint explained above, which is based on the dependence and increasing unhealthiness model. This model does not only capture a vicious circle of diseases, but also the sharp decline in African health standards, especially during the late 19th and early 20th centuries, as a result of the introduction of non-African epidemic diseases. These non-endemic diseases spread as a result of occupational demands that created networks of multiple sex partners in which HIV could spread to and through ports, urban centres, market places, itinerate traders, and truck drivers (Lyons, 1984; Hunt, 1989; Oruboloye *et al.*, 1993; Setel, 1999). Moreover, although such diseases can reach rural areas, urban centres and communication networks are important for their control (Richards, 1983). According to this viewpoint, major epidemics tend to underline economic and political weaknesses within society and heighten inter-group conflicts, whether there is a direct relationship between political and economic conquest or not. For instance, rinderpest threatened established political power over large parts of eastern and central Africa in the 1880s by wiping out savings held in the form of cattle (Ford, 1971; Kuper, 1982). Likewise, smallpox affected West Africa in the 19th century by overturning established notions of social worth because it attacked rich and poor alike (Richards, 1983).

The third viewpoint relies on a dynamic ecosystem approach, which focuses on the interactions between people, pathogens and the environment (Richards, 1983). An outstanding example is Ford's (1971) work on the ecology of African trypanosomiasis. Ford used a broad ecological

framework to present the narrative of African trypanosomiasis in eastern and southern Africa. The framework used by Ford with respect to the African sleeping sickness epidemic is particularly useful for this study as it exemplifies the dynamic ecosystem approach by linking biological, ecological, demographic, historical, cultural and environmental factors. Ford showed that these factors contribute to the overall context in which an epidemic disease emerges, spreads and affects society, and either persists, declines or disappears. He believed that knowledge of the past was necessary in order to comprehend the tsetse fly problem. He studied the conditions relating to climate, geography, ecosystems, human habitation and stock farming long before the emergence of the epidemic, arguing that it is not possible to understand the consequences of an epidemic without understanding the events that preceded it (Ford, 1971).

When linked in different combinations, the components of Ford's broad framework yield different disease epidemiological models. Ford (1971) stressed building a range of models using different data sets, each depending on the relative weight of the factors. In his study, he showed that in some locations, the significant element might be the ecology of the tsetse fly, while in others it could be cattle interactions with humans, or human dislocation due to disease, war or forced labour. Therefore, these models vary in their applicability according to region. For example, in Nigeria, Ford observed that the main element was cattle transhumance and that the control of the cattle disease depended greatly on the knowledge of the Fulani herders who passed through the fly-belts when taking their cattle to new pastures. In Congo, human sleeping sickness had much to do with King Leopold's forced labour policy and the disruptive ivory and wild rubber trades. Forced labour undermined local agriculture, and carrying rubber and ivory to the coast over long distances spread venereal diseases. This resulted in low human fertility and exacerbated the problem of agricultural labour and bush re-growth (Ford, 1971). In Uganda, emergent consequences followed upon the relocation of populations along the tsetse fly infected Nile corridor. These distinct regional models depend on a different combination of disciplinary data sets, according to the context being studied.

Ford (1971) showed that the re-emergence of trypanosomiasis in the 1930s and 1950s in Nigeria (and some parts of West Africa) was a result of international trade, slave raiding, increase in shifting cultivation, natural resources exploitation (such as the rubber trade), increased cattle corridor routes and population mobility, and labour migration to the tin mines of the Jos plateau. The argument relates to his Pax Britanica theory of sleeping sickness epidemiology, which assumes different levels of interregional population mobility to be a result of political instability. Ford argued that colonialism created migrant labour opportunities, increased agriculture and trade, which heightened vulnerability to sleeping sickness as people either came into contact with the disease for the first time or encountered new and virulent strains for which

they had no immunity. Moreover, he urged that the human population decreased due to drought and the outbreak of other communicable diseases such as smallpox and measles. In fact, trypanosomiasis is part of this broader context within which HIV/AIDS emerged. Ford showed that the most virulent epidemic of sleeping sickness started on the shores of Lake Victoria, spreading south to Tanzania, Rhodesia present-day Zimbabwe and to West Africa. Notably, the AIDS epidemic was first reported around the shores of Lake Victoria in the Uganda-Tanzania crescent and later spread to other areas.

Of the three approaches outlined above, I find Ford's disease ecology framework conceptually useful in capturing the social and ecological dynamics at play in an epidemic as complex as that of HIV/AIDS. This study is informed not only by the framework of Ford (1971), but also by that of Stillwaggon (2006). This is elaborated in the next section.

The present study derives ideas and lessons from two big epidemics that killed many Africans, spread hunger and affected people's livelihoods. These are the influenza pandemic of 1918-1919 and the rinderpest plague of the 1890s. The influenza pandemic killed somewhere between 20 and 40 million people (Billings, 1997). It has been cited as the most devastating epidemic on record (Crosby, 2003). The rinderpest plague, which spread throughout Africa from the 1890s onwards, started in the Nile corridor, running downwards to Southern Africa and eventually reaching West Africa (Richards, 1983). Rinderpest affected the cattle population and devastated entire agro-pastoral economies. People dependent on cattle died of starvation and the epidemic disabled important social and cultural processes (Ford, 1971). This second aspect has been documented by Kuper (1982). Economically, rinderpest dislocated people when they lost their savings due to cattle losses. This, in turn, caused the further spreading of hunger and affected agricultural development. Nonetheless, the communities affected strove to survive. Whereas rinderpest interrupted cattle gift exchanges related to marriage, people kept the process going despite lack of cattle. They started piling stones to stand in for cattle that would have been exchanged for the brides, expecting that after they had recovered from the epidemic, they would be able to pay the bride prices (Kuper, 1982). In short, it temporarily disabled the process but did not change the culture. Thus, knowledge of how people overcame the problems brought about by past epidemics might provide lessons to help situate the AIDS epidemic in a broader ecological, social and political context, as well as to investigate the impacts on rural households and food security.

1.2.2 Linking Ford to Stillwaggon's work on HIV/AIDS

In developing the study conceptual framework, a leading question was what triggered the wave of susceptibility to HIV that engulfed Uganda in general and Masaka in particular. This question was informed by the work of Stillwaggon (2006) on the significance of the epidemiological and

socioeconomic environments for the heterosexual and vertical transmission of HIV/AIDS epidemics in sub-Saharan Africa, Latin America and Caribbean region, and Eastern Europe and the former Soviet Union. The added value of Stillwaggon's framework besides the fact that it applies an ecological framework to HIV/AIDS specifically (which at the time of Ford was not yet in the picture), is the incorporation of the factor of the political economy. Stillwaggon's extraordinary, first-hand experience of the environment and complexity in which epidemics develop in poor countries is one of the most convincing and refreshing aspects of her analysis. A sense of urgency for comprehensive policies and a rooted, strong, sense of disillusion and scepticism about fragmented, end-of-game interventions in global AIDS policy cut across her work. This sense of urgency is more than justified since sub-Saharan Africa, Latin America, the Caribbean, and Eastern Europe and the former Soviet Union are in fact regions which experienced the highest prevalence and fastest reported spread of HIV (Stillwaggon, 2006:16).

Stillwaggon's framework emphasises the need for the organisation of interdisciplinary data and statistical analyses to intelligently contextualise the epidemics in the reality of poor countries and for a robust logical approach to explain the specific characteristics of HIV/AIDS dynamics in poor countries and outline the implications for AIDS policy in low- and middle income regions. Stillwaggon explains the spread of HIV in the light of biological and socio-economic conditions in developing and transitional countries. She criticises the strictly behaviourist paradigm according to which differences in HIV prevalence across populations reflect differences in sexual behaviour as a racial metaphor that not only leads to misinterpretation of facts but also filters the acquisition of facts (Stillwaggon, 2006). She proposes an alternative and cost-effective model of intervention that first tackles HIV-specific synergies, i.e. the broad range of factors that fuel the spread of HIV, rather than interventions informed by the behaviourist paradigm that requires an absorptive capacity that those poor countries lack.

Stillwaggon argued that heterosexual intercourse as the immediate cause of HIV transmission in sub-Saharan countries led most researchers and organisations to focus on prevention and containment of the epidemic through pressure on changing sexual behaviours. Stillwaggon challenged this approach. First, she demonstrated that there is no correlation between higher rates of HIV and countries with higher rates of early initiation of sex, premarital sex, or multi-partnered sex (Stillwaggon, 2006: 14), and, instead, presents evidence on the interaction between human ecological settings and the spread of the disease. She further criticised the behavioural paradigm as based on longstanding stereotypes of African sexuality as a special case, a view that is held by a substantial body of academic, mostly ethnographic, studies. Among them, Stillwaggon critically discusses the influential work by John and Pat Caldwell and Pat Quiggin (1989), who identified Africa as the "domain of *Homo Ancestralis*" and, according to Stillwaggon, thereby projected the context of early hominids into modern Africa.

Stillwaggon argued that transmission depends on much more than sexual contact and that prevalence of HIV in Africa is not a special case but a brutal indicator of the nutritional, infectious, and parasitic diseases that have long affected African people. She sees malnutrition, malaria, leishmaniasis, helminthic and filarial infections, genital schistosomiasis, tuberculosis, and STDs, as well as economic and social conditions as crucial factors in the spread of HIV. These factors thrive in a context of poverty and cause the body to be more susceptible to HIV infection.

Stillwaggon supported her argument with solid scientific research. She describes how deficiency in micro-nutrients like iron, zinc, and vitamin A, suppresses immunity and so increases the likelihood of HIV transmission, and how malaria, which in acute form afflicts more than 300 million people in Africa each year, is known to stimulate HIV replication; HIV viral loads are significantly higher in malaria patients than in HIV infected persons without malaria (Stillwaggon, 2006: 48). She also explains how genital schistosomiasis, a parasite infection caused by contact with fresh water infested with snails that harbour schistosome worms, promotes the transmission of HIV. It does so not only through the general effect of parasite load on nutritional balance and immune activation, but also through the general effect on immune system barriers (skin and mucosa) and on cell-mediated response. The same applies to other kinds of worms, such as helminthic and filarial infections (Stillwaggon, 2006: 56, 51). Sub-Saharan Africa has the highest prevalence of tuberculosis in the world and it resurged simultaneously with the spread of HIV. Stillwaggon (2006: 61) argues that if TBC increases HIV transmission, as do malaria and other parasites, the implications of higher prevalence of TBC for future spread of HIV are ominous. She further shows how sexually transmitted diseases other than HIV increase susceptibility to HIV infection.

Another integral aspect of Ford's framework that Stillwaggon's work emphasises as well is the relationship between population mobility and spread of HIV/AIDS in Africa. Several studies have shown this relationship (see Oruboloye, 1993; Lyons, 1994; Setel, 1999). These studies have also pointed at the role of migration in the prevalence of sexually transmitted diseases and HIV/AIDS. Furthermore, both Ford and Stillwaggon place emphasis on understanding the way in which the broader ecological context facilitates the emergence and spread of epidemic diseases. In this respect, Lyons (1985) argues that there is a general need to explore the correlation between socio-economic factors and epidemics. In her study of sleeping sickness in Zaire, Lyons cites factors like diet, nutrition and fatigue as relevant epidemiological variables. Lyons' research showed that these factors varied widely within specific social groups. Ford's framework also shows that an epidemic disease can have a strong impact in one area but not necessarily in another, due to a different mix of ecological, socio-economic factors that cause diversity of the epidemic impact (see also Gillespie *et al.*, 2010). One of the points highlighted

by the frameworks of Ford and Stillwaggon is that several venereal diseases across the region were an indirect result of the migrant labour, past and present diseases and malnutrition. Lyons (1994) presents evidence for Uganda that HIV/AIDS and STDs are linked and that these two are historically connected through their pathways of dispersal. All these points are fundamental to the analysis in the present thesis.

Both Ford and Stillwaggon emphasise the importance of understanding the history of an epidemic. Iliffe (2006) offers key advantages of using a historical perspective. One is that it answers the question as to why Africa experiences a uniquely terrible HIV epidemic. Iliffe attributes this to poverty and exploitation. He shows that the epidemic was a result of historical circumstances, arguing that the AIDS epidemic in Africa was established before anyone knew that it existed and was aggravated by factors such as poverty and gender relations. Second is the issue of the role of the evolution of the virus, which, in the case of HIV evolved with extraordinary speed and complexity. Illiffe's study showed that HIV/AIDS was profoundly different from earlier African epidemics. It arose from human-environment interactions that are the most continuous theme of the African past. He argues that the virus created a continental epidemic, as a consequence of massive population growth, urbanisation and social change in Africa during the later 20th century. Moreover, the epidemic took shape based on the structures of the commercial economy that had developed during the colonial period. Illiffe's study showed that human responses to HIV/AIDS became part of an ongoing interaction between inherited moral understanding of the disease and medical explanations provided by modern African doctors and international authorities. Like all disastrous African epidemics, HIV/AIDS became a catalyst of change as a result of its impacts on the society (Niehof, 2012). However, the direction this change took was one already set by historical processes. In the light of these findings, Illiffe emphasised the importance of learning from previous experiences in controlling epidemics.

In his study on sleeping sickness, Ford (1971) emphasised the point that there was never one single epidemic of sleeping sickness but a diversity of epidemics, each shaped by specific cultural and historical circumstances. This applies as well to HIV/AIDS (Gillespie *et al.*, 2010). The point of the diversity of AIDS epidemics is becoming increasingly understood and appreciated in the AIDS debate. According to Dr Rugalema (personal communication, 2010), the first decades of AIDS were characterised by rhetoric and research as if AIDS was special and exceptional. UNAIDS is now calling for a leap beyond "AIDS exceptionalism" to what is now called "AIDS plus", which is – simply said – the appreciation that AIDS is but one problem occurring within a complex context of social, historical, economic and demographic factors. Stillwaggon (2006) argues that to understand how HIV has spread in Africa, it is important to unveil the economic and nutritional indicators relevant to people's health profiles and the bio-

medical effects of economic conditions that contribute to high HIV transmission rates as well as to look at how socio-economic factors affect the options that people have and the choices they make to cope with the disease.

In his framework, Ford (1971) also underlined the importance of understanding a society's recovery or adjustment processes. He argues that ecological adjustment or adaptation is never final, but a continuous process involving complex interplay among a range of factors, which are themselves changing at various rates. According to him, adjustments or adaptations are specific to certain geographical areas, implying the importance of local knowledge in controlling the disease. Ford argues that before the ecology was disrupted because of the introduction of trade and migrant labour that accompanied colonisation, Africans were in contact with the wilderness and had the necessary skills to cope with trypanosomiasis using local knowledge. Since the publication of Ford's work, several scholars have brought Ford's approach into more recent debate (e.g. Kjekshus, 1977; Richards, 1983; McCracken, 1987) by emphasising the study of disease ecology for understanding the emergence and outbreak of epidemics. Though these studies did not specifically focus on HIV/AIDS, they share the view that disease epidemics cannot be comprehended without understanding the context in which they occur. A combination of factors always facilitates the emergence of epidemics, either directly or indirectly (Wilcox and Colwell, 2005).

Ford's point of the importance of local knowledge in disease control and prevention is shared by Rugalema *et al.* (2009). The study shows that local farmers' knowledge of emerging and re-emerging infectious diseases of humans, crops and livestock, as well as their impact on household food security in the Tanzania-Uganda Lake Victoria interface is not only important for providing information regarding the extent of the impact of disease, but also for practical control strategies. Anthropologists who conducted field research between the early 1900s and the 1950s occasionally observed outbreaks of smallpox, cholera, measles, typhoid fever, and Ebola (Richards, 1983). They also reported on the human response to acute epidemics (McGrath, 1991). These reports have served to inform the discussion on the human response to the AIDS epidemic.

Finally, Stillwaggon's analysis of the complexity of complementarities of poverty, inequality, social and economic disintegration and the spread of HIV, should inform policy. In Stillwaggon's (2006) chapter entitled "*HIV/AIDS policies Too Little, Too Late*", she argues that plans of the international community to spend billions of dollars to prevent HIV transmission fail to get beyond the sex act to address the larger context of disease in poor communities. Instead, she proposes interventions, adding the required investments and sources of technical advice and aid. These interventions include a plan to eradicate helminth and schistosoma

infections and improve water quality and latrines; strengthening trade relations among poor countries, including the reduction of border delays, as the fastest strategy to foster more immediate improvement in economic conditions; nutritional aid to bolster the immune system; elimination of school fees for girls; protection of women's rights; extension of health care services; and creating transport systems that reduce travel time to enable families to re-unite even in the presence of migrant work. Some of these recommendations inform the discussion about policy responses in Chapter 7.

1.2.3 AIDS impacts as documented in the literature

Since FAO considered the threat that AIDS posed on food security in Africa two decades ago (Gillespie, 1989), many studies have since shown that African farmers are vulnerable to the downstream impacts of AIDS on their livelihoods, as the disease reduces household resources, in particular farm labour. Labour loss occurs not only because of sickness and premature adult death, but also as a result of its reallocation to nurse the ill, while working capital and income are siphoned off to pay mounting medical bills (Du Preez and Niehof, 2008). Niehof *et al.* (2010) showed that the specific levels and types of vulnerability depend on the characteristics of families, livelihoods and farming systems. Evidence from southern and eastern Africa clearly shows that it is the poor and food insecure who suffer greater and more enduring livelihood impacts from concurrent health and economic shocks (Gillespie and Kadiyala, 2005). Chronic food insecurity constrains resilience and forecloses options to adapt to stress. Barnett and Blaikie (1992) showed that AIDS impacts are not one time events, they are processes, often hidden, slow-moving, but destructive. These processes are punctuated by events, such as the sale of assets, some of which are irreversible, leaving the household – if it survives – significantly impoverished (Rugalema, 1999b). Loevinsohn and Gillespie (2003) posit that AIDS impact can be looked at from different levels: the level of microbiology, and the level of micro- meso- and macro environments.

At the microbiological or physiological level, HIV affects the nutritional status of the individual, which causes progression to AIDS-related diseases. People living with HIV/AIDS have increased nutritional requirements: 50% for protein and 15% for energy (Loevinsohn and Gillespie, 2003). A study by Semba and Tang (1999) showed that AIDS causes insufficient dietary intake, malabsorption of nutrients and diarrhoea, which in turn results in nutrition deficiencies, increased oxidative stress and immune suppression, leading to increased HIV replication, hastened disease progression and increased morbidity. Studies have shown that people who are well nourished are able to prolong the asymptomatic period of relative health before full-blown AIDS develops. Nutrition impacts of HIV infections at the individual level will have implications for whole households, especially where income is dependent on manual labour productivity. Moreover, nutrition is a fundamental consideration in all aspects of HIV

responses, including prevention, care, treatment and as well as mitigation (Loevinsohn and Gillespie, 2003).

Much of the impact of HIV and AIDS has been documented at the micro-environmental level, mainly focusing on household composition and labour supply, household resources, attitude and knowledge (Seeley, 2013). Household labour supply impacts include loss of labour of the sick person and labour diversion of the members of afflicted household to care and support, and attending funeral ceremonies (Bota *et al.*, 2001; Topouzis and Du Guerny 1999; Shah *et al.*, 2001; Du Preez and Niehof, 2008). The loss of labour results in changes in the affected household's use of land and other resources (Hunter *et al.*, 1993; Haddad and Gillespie, 2001; De Waal and Tumushabe, 2003), leading to delayed agricultural activities and negative effects on production (Yamano and Jayne, 2002). The impacts on household resources include loss of labour, costs of treatment and funerals (Bota *et al.*, 2001), and sale of household assets and increased indebtedness (Shah *et al.*, 2001). Reduced production, shift to less demanding and remunerative enterprises, sale of assets and indebtedness result in impoverishment of afflicted households (Barnett and Whiteside, 2002) and property grabbing from widows (Ngwira *et al.*, 2001). Decline of production, consumption and income puts household members, and especially children, at the risk of malnutrition and its consequences (FANTA, 2013). The various effects of AIDS on household labour and resources increase vulnerability to episodes of acute and chronic food insecurity (De Waal and Whiteside, 2003). The literature further shows AIDS impacts on attitudes and knowledge and values. Those affected develop a short-term outlook, for example by investing in short-term economic activities rather than in agricultural enterprises of which returns take long to accrue. Children left behind when their parents die, may not have the required skills for some key economic and agricultural activities while other children start performing adult responsibilities at an early age. This has long-term negative impacts on the acquisition of literacy skills and increases the vulnerability of girls (Loevinsohn and Gillespie, 2003).

There are also major intra-household effects because not all household members are equally vulnerable; women and children tend to shoulder a disproportionate share of the burden of AIDS (Wiegers, 2006; Niehof, 2008). AIDS-related morbidity generates care needs that place a strain on household resources and compels those who are expected to give care to divert time and labour from productive activities to caring. In sub-Saharan Africa, in the domestic context women are the main caregivers, so the burden of care falls primarily on them (Müller, 2005; Du Preez and Niehof, 2008). Niehof *et al.* (2010) showed that the new variant famine hypothesis (De Waal and Whiteside, 2003) at micro level revolves around the culturally underpinned reproductive responsibilities of women. Because of their care duties, women cannot perform income-earning opportunities in a situation where the household is already experiencing decline

of income and depletion of resources due to illness of a previously productive adult. As a consequence, they can no longer adequately feed their families. When children have to help out and are dropping out of school to do so (Kakuru, 2006; Karuhanga Beraho, 2008), the division of responsibilities and the burden of work in the household have fundamentally shifted at the expense of household food security, women's health and children's future. Not only within the household, but also with regard to household composition and headship, AIDS resulted in significant shifts, changing both the stage and its actors (Niehof and Price, 2008). Household composition changes to adapt to the care needs of retuning sick migrants, orphaned children or sick relatives who are abandoned, to the limits of the resources and the caring capacity of the household (Rugalema *et al.*, 2010; Du Preez and Niehof, 2010; Nombo, 2010; Paradza, 2010). The proportions of households headed by women or orphaned children increase, but one interesting finding is that most household survive (Seeley *et al.*, 2010a; Rugalema *et al.*, 2010).

At the meso and macro environment, studies show that HIV/AIDS threatens food security by affecting social security networks, an important form of social capital (Nombo and Niehof, 2008). In Africa, the burden of caring for the sick and orphaned children is customarily spread within communities (Shah *et al.*, 2001). It has been shown that when prevalence increases, these burdens may overwhelm the ability and willingness of other households to take on the dependents, which leads to dividing the economic entitlements (Mtika, 2001) and an increase of child-headed households and of the vulnerability of young girls (Ngwira *et al.*, 2001). At the macro environment, AIDS has been shown to affect the ability of agricultural and allied institutions to provide services by depleting their human resources, through attrition of staff in agricultural institutions, extension and research due to death and the quality of human resources decline due to morbidity and mortality, and the disorientation of those left behind (Bota *et al.*, 1999).

AIDS impacts interact with other shocks, such as drought, and reduce the resilience of the affected households and communities by reducing their ability to cope with the crisis (De Waal, 2007; Niehof *et al.*, 2010). The role of AIDS in altering livelihood patterns and increasing household level vulnerability to hunger was identified as significant, especially when combined with other shocks such drought or market failure. Studies have shown that significant impacts were found to have occurred in many contexts in eastern and southern Africa during the food price crisis of 2007-2008 (Gillespie *et al.*, 2009). A good example of the above is provided by Nombo's (2010) study in Tanzania which shows how government policy, in this case privatisation of the Kilombero sugar estate, intensified people's vulnerability to HIV infection and limited their collective ability to respond to the impacts of AIDS. Paradza (2010) showed in her study how the protracted political crisis and economic collapse in Zimbabwe aggravated the effects of AIDS.

1.3 Problem statement and research questions

In seeking to understand the social and economic ramifications of HIV/AIDS, it makes sense to look into the context in which the AIDS epidemic emerged, as well as the mechanisms of its spread and its outcomes in terms of food and nutrition security. To date, these elements remain only partially explored. Several comprehensive studies have been written on the AIDS epidemic since its emergence (e.g. Barnett and Blaikie, 1992; Mutangadura *et al.*, 1999; Rugalema, 1999b; Barnett and Whiteside, 2002; Niehof *et al.*, 2010; Seeley, 2013). The period from 1982 to 1990 was dominated by studies that approached AIDS as a medical and behavioural problem. The interventions that were designed based on the then prevailing notion of AIDS did not yield much success. The 1990s saw a shift of focus (Barnett and Blaikie, 1992; Mutangadura *et al.*, 1999; Rugalema, 1999a). After this period, analyses focused more on the social and economic aspects of the AIDS epidemic and the context of poverty (Stillwaggon, 2006), including on food security and livelihoods. The focus on food and nutrition security became one of the most important analytical areas (Gillespie and Kadiyala, 2005). A closer analysis of previous studies, however, shows that, although providing useful insights into the social and economic impacts of the epidemic, these studies have tended to abstract AIDS from its social and economic context and often failed to reveal the broader contextual conditions that influenced the emergence of the epidemic.

If emergence and development of an epidemic are context-specific, it follows that its pathways and trajectories are diverse. Hence, it is more appropriate to speak of AIDS epidemics in the plural than about *the* AIDS epidemic (Gillespie *et al.*, 2010). Furthermore, assessing AIDS impacts is hampered by the inability to clearly attribute certain effects and developments to AIDS (Murphy *et al.*, 2005; Wieggers, 2008) because of the synergistic relationship between poverty and AIDS (Stillwaggon 2006; Masanjala, 2007; Niehof and Price, 2008). Niehof (2012) outlined some major methodological constraints. These include: the intrinsic characteristic of the epidemic as being slow acting with no clear mechanism, overlap at the aggregate level due to the way epidemic unfolds, and increased access to antiretroviral treatment which drastically reduced AIDS-related mortality and prolongs the duration of the second wave, resulting in stalling or diminishing the size of the third wave such as slowing down the increase in orphans. Furthermore, there are multi-level interfaces of impacts apart from the pattern of overlapping waves, and, lastly, impacts are shaped by people's responses to the events and conditions they are exposed to.

Acknowledging the above, this study argues that in order to understand AIDS impacts on household food and nutrition security, one has to understand how the AIDS epidemic evolved in a particular context. HIV/AIDS, in particular, is an epidemic that is prolonged over

generations and brings along contextual changes that can be cumulative and very significant over time. Furthermore, as AIDS epidemics involve very complex interactions among numerous variables (biological, social, economic, political, and ecological), an interdisciplinary approach is called for (cf. Wilcox and Colwell, 2005). Hence, the present study argues that this complex interaction of various factors is best understood by taking ecological, demographic, historical and cultural factors together in a broad framework. Such an approach enables capturing both historical and contemporary processes that are essential to understanding AIDS epidemics and their long-term effects. The study employs the frameworks of Ford (1971) and Stillwaggon (2006), which link biological, historical, economic, social, cultural and environmental factors. The point of departure is that the HIV/AIDS problem is not an isolated event but also is a predictable result of the synergy of factors such as declining economies, the collapse of agricultural systems, insecure food systems, urbanisation, unemployment and increasing inequality, and inadequate investments in the sectors of agriculture, water, sanitation, health, and education. We also acknowledge the need to understand the direct biological effects of malnutrition, unsanitary conditions and the prevalence of other diseases on the vulnerability of individuals and societies to HIV.

To summarise, this study aims at explaining the emergence and course of the AIDS epidemic in Uganda and in the historical and geographic context of Masaka in particular, and at identifying impacts on households and people's responses to the events and changes that took place. More specifically, the following research questions will be addressed in the next chapters:

1. What was the ecological context that shaped the AIDS epidemic in Uganda in general and Masaka in particular?
2. What has been the impact of HIV/AIDS on household structure, composition and human capital?
3. What has been the impact of the AIDS epidemic on land ownership, land utilisation and farming practices?
4. What has been the impact of the AIDS epidemic on household food and nutrition security?
5. How have households attempted to cope with the impact of the AIDS epidemic over time?

1.4 Conceptual framework

The study is built on four conceptual pillars: context, diversity, impact and resilience, *and* their interrelationships. Context and diversity are the main concepts used in Chapter 2, whereas

impact and resilience are applied at the household level and are the pillars supporting the Chapters 3 to 6. Below are these conceptual pillars are discussed.

Context. The study's theoretical framework places AIDS emergence and impacts in a specific context to investigate the relevant contextual and environmental factors, based on the frameworks of Ford (1971) and Stillwaggon (2006). The study situates the AIDS epidemic in the broader ecological, social and political environments obtaining in Uganda in general and Masaka in particular shortly before the outbreak of HIV. We argue that geography (or location) is as important as culture, politics, and ecology. This is taken up and presented in more detail in Chapters 2, which analyses the political, economic, and social environment context in which AIDS emerged and became such a big problem in Uganda and Masaka. In this chapter, we demonstrate that the contexts provided a fertile environment for the spread of AIDS epidemic.

Diversity. An argument is advanced that if there were no diversity, context would not matter. Trajectories of HIV and AIDS impacts are diverse because they occur in and are shaped by different contexts (geographically and time wise). Gillespie *et al.* (2010) showed that diversity is an inherent characteristic of AIDS epidemics in Africa, in terms of factors and conditions that determine its spread, impacts and the types of responses of people to these impacts. For example, locations close to highways, rapidly expanding trading posts, and some parts of urban centres have been and continue to be hardest hit by AIDS, simply due to their geography, i.e. being places where people and goods converge. The determinants of the spread of HIV are deeply rooted in poverty and inequality, and these create local situations of risk (Farmer, 1999). Infection rates and trends are sometimes found to vary dramatically, often over relatively short distances (Ngwira *et al.*, 2001). The patterns of population movement and interaction and the locales where sex is transacted that determine risk are diverse in nature and change over time. Hence, the trajectory and impacts of the epidemic in Masaka may be different from those in other areas, even in the same country.

In this study, AIDS is not only perceived as diverse but also dynamic in nature. Barnett and Whiteside (2002) described AIDS as a 'long wave event'. It takes years for an epidemic to spread through the society and generations for the full impact to be felt. There are three sequential phases of vulnerability: upstream (relating to the risk of an individual becoming exposed to, and infected with HIV), midstream (individual risk of developing opportunistic infections after HIV infection), and downstream (risk of serious impacts in households and communities living with HIV (Gillespie, 2008). These along with three core HIV strategies of prevention, care and treatment, and mitigation provide a different context. Each of these phases of vulnerability has particular drivers and consequences. It is also important to recognise the potentially cyclical nature of this timeline in that impacts of AIDS may increase vulnerability to HIV infection or, the converse, effective mitigation may be preventive.

Impact. As already argued in Section 1.3.1, impact measurement is notoriously difficult because of the attribution problem (Murphy *et al.*, 2005; Wiegers, 2008), caused by the intertwining of (poverty-related) other factors and AIDS that affect households (Niehof and Price, 2008) and the generally synergistic relationship between poverty and AIDS (Stillwaggon 2006; Masanjala, 2007). While acknowledging this fundamental problem, in Chapters 3, 4 and 5 this study attempts to reveal possible AIDS impacts on the demographic characteristics of households, land ownership and utilisation and farming, and household food security by comparing households confirmed for having members living with HIV and AIDS with households for which this could not be confirmed, during the period 2007-2009 in Masaka district in southern western Uganda. In line with the above limitations of impact measurement, it can be argued that: (a) a significant difference could indicate AIDS-impact; (b) when not finding a significant difference there could still be an AIDS effect but it is not visible this way; (c) a significant difference is not caused by AIDS (only). Since this is not a longitudinal study based on panel data in which changes over time can be tracked, the attribution problem plays a role and had to be mitigated. To do so, and to reveal salient factors other than AIDS that impacted on the rural households, we compared data on the same topic but derived from different methods of data collection (triangulation) and we constructed a historical perspective on people's lives by retrospective questioning and in household case studies.

Resilience. Resilience refers to the active responses that enable people avoid the worst impacts of AIDS or to recover faster to a level accepted as normal (Loevinsohn and Gillespie, 2003). These two dimensions of resilience raise a number of questions, such as whether the kind and severity of the challenges and shocks people face affect their strength or whether people have a given amount of strength irrespective of the challenge they are confronted with. Why are some people stronger than others and what are their sources of strength, and what causes some people to be able to bounce back even under adverse circumstances while others cannot? Niehof (2008) showed that resilience is a multi-layered phenomenon that manifests itself as a process. The concept of resilience overlaps with that of vulnerability. The vulnerability context is an important factor in people's ability to bounce back when faced with adversity and ill health (Niehof, 2008). In this study, we argue that in order to understand the strategies of households to recover their livelihoods in the face of the AIDS epidemic, it is necessary to analyse impacts as they become manifest in the household life course and in the context of changes taking place in wider the environment at those moments. In Chapter 6 these issues shall be further elaborated in the introduction to the presentation of the narratives of six case households.

1.5 Study design and data collection

1.5.1 Study design, study area, and time frame of the study

The study design is composed of empirical research in the field, using a combination of data collection methods at several points in time, literature review, and historical research using secondary sources and results of historical studies. Therefore, regarding the primary data collection, this study is basically a cross-sectional study, although data were collected over a period of three years (2007-2009).

A combination of methods to find answers to the research questions and tackle the problems of impact measurement and contextuality were used. Primary data was collected by the use of: the observation method, key informant interviews, focus group discussion, a household survey, and the case study method. Published work in various journals and books on AIDS and other key topics was reviewed and analysed. Secondary sources included locally available documents (e.g. Masaka district local administration reports, news chapters, and Ugandan government reports) that were obtained during the field stay. The empirical data collection was conducted in the two counties of Bukoto and Kalungu in Masaka district in the period 2007-2009. Masaka district was chosen because the district is one of the most severely affected by the AIDS epidemic in southwestern Uganda (MoH, 2005). In Masaka, HIV prevalence is relatively high compared to the national average (Wawer *et al.*, 1998; MoH, 2006). During the 1960s and 1970s, Masaka used to be the food basket of Kampala city (Putzel, 2004). A study by MAAIF (2003) has shown that owing to the AIDS epidemic, which has claimed the lives of many in the most productive age group, the district has become food insecure and household income levels have declined (Ssewanyana, 2003). The study area was also chosen because of the good rapport I had already established with some community members, which would enable me to obtain first-hand information on the study subject. Table 1 presents the time frame of the study, specifically the periods during which the various types of empirical data were collected and analysed.

Table 1.2: Time frame of the study

Phases	Major activities	Time frame in years				
		2007	2008	2009	2010	2011
Phase 1: Orientation	- Reconnaissance, - Familiarization with the research area to fine-tune research proposal development, - Collection of secondary data.	X X X				
Phase 2: Preparatory	- Obtaining research clearance, introduction of the study to district officials, - Training data collection assistants, - Conducting initial qualitative data collection to obtain general knowledge on the study area, i.e. the population, agricultural activities, HIV/AIDS, issues of food and nutrition security and confirm findings from initial literature review. - Final development of the questionnaire, pilot testing and refinement of the questionnaire.	X X X X				
Phase 3: Household survey	- Conducted household survey, - Conducted focus group discussions - Conducted key informant interviews	X X X	X X X	X X X		
Phase 4: In-depth interviews and gap filling	- Preliminary analysis of survey data to obtain to obtain selection criterion for case households, - Selection of case households, - Conducting in-depth interviews with cases, - Gap filling and verification of some issues through key informant interviews and follow up on some case households	X X X X	X X X X	X X X X	X X X X	X X X X

1.5.2 Description of the methods used

Literature review

According to Mbaaga (1990), the documentary method involves deriving information by carefully studying written and visual documents. These could be textbooks, news chapters, journal articles, speeches, advertisements and propaganda, and movies and photographs. It was important to review the historical evidence in order to understand the mechanisms that could have triggered the epidemic, together with its socio-economic consequences. In order to explore the kind of ecological context that shaped the AIDS epidemic in Uganda in general and Masaka in particular, and its impact on households' food and nutrition security, literature was surveyed along the levels of emergence, socio-economic consequences, and response, in order to understand the mechanisms and outcomes that could have worked at each level. The sampling

strategy for the literature review considered the terms and phrases used in literature in relation to the main concepts of the study. Scholarly databases used for the literature search included: the Wageningen University and Research (WUR) digital library, Google Scholar, and Food Science and Technology Abstracts. The search included peer-reviewed journal articles, working chapters, policy briefings, strategic plans, annual reports, workshops, conference proceedings, project reports and academic publications (dissertations and theses), and was guided by the following terms: HIV and AIDS, agricultural production, food security and nutrition. The search results were assembled and subjected to first and second screening. The first screening considered those results covering the broad area of the study, while the second screening only considered those publications relevant to the study objectives. The literature review informed the study's theoretical framework and the contents of the household survey questionnaire and key informant interview guides.

Household survey

In order to look at AIDS impacts at household level, this study distinguishes two categories of household: AIDS-confirmed households and AIDS-non-confirmed households. AIDS-confirmed households were those that had lost a member to AIDS or currently had a member living with AIDS according to evidence or information from the household itself or medical records, i.e. a death certificate showing the cause of death, proof of enrolment of a household member at an antiretroviral treatment (ART) facility, or HIV test results. Non-confirmed households were those known not to have not lost a member to HIV/AIDS and in case of a death, there was information on the cause of death (not AIDS-related). The above household status categorisation is based on the argument that at 20 years since the advent of AIDS, the test for HIV is well established and reliable (Dr Rugalema, personal communication, 2010). Therefore, there is no need for circumstantial evidence to establish the AIDS status of the household. The categorisation of households found in previous studies as “afflicted”, “affected” and “non-affected”, has been overtaken by the dynamics of the epidemic and the advances of ART. The two categories thus established provided a classification of households according to HIV and AIDS status that could be used for comparison to reveal possible AIDS impacts (see the discussion above on the subject of impact measurement).

AIDS-confirmed households were purposively selected at the hospital facility during the day for receiving ART drugs. Non-confirmed households were selected by a simple random sampling procedure using a list of households obtained from the sub-county. The questionnaires were administered to a total of 384 households in the two sub-counties. The household head (male or female) was interviewed and where both the household head and his spouse were deceased, the eldest orphan and/or a relative staying with the orphans was interviewed. The household survey questionnaire collected information on household demographic variables,

agricultural variables i.e. land ownership, amount of land under use, crops grown, problems faced in livestock and crop farming, household food availability, weekly food consumption, food security status, and causes of food security (see Appendix I for the questionnaire). The questions covered the period 2007-2009. However, in addition questions on mortality, morbidity, child fostering and migration covered the changes in the household the last 5 years to 2007, then explored specific years 2008 and 2009. The rationale behind this was that it would be less difficult to forget major household demographic events compared to agricultural data. For agriculture, the calendar year data sets for 2007, 2008 and 2009 were used as one period.

Focus group discussions (FGDs)

Yin (2000) suggests two types of group discussions: FGDs and nominal group techniques (NGTs). In FGDs, the group brainstorms the different issues at hand. However, the conclusion of the group findings is not an outcome of group consensus, but a synthesis of the researcher (Mbaaga, 1990). FGDs are considered naturalistic, so the researcher pays attention not only to the content of discussions, but also to the emotions, ironies, contradictions and tensions accompanying these discussions. This enables the researcher to capture the meanings behind the facts (Krueger and Casey, 2000). NGTs are similar to FGDs, but a key difference is that the group arrives at a consensus. In other words, findings are in agreement with the views of every member of the group. In this study, FGDs were used because the main objective was not to arrive at a consensus but to seek people's opinions regarding the data obtained from documentary analysis, key informant interviews and household questionnaires.

Participants for the focus group discussions were selected by purposive sampling (cf. Mbaaga, 1990) and using a snowball strategy. The latter is a form of purposive sampling in qualitative research whereby the researcher asks participants to recommend potential new participants or informants (Creswell, 2005). Participants were selected because of their particular interest, expertise or position in society in an attempt to collect information on a number of issues. Groups consisting of men, women or youths were formed, each comprising eight to 12 individuals. The participants were invited to the meeting, introduced to the study topic, and asked about their perception of the long-term impacts of AIDS on food and nutrition security in their communities. Each FGD lasted between 40 and 90 minutes. A total of 12 separate FGD sessions was conducted (six in each sub-county). Some FGDs were made up of a mixed group of participants (regardless of gender, age or AIDS status). However, I conducted FGDs in which participants were selected by gender. Two FGDs were conducted for each category of AIDS-confirmed and non-confirmed households. This not only allowed a freer flow of ideas, but also helped me understand gendered perceptions of the issues under investigation. Exploring the major changes experienced in the community in the last three decades concluded each FGD, including the place of AIDS in these changes. Lastly, FGDs were employed in order to establish

common opinions on issues such as climatic conditions and rainfall patterns, changes in agricultural seasons and practices, food and nutrition security in the community, perceptions on AIDS mortality, and on other drivers of change in their community in the last 20 years.

Key informant interviews

Key informants were selected using a maximum variation sampling strategy, to allow the identification of experts from different backgrounds who might have a different perspective on the central phenomenon being studied. Key informants included experts in agriculture, food and nutrition, health, policy, natural resources management, and development professionals, professionals in academia and research, as well as community elders.

Grabtree and Miller (1992) describe the key informant interview as an ethnographic method of data collection where individuals who possess special knowledge or status are willing to share their knowledge and skills with the researcher. These informants usually have access to perspectives and observations denied to the researcher (Goetz and Lecompte, 1984). Therefore, the selection of key informants is not based on randomisation but on the knowledge and information key informants are expected to have and their willingness to share these (Johnson, 1990). Tremblay (1957) highlights five characteristics of an ideal key informant: a) role in the community whereby they are exposed to the kind of information being sought by the researcher; b) knowledgeable about the issue being investigated; c) willingness to share knowledge with the interviewer and cooperate as fully as possible; d) ability to communicate their knowledge in a manner that is intelligible to the interviewer; e) impartiality (i.e. key informants should be as objective as possible). Of these five criteria for eligibility, only the informant's role in the community can be determined with some certainty in advance. Once individuals who perform key roles are detected, the other four criteria should be considered in order to ensure that the most productive informants are interviewed. The extent to which each of the criteria is met is likely to determine the usefulness of the information gained by the interviewer (York, 1998). The above considerations were used in selecting participants for the in-depth key informant interviews.

Key informant interviews were used to crosscheck the findings from the documentary analysis regarding the ecological context that shaped the AIDS epidemic at the study sites. Interviews were conducted at both national and local levels. Ten interviews were held at the national level, in Kampala. The institutions considered in this study were the Uganda AIDS Commission, the Uganda Ministry of Health, the TASO national office, the NACWOLA national office, the Uganda Ministry of Agriculture, Animal Industry and Fisheries, Makerere University, the USAID Food and Nutrition Security project, FAO, IFPRI, CIAT, and the National Research Organisation (NARO). At the local level, twenty interviews were held with village elders (elites

and non-elites), local council leaders, personnel of the Masaka district administration, and community members knowledgeable about the problem under investigation. I also interviewed leaders and members of local non-governmental organisations (NGOs) and community-based organisations (CBOs) operating in Masaka district. These interviews covered topical questions on AIDS and food and nutrition security, the history of AIDS in Masaka district, and on demographic change and agricultural production. The latter type of questions targeted issues of land ownership, area under cultivation, changes in food and cash crops produced, household and community welfare in general, the food and nutrition situation, and reasons for and the drivers of the changes. To enhance the quality of the answers, I would raise the same topic in different ways.

Household case studies

The present study uses the concept of the household life course to refer to the dynamic stages through which families and households may pass over time. A “household life-course approach” (Pennartz and Niehof, 1999) looks at the intertwining through time of several household dimensions or careers (the family career, the household composition career; the housing career; the household financial career, and the household economic career) which are part of a trajectory that starts at the formation of the household and ends with the founder’s exit. Pennartz and Niehof also note that “the household composition career could be a major triggering career in relation to the economic career of the household” (Pennartz and Niehof (1999: 177). In the context of HIV and AIDS, we see the reverse happen: the declining household economy (in terms of assets, labour, etc.) triggers a change in composition (fostering out children). The details are discussed in Chapter 6 where the stories of six case households are presented.

Observation

Observation is a highly effective method of in-depth study in a small community (DeWalt and DeWalt, 2010). It involves researchers moving to and staying in the community, living there and taking part in daily routines, and observing a community by sitting back and watching and recording the activities that take place in the community (Flowerdew and Martin, 2005). The researchers participate as much as possible in the community under study, keeping detailed notes of what they hear, see and feel about the subjects under study, thereby combining observation, discussion and informal interview (DeWalt and DeWalt, 2010). To obtain reliable data from participatory observation, it is necessary to stay in the community for an extended period of time. In this study, both structured and unstructured observation was used. Structured observation was done on the basis of a semi-structured guide for the observation of specific subjects, including food granaries, farm fields, the nature of dwelling (housing) for wealth ranking, and the presence of malnourished children in the homesteads, especially those with

visibly swollen bellies. Non-structured observation was used during the FGDs to observe facial expressions, body gestures and meanings implied by such. I stayed in the community from July 2007 to July 2008, July 2009 to January 2010 and the whole of 2011. I observed daily activities at the household and community levels by participating in activities such as attending village meetings, visiting the health clinic during the days ARV drugs were handed out, and attending funerals. Observation was also applied during key informant interviews.

1.5.3 Data analysis

Quantitative data was analysed using Stata Version 13.0. Basic statistical tools, including descriptive statistics, chi-square tests, and other analytical tools were used to assess the relationship between dependent and independent variables. Several methods of analysis were employed in establishing the relationship between the household AIDS status (i.e. AIDS-confirmed and non-confirmed households) and demographic variables (mortality, morbidity, child fostering and migration), variables relating to agricultural production (land ownership and utilisation, cropping patterns) and variables relating to household food and nutrition security. For the categorical variables, cross-tabulations together with chi-square tests of significance were employed. T-tests were done on the non-categorical variables.

Regarding the qualitative data analysis, York (1998) argues that the structure of data analysis (content analysis) and the coding and analytical comparisons are mostly determined after data is collected. According to Corbin and Strauss (2014) content analysis can be undertaken with any form of written data, transcripts of interviews and discussions. The basic task of content analysis is to reduce words to themes or concepts that have meaning in relation to the observation of the phenomena under study. All the information available was objectively analysed for relevance. Coding is an analysis aimed at reviewing a set of field notes, transcribed or synthesised, and dissecting these meaningfully. Miles and Huberman (1994) propose three main categories for coding: open, axial and selective. Open coding is the process of developing categories of concepts and themes that derive from data without making any prior assumptions about the possible discovery. Axial coding facilitates building connections within categories and thus serves to deepen the theoretical framework, thereby underpinning the analysis. Selective coding is reflected in structural relationships between categories, and integrated in the theoretical structure of the analysis (Miles and Huberman, 1994). Analytical comparisons refer to the method of agreement and method of difference in logical inquiry (Neuman, 2006). The method of agreement draws the researcher's attention to what is common across cases or themes. With the method of difference, the researcher seeks information on cases with different outcome from initial cases and different causes.

In this study, content analysis, the coding system and analytical comparisons were used to analyse data from FGDs. After each FGD session, recorded notes were reviewed and re-evaluated for their truthfulness and to identify salient issues from those discussions. Outcomes of discussions were grouped according to key themes (topics). Key statements and ideas expressed for each topic explored in the discussions were identified and different positions that emerged under each key theme were summarised. A systematic comparison was made of the emerging themes and positions (Neuman, 2006) to identify common ideas. Verbatim phrases to represent each position or theme were selected. A complete report on the outcome of the discussions was later prepared, using the participants' own words. Where there were scoring exercises, mean scores were computed.

1.6 Outline of the dissertation

This thesis consists of seven chapters. The remainder of this thesis is organised as follows. The next chapter, Chapter 2, analyses the political, economic and social context in which HIV/AIDS emerged and became problematic in Uganda and Masaka, applying the Ford (1971) and Stillwaggon (2006) approaches. By analysing this context, the chapter shows how it provided a fertile environment for the spread of the disease. Without such a favourable environment, HIV and AIDS would not have reached such high epidemic levels in Uganda. The chapter links macro, meso, and micro-level dynamics. It argues that the physical characteristics of Masaka as a location, the population movement, political instability and the prevalence of other diseases played a role in making the study region one of the epicentres of the AIDS epidemic.

Chapter 3 discusses the demographic impacts of HIV and AIDS on the rural households in Masaka. The chapter looks at the extent of AIDS-induced morbidity and mortality in these households and the possible consequences of these for household size and structure over time. It focuses on the implications for household human capital (labour). Chapter 4 follows up on these issues and builds on the results presented in Chapter 3 by looking at the implications for land ownership and utilisation, and changes in the household cropping patterns and agricultural practices of the rural farming households in Masaka. The aim of Chapter 4 is to establish a picture of the impacts of HIV and AIDS and other salient factors on household agricultural production.

Chapter 5 discusses the impacts of the AIDS epidemic on household food and nutrition security. The argument is developed that the problem of poverty and food and nutrition insecurity in Masaka is, in large part, due to the presence of social, economic and structural fault lines. HIV and AIDS have added weight to this equation, but are not be solely to blame for the larger problems. Chapter 6 portrays the households' attempts to cope with the impacts of AIDS and

examines their resilience to these impacts. A total of six households are presented. In this chapter, an argument is advanced that while it is indisputable that people suffered in the early stages of the epidemic, not all rural households faced a severe decline in livelihood security because of the AIDS epidemic. The chapter explores factors affecting the capacity of households to adapt to the impacts of AIDS.

Chapter 7 concludes the analysis. The answers to the research questions are discussed. From the contemporary vantage point, the severity of AIDS impacts appears to be more nuanced than originally expected. The chapter considers the implications of the findings, including practical and policy-relevant considerations. The chapter closes with a look to the future and the role of antiretroviral treatment in this. An integrated approach to addressing the AIDS epidemic and food security concerns is recommended.

Chapter 2: Contextualizing the Ecology of AIDS in Uganda and Masaka

The objective of this chapter is to analyse the political, economic, and social environment in which the AIDS epidemic emerged in Uganda and in Masaka. It is shown how a combination of factors was conducive to the rapid spread of HIV and AIDS. Specifically, I discuss the political instabilities of the period between 1962 and 1985, which created favourable conditions for various social catastrophes, including the AIDS epidemic. The discussion focuses on the political, economic, and social instabilities in the period between 1966 and 1985. During this period, Uganda was engulfed in several political crises and civil conflicts. One of the characteristics of this period was the inadequacy of health services and hospitals. More than three hundred thousand people were internally displaced and lived as refugees in camps (Southall, 1980). People lived in conditions of severe poverty, with no access to functional political or social structures infrastructures (Bakamanume, 1998). This chapter discusses the role politics played in the control and adaptation of epidemic diseases in Uganda.

Here, evidence is presented in support of the argument that political instability (civil and political conflicts) contributes to disease risk by increasing the transmission potential (Lyons, 1994). The information presented here is drawn from data obtained from interviews with twenty key informants, ten experts, and eight elders. Among these experts were people who served in the government and line ministries from 1960 to date. Elders were selected among people who witnessed armed conflict and displacement in internally displaced camps in their respective communities. Documentary analysis of past studies in other AIDS-hit sub-Saharan African countries in East and Central Africa supplements this information.

2.1 Factors that shaped the epidemic in Uganda

2.1.1 Uganda's governance crisis: 1962-1986

The governance crisis sowed the seeds of epidemic diseases, dislocation and destruction, and the expansion of the sexual networks between 1962 and 1985. The key informants interviewed revealed that the governance crisis in Uganda had started already before its independence from Britain. One of them added that prior to independence, the population was already polarised between those who supported the colonial administration for the advancement of their political and economic interests (the Baganda) and those who did not. The same informant said that the situation worsened after independence, when the Kabaka (King of Buganda) was appointed president of Uganda (1962-1966) while Milton Obote was the prime minister. The new president simply found it difficult to take orders from a civilian prime minister who was not a member of the royal family. The same key informant added that in response to the president's

failure to obey orders, the prime minister commanded Major Idi Amin to lead a coup d'état, which forced the king to flee into exile. Subsequently, Milton Obote suspended the constitution of 1966 and declared himself executive president, head of state and government and commander-in-chief of the armed forces with effect from 1967. Idi Amin overthrew Milton Obote in January 1971 and ruled the country until 1979. According to the key informants the shift in leadership caused the country "to go solo", as political power in the country moved from civilian leadership to military dictatorship. Under the military administration, detention without trial was common. Moreover, power centralisation worsened the situation by further dividing the population between traditionalists, who wanted the monarchy restored, and non-traditionalists. Referring to the Idi Amin regime, which was characterised by institutional violence, torture and executions, the majority of the people interviewed called the period between 1971 and 1979 as moving from "the frying pan into the fire".

From the interviews it transpired that the West Nile province, where Idi Amin came from, was left in ruins as a result of the conflict. All the hospitals in the province were destroyed, as were most health facilities around the country. Amin's soldiers directed much of their cruelty towards the Baganda people of Rakai district. Towards the end of October 1978, Amin's army invaded and seized Tanzania's Kagera Salient. Six months later, after a fierce war, the Tanzanian army had reclaimed Kagera. One of the elders interviewed recalled that there was serious fighting in this region. People died and young girls and women were raped. Amin's soldiers camped in Rakai, then a county in Masaka district and currently Rakia district, with the frontline including the communities of Kakuto, Minziro and Kasheshero, which one of the experts I interviewed identified as the epicentres of the 1988 AIDS epidemic. Moreover, from expert interviews it became clear that it was only after the war that people started complaining about a strange, sexually transmitted disease which later came to be known as the "slim disease" (HIV/AIDS).

In the interviews it was further explained that Uganda's governance crisis did not stop with the overthrow of Amin's regime. In fact, the country continued to experience instability during the period that followed. Between 1979 and 1980, the country underwent a tumultuous transition, which started when the then president, Godfrey L. Binaisa, appointed by the National Consultative Commission, then the supreme governing body of Uganda, was removed within six months of his appointment. Elections were organised and in 1980 Obote became president. His government lasted from 1980 to 1985, until General Tito Okello staged a successful coup d'état. One of my informants characterised this period as "the catastrophe that followed the catastrophe", meaning that one repressive regime was replaced by another. Okello, in turn, was overthrown by Yoweri Museveni in January 1986. The key informants said that that many people were killed in the Luwero Triangle, being accused of supporting the National Resistance Movement/Army (NRM/A) under Museveni. They added that young girls were raped and forced to marry soldiers, and that Uganda became a stateless nation with no functional

government departments. Essential services such as health, education and agriculture were non-existent. The country's already faltering infrastructure was left in a shambles owing to the economic decline and the non-functioning of the civil services. This situation caused ethnic tensions to mount as goods and services became scarce. Another one of my interviewees, a retired soldier, reported that the massive displacement of people further compromised the health of the entire country. He attributed this situation to the expansion of sexual networks, which extended from the local level to regional, national and even international levels, the latter referring to people leaving Tanzania to seek refuge in Uganda, Congo and the Sudan, as well as the invading Tanzania soldiers. My informant added that about 100,000 young Ugandan men died during the conflict, which increased the burden on poor, landless Ugandan women and their families.

Uganda's governance crisis worsened in the 1980s. Throughout the early 1980s a few guerrilla movements emerged, all aiming to oust Obote. After Yoweri Museveni's National Resistance Army (NRA) defeated and expelled General Okello, Museveni became the president of Uganda. One of my key informants stated that the 15 years of conflict left millions of internally displaced people in the country and that during that period, HIV had spread widely among Ugandans and Tanzanians. In one of my interviews, a former employee of the Ministry of Health revealed that after Museveni's accession to power in 1986, Uganda sent soldiers to Cuba for training. To be admitted to the training, soldiers needed to be screened for HIV. Between 1987 and 1988, it was found that more than half of Ugandan soldiers who had enrolled for the training tested positive for HIV. This and other evidence from investigations conducted by the Ministry of Health informed the government's decision to set up an AIDS control project. It focused on screening, counselling and prevention since there was no known medicine for HIV/AIDS at that time.

Uganda's governance crisis prevailed even after Museveni seized power, and ethnic tensions continued. Up to the beginning of the 1990s, ambushes on government soldiers were frequent and the civilian populations continued to be displaced. One of my informants attributed the later problems of agricultural decline in the area and the subsequent problems of food and nutrition insecurity to the population displacement. From another key informant I learnt that Museveni's NRA remained active in pushing back guerrilla forces, such as the West Nile Bank Front, Alice Lakwena's group, the Kony group, and the Allied Democratic Forces. The latter two were repulsed from Uganda and were reported to be in hiding across the Uganda borders.

Based on the findings from the interviews and analysis of the literature, it can be concluded that the civil unrest that prevailed in Uganda between 1962 and 1985 created an environment that favoured the transmission of HIV. Conflict destroyed both the social fabric and infrastructures,

resulting in widespread cases of untreated STDs, poor health care provision and increased risk of transmission in the event of viral exposure. Moreover, displacement and poverty, which were caused or exacerbated by conflict, increased people's exposure to opportunistic diseases through: 1) increased prevalence of casual or commercial sexual activity; 2) increased interactions among civilians and combatants or military personnel, who were known for their high risk behaviour; 3) the development of a culture of violence that promotes sexual violence and predation; 4) forced mass migration across international borders, which increased sexual mixing among populations; and 5) the destruction of public health education mechanisms (i.e. mass media, health facilities and formal education), which negatively affected public health-related knowledge, attitudes and practices (Southall, 1980; Bakamanume, 1998).

2.1.2 Economic decline, poverty, and people's vulnerability to diseases: 1972-1986

My key informants told me that by the time of independence in 1962, Uganda had one of the most vigorous and promising economies in sub-Saharan Africa and in the years following independence it amply demonstrated this economic potential. This claim was further elaborated during the focus group discussions. The participants stated that the country was food self-sufficient and that the agricultural sector earned ample foreign exchange through the export of coffee, cotton and cocoa. Moreover, minerals such as copper and cobalt were exploited for export. The country also had a vibrant manufacturing sector, which supplied basic consumer goods. My informants suggested that the later socio-economic circumstances in Uganda, especially since the 1960's, shaped the vulnerability to HIV/AIDS of certain segments of the population, such as women and mobile populations. Other factors were social, political and economic cleavages between north and south, the Baganda and non-Baganda, Africans and 'Asians', and between large farmers and agricultural labourers. These divisions became more pronounced in the period between 1960 and 1986.

One of the key informants observed that the most significant social cleavages that led to vulnerability were the economic disparities that were prevalent in Uganda (and which persist today). These social cleavages dated from the colonial era, when British colonisers sought to put trade and cotton ginning in the hands of Asian immigrants, who were regarded "both as a link between the British and the people of Uganda, and as a barrier to the development of an indigenous Ugandan trading class", said this key informant. By the end of 1930, the British colonisers had essentially handed the Asians control over cotton ginning, trade and commerce. Up to the Amin coup in 1971, the Ugandan economic elite consisted primarily of Asians. This led to a rift between African subsistence farmers and landowners on the one hand, and the Asian commercial sector and the Buganda government on the other. The Baganda are the largest ethnic group in Uganda. They have historically held more political influence and controlled more resources than other ethnic groups in the country, but ethnic differences alone do not

result in conflict. As one of the key informants stated, if power and privilege coincide with ethnicity, then conflict is almost inevitable. Another informant added that this type of tension has long been evident in Uganda, such as in the violent opposition to Asians and in the way the Buganda-led government resorted to violence, destruction of property and boycotts of goods imported from Asia to achieve its aims.

The interviews also revealed that Amin's poor economic policies of the 1970s made Uganda a high-risk society. The *magendo* (black market) economy that arose under the Amin regime was a big threat to Ugandan society. The expulsion of the Asians living in Uganda brought about the destruction of established distribution systems. According to one of the key informants, under Amin's regime the prices of agricultural commodities soared, thereby drawing large quantities of cash crops into the black market. This was of particular importance in Buganda, which supplied most of the food needs of the major towns of Masaka, Kampala, Entebbe and Jinja. In addition, the *mafutamingi* (literally, the 'fat ones' – the operators in the illicit economy) also took over the transport sector. The backbone of the *magendo* economy was the smuggling of coffee, paraffin, sugar and gold out of the country and vehicle spare parts and other necessities into the country. Food was smuggled within the country. In order to gain access to food and other basic goods, people were forced to operate within the black market as their wages could only buy a fraction of their basic consumption needs. It is also important to note that the population growth continued in spite of the difficult times. Men and women needed to find ways to support their large families. Men became more mobile and took up jobs in the plantations, fishing communities or urban centres, while women stayed behind. A key informant said that the number of households headed by women increased dramatically, that crime rates increased, and that many disadvantaged young women were forced into risky transactional sexual relations or even prostitution.

One of my key informants explained that the period of the *magendo* economy was characterised by the prevalence of transporters of goods (or *mafutamingi*) covering basic supply routes between Kenya, Uganda, Sudan, Rwanda, Burundi and Zaire. Truck drivers were often delayed for hours or days (for a variety of reasons, such as roads blocks) and they would often spend these hours drinking in bars, eating in hotels, and sleeping in the brothels that lined these trade routes. According to my informant, not only truck drivers and *mafutamingi* were accountable for this increased mobility. Many Ugandans had to cross state borders in order to acquire basic goods. This put them at risk, as they traversed borders across sexual networks.

A significant social cleavage leading to vulnerability is the socio-economic discrepancy between men and women, which was present at the onset of the AIDS epidemic and persists until the present day. The income gap between men and women exacerbates women's disadvantaged position. When young women were forced into prostitution, they could not

negotiate for safe sex with rich male sexual partners. One of my informants regarded the origins of inequality between men and women as “[originating] both in pre-colonial society and in the ways in which colonialism affected that society.” He pointed out that historically Ugandan women are expected to provide staple food and vegetables for the household through farm work, whereas men have to provide protein-rich foods and consumer goods through cash crop sales and other market activities. My key informants characterised the Amin regime as one in which both men and women were affected by the lack of property rights, but that landlessness most adversely affected women. Women have never really been able to own land in Uganda, and when they did, it was usually through inheritance. A key informant said that “it remains the case from pre-colonial times that most women have only use-rights, obtained through their relationship with a man.” Because traditionally women’s work involves food crops and the domestic sphere whereas men are more concerned with market transactions, it follows that if men were to experience an increase in income, the relationship between men and women would become even more unequal, adding to women’s economic insecurity and to their dependence on men for resources and consumer goods. These particular circumstances did indeed arise as a result of the *magendo* economy.

Young women reacted to these economic conditions in numerous ways. While many became prostitutes, others married or entered into relationships with migrant workers. These men granted them favours that assisted women to meet their household needs. Because women had unequal access to economic resources needed for survival, they used their sexuality and their reproductive potential to satisfy their material needs. One of my informants pointed out that these types of transactional relationships become extremely risky in times of HIV and AIDS. In focus group discussions, it was said that some young women took advantage of the prevailing economic disintegration by participating in smuggling. According to the key informants, some women, especially single mothers, were desperate; they were either unemployed or self-employed but earning a pittance for their work. Highly educated women who practised a profession were also forced to join *magendo* in order to supplement the income from their underpaid jobs. My informants reported that the smuggling business flourished in villages along the shores of Lake Victoria, truck-stop townships and in Rukaya, Rakai and Mutukula on the Tanzanian border. While sex was a direct way to obtain money for prostitutes, concubines and “in rare cases married women” used sex and other social accomplishments to gain access to resources, such as houses, land, jobs or cars, and even marriage. The *mafutamingi* conspicuously displayed their economic prowess by spending lavishly on women, which enabled them to attract many women in the urban centres where they normally made stopovers. Young women who moved to urban centres and fishing villages ended up changing their socio-cultural values. According to my informants, also in Masaka the changes in socio-cultural

beliefs and in family and community values increased women's vulnerability to HIV and its further spread.

2.1.3. The decline of health services: 1972 to 1986

Experts in the health sector interviewed pointed out that in 1962 Uganda inherited the medical system from the British colonial administration. The Ministry of Health and missionary organisations provided health services to the Ugandan population. Health facilities were typically equipped with basic medical supplies and guaranteed access to free or inexpensive treatments. Under the Amin regime, the resources to which the health sector once had access contracted, while the demand for health services by the population expanded. Experienced health workers fled or were forced out of the country, government investments in the health sector decreased and, as a result, health facilities deteriorated.

The governmental institutions responsible for disease prevention and control were disbanded because of budgetary and human resource constraints and, as a result, some of the diseases that were once under control re-emerged. For example, between 1970 and 1985, according to one of my key informants, "the prevalence of African trypanosomiasis increased dramatically." The same person stated that the period between 1970 and 1985 was also characterised by the high incidence of sexually transmitted disease (STDs) in Uganda, as a consequence of the widespread sexual violence and abuse, especially by Amin's soldiers. Internal migration and expanded sexual networks aggravated the situation. Between 1971 and 1986, STDs such as gonorrhoea and syphilis constituted a serious health hazard and STDs went untreated on a massive scale. Since access to health care is critical in diagnosing and treating STDs and STDs increase people's susceptibility to HIV infection (Stillwaggon, 2006), the collapse of the health system in the 1970s probably exacerbated the spread of HIV. Below, more specific causal factors are explored, based on the results of the interviews with the key informants and the literature.

First, the country's laboratories lacked the facilities necessary to determine what that new disease was. While a considerable amount of time went into diagnosing the new disease, no effort was put into preventing it from spreading. Moreover, at the beginning of the epidemic, some people did not see HIV/AIDS as a medical problem, but as punishment to unfaithful traders who cheat fellow traders and local people. Rumour had it that those people who were defrauded by these traders would turn to witchcraft for revenge. In Kilombero (Tanzania), the spread of AIDS led to a proliferation of witchcraft accusations (Nombo and Niehof, 2008). Witchcraft beliefs created many myths around HIV/AIDS, which was initially called the "slim disease" in Uganda. The ill would seek treatment from traditional healers, who would not use sterilised razor blades when making incisions to administer traditional medicine. This enabled

the easy spread of the virus to other clients of the healers. Studies by the Ugandan Ministry of Health (MoH, 2008) ranked unsterilised equipment as the third mode of HIV transmission in the early days of the epidemic.

Second, there were not enough medical doctors and other health personnel in the country, partly as a consequence of the expulsion of the Asian community living in Uganda, among whom there were many skilled doctors. Additionally, low salaries encouraged the out-migration of Ugandan doctors to South Africa, Kenya and the United States (Bakamanume, 1998). This situation, exacerbated by the unavailability of drugs, drove people to seek alternative treatments, with the consequences already described above. In the light of all these circumstances, it is likely that by the time the disease was diagnosed, it had already been around for quite some time. Finally, people lived in a constant state of “hopelessness” due to economic decline and the situation of political instability and conflict described earlier. This caused people to lose trust in the health system, which was another reason why people opted for alternative treatments.

The above situation continued even when a new government came to power in 1986. Although social infrastructures (including the medical services) improved in some regions, the presence of the Lord’s Resistance Army (LRA) made it difficult to deliver health services in the northern part of the country. The LRA fighters made the area inaccessible, and young medical doctors avoided deployment to the northern region for fear of their lives. This could explain why the prevalence of HIV in the north of Uganda in 2000 was still above the national average of 6% (UAC, 2008a).

At the time of the AIDS epidemic, the majority of Ugandan people were employed in the agricultural sector. Since agricultural production was the backbone of Uganda’s economy, the prevalence of HIV/AIDS had serious implications for people’s livelihoods. Poverty forced men and women were to seek alternative means of survival. Contrary to tradition, where a man is expected to leave the home to find a job, women had no choice but to do the same. This situation resulted in changes in family values. Traditionally, women are the carriers of the norms and values that are transmitted from generation to generation within the African family and they are assigned the role of caregiver. As discussed in Chapter 1, the family household plays an important role in the well-being of people, as family members are expected to care for the ill. The changes brought about by AIDS caused the fragmentation of the family and its associated consequences for social norms, values and cohesion and changes in the family system, which in turn rendered it more vulnerable to HIV and AIDS impacts. The key informants pointed to changes in sexual and marriage arrangements and the survival of the families in the face of economic hardships, political instability and poor health services.

The results of the interviews with medical experts revealed that the fragmentation did not stop at the family level. It went up to the national level. The country was unable to bring experts together to make a plan for the country and strengthen the health service provision. One key informant observed: “HIV emerged during the period of political chaos and the HIV prevalence kept increasing from emergence to the epidemic peak period [1986-1994]. This is when political and civil strife engulfed the country, attempting to overthrow the national resistance movement. The country was attacked from all sides [South Western, Northern and Eastern]. As the present Government managed to defeat these rebel groups, parts of the country started to enjoy some peace.” The above observation concurs with documentary evidence regarding HIV prevalence rates in Uganda, as shown in Figure 2.1.

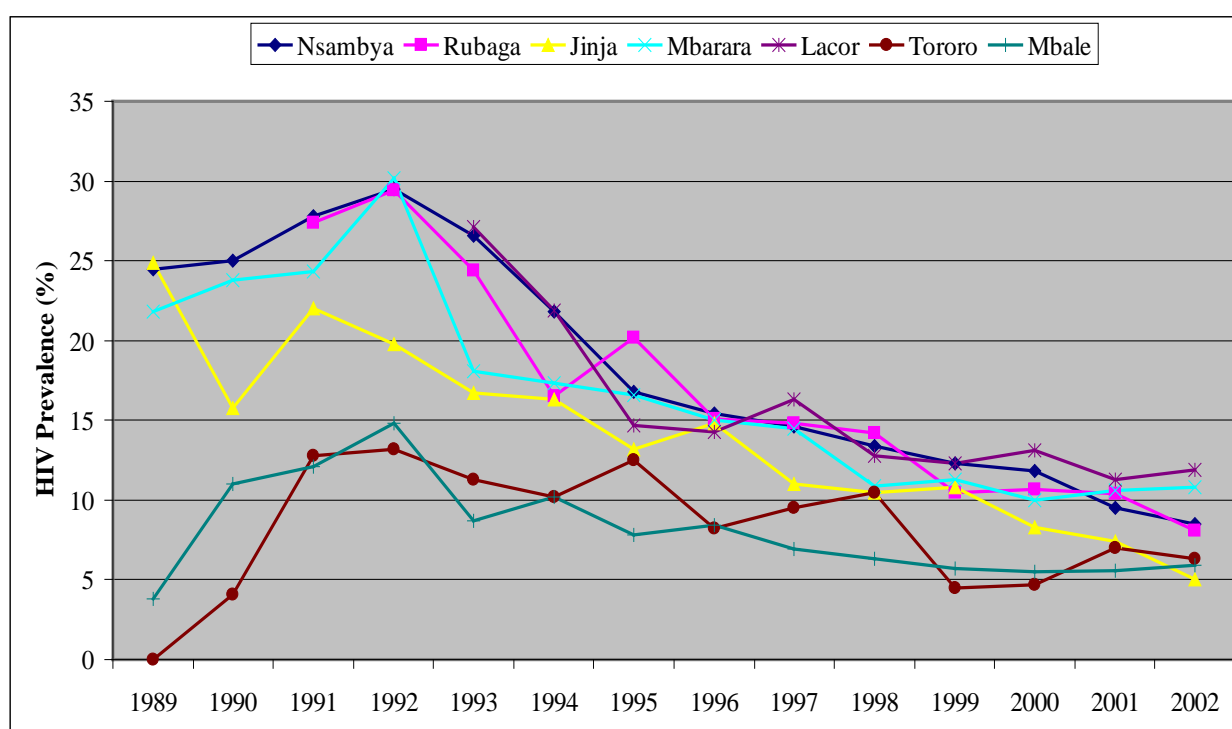


Figure 2.1 HIV prevalence in selected antenatal sites 1989-2002
Source: Ministry of Health report (MoH, 2005).

A key informant from the district referral hospital observed: “As the country started to gain some stability, efforts were put in building the shuttered economy and infrastructure, including health and education. It is in this period that we started to see the HIV prevalence declining, when from 1995 to 2002 when the country mobilised development partners to support the government efforts to fight the HIV/AIDS problem in Uganda. This saw the country benefit from the first pilot countries for ARVs treatment. Since then, the country implemented a number of interventions in the areas of: prevention, care and treatment, and strengthening social support and protection.” As Figure 2.2 shows, the numbers of antiretroviral treatment (ART) clients indeed steadily increased from 2003 onwards.

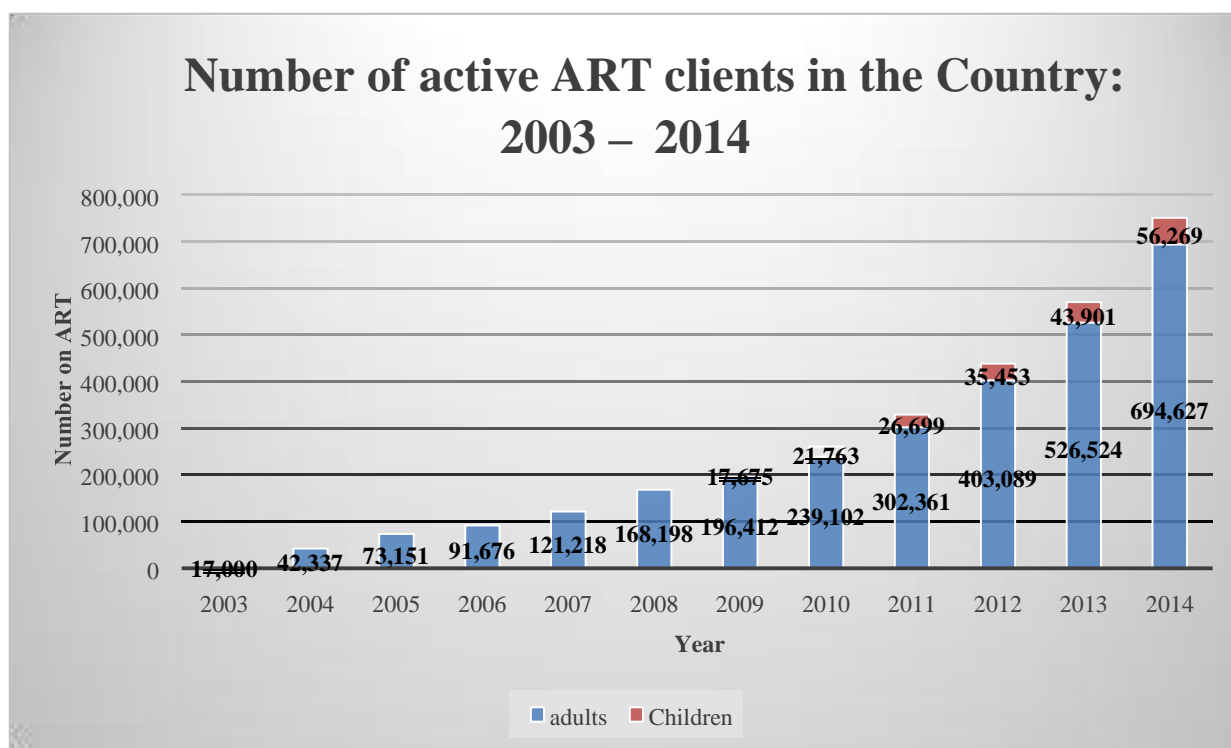


Figure 2.2: Number of active ART clients in Uganda 2003-2014
Source: Ministry of Health (MoH, 2014).

According to the Uganda HIV/AIDS Country Progress Report issued by the Ministry of Health (MoH, 2016), in the area of prevention, the country intensified the implementation of combined prevention interventions guided by the strategy that had evolved based on recommendations from the mode-of-transmission studies carried out overtime. The national HIV testing services were scaled up, with 10 million people accessing testing and counselling services in 2014. The same report shows that the country increased care and treatment programs. There has been an increase in the enrolment of patients on ART from 570,452 at end-2013 to 750,896 by June 2014. The country strengthened social support and protection and increased the level of partnership with donors to reduce vulnerability to HIV and mitigate its impacts on people living with HIV and other susceptible groups. The government adopted a multi-sectoral AIDS policy and all sectors adopted the mainstreaming approach and implemented the recommended interventions. Moreover, the government strengthened the systems to support easier access to information, enhanced the functioning of supportive governance structures, and expanded infrastructures. National reporting mechanisms have been consolidated by improving reporting systems to provide timely and quality information for use at the national level to inform programming. All this has resulted in increased access to ARV treatment, which greatly reduced AIDS-related morbidity. Table 2.1 presents the numbers of the national health care facilities providing ART drugs and services in September 2014.

Table 2.1 National coverage of ART services by type and level of facility, September 2014

Type and level of facility	N	Providing adult ART		Providing pediatric ART	
		N	%	N	%
Referral hospitals	15	15	100	14	93
General Hospitals	140	112	80	107	76
Health Centre IV	206	185	90	178	86
Health Centre III	1,309	1,078	82	732	56
Health Centre II	2,777	193	7	77	3
Specialised clinics	NA	29	-	26	-
Other Health Centres	NA	30	-	15	-

Source: MoH, 2014.

Figures 2.1, 2.2, Table 2.1, and the explanations by key informants show the role of politics and policies in shaping epidemic diseases. Political instability facilitates the spread of an epidemic. Political stabilisation helps to improve health infrastructures, information systems, and building the economy in general, all of which are key in epidemic disease prevention and control.

2.1.4 AIDS and the demographic picture in Uganda

Past studies have identified HIV/AIDS as the leading cause of death in Uganda (MoH, 1998; Barnett and Blaikie, 1992; MAAIF, 2003; MoH, 2005), with AIDS-related mortality accounting for the highest percentage of deaths (17.7%), followed by influenza and pneumonia (10.4%), diarrhoeal diseases (10.1%) and malaria (8.7%) (Mathers and Loncar, 2006; WHO, 2006). Studies on the impacts of HIV/AIDS in Uganda found that AIDS increased the dependency burden of the elderly and the numbers of orphaned children and female-headed households (Ntozi, 1997). McKinley (1996) observed that in some urban centres in Uganda, 12 to 15% of the adults were HIV-positive and, overall, an estimated 1.2 to 1.5 million Ugandans were infected with HIV. Moreover, McKinley reported that 150,000 to 200,000 people died of AIDS annually. Goncalves (1994) estimated that in Uganda, one out of every six adults was HIV-positive. He also showed that people at highest risk of contracting AIDS were between 20-30 years of age for males, and between 18-25 years for females. Ankrah (1993) observed that the AIDS epidemic in Uganda was having severe effects on family structures and on the capacity of family members to meet the needs of their HIV-infected members. Ntozi (1997) projected that AIDS would cause the death of 1.5 to 2.9 million women of reproductive age in Africa during the 1990s. This meant a total of 3.1 to 5.5 million orphans, 6 to 11% of the population

below 15 years of age. He predicted an important change in the population age structure and the dependency ratio.

The 2015 Uganda Demographic and Health Survey showed that in 2015 an estimated 1.5 million people were living with HIV, and an estimated 28,000 Ugandans had died of AIDS related illness. In 2015, the estimated HIV prevalence among the adults aged 15-49 stood at 7.1%. The same survey reported a reduction of infections from 140,000 in 2013 to 83,000 in 2015. The number of AIDS related deaths decreased by 19% in the same period (UDH, 2015). UNAIDS (2015) showed that due to implementation of antiretroviral treatment throughout the country, there has been a gradual increase in the number of people living with HIV receiving treatment. In 2013, the country reached a tipping point whereby the number of new infections per year was less than the number of people beginning to receive antiretroviral treatment. According to UNAIDS (2015) 57% of adults living with HIV were on antiretroviral treatment and around 40% were not on treatment. Although there remain disparities in the numbers of people on ART, the trend is clearly positive.

2.2 The local context of Masaka

2.2.1 Geographical location and history

Masaka is situated about 40 km south of the equator. The district lies at an average altitude of 1200 metres above sea level. Ssembabule borders the study area to the north-west, Mpigi to the north, Rakai to the west and Kalangala to the east. The total area of the district is 6,413 km², of which land comprises 3214 km², the rest being water and wetlands. The landscape and topography are plateau-like with U-shaped valleys, most of which are wetlands connecting to Lake Victoria. The hills are flat-topped, mainly covered with planted eucalyptus trees, while the vegetation in the wetlands is dominated by papyrus. The climate of Masaka district is tropical, but modified by relief and nearness to Lake Victoria. The rainfall pattern is bimodal, with dry spells between July and August, and January to March. The months of March, April and May experience first-season rainfall. The second rainy season (September to December) lasts longer than the first. Average rainfall ranges between 1000 mm and 1200 mm. The average maximum temperature does not exceed 30⁰ C and the minimum temperature does not drop below 10⁰ C. The humidity level is generally low throughout the district, with the exception of lakeshore areas. However, when interviewed the District Production Officer reported that the climate had changed in the recent past, with reduced rainfall and variation in distribution and onset, thus making it difficult for farmers to plan farm operations.

The 2014 Uganda Population and Housing Census shows that in 2014 Masaka district had a population of 297,004 (149,857 males and 147,147 females) with average household size of

4.5. Interviews with the District AIDS Coordinator, and other health personnel, local leaders, policy makers reveal made clear that also in Masaka the effects of the governance crisis, decline in health services and economic decline had increased people's vulnerability to poverty and HIV/AIDS. Some communities were affected more than others owing to a configuration of different contextual factors that facilitated the spread of the AIDS epidemic. According to the informants, the geographic location of Masaka, including Rakai before it became a separate district, is one such factor.

HIV/AIDS was said to have emerged from the fishing villages of Kasheshero and Miziro in the then Rakai County. Masaka district is located at a crossroads between Kampala, Rwanda, Burundi, the DRC and Tanzania. It was always a point of access to the labour reserves of southwestern Uganda, and Masaka provides a central point to gain access to urban centres such as Kampala, Jinja and Entebbe. With the collapse of the national economy and the emergence of the *magendo* economy, many young girls and boys were left without proper direction. As a result, young girls had to look for employment in the bars at highway stopovers or engage in prostitution. During the discussions with selected local leaders, elders, district health officials, former army officers who fought during the liberation war and opinion leaders in the study area, it was said that Masaka district became an epicentre of the AIDS epidemic. This was attributed to a combination of factors, including: high levels of population mobility; rapid urbanisation; the sexual networks at fishing or landing sites and truck drivers' stop sites; and the social and economic hardships of war in the 1970s and 1980s. None of these factors was seen as more important than the other; rather they derived their impact from their combined power. Below, I shall examine the local impacts in more detail, noting that Masaka received more than its share of the war and political instability in Uganda, the impacts of which we already discussed above. Key informants reported how also Masaka was exposed to military violence, especially the women, and that military presence in the area exposed the population to HIV since – as the health personnel pointed out – prevalence rates among military personnel are two to five times higher than among civilians.

2.2.2 The decline of farm-based livelihood opportunities and the alternative of fishing

According to key informants from the district agriculture department, the decline of farm-based livelihood opportunities increased people's vulnerability to disease. In Masaka, crop and animal husbandry are the main sources of livelihood. Participants in the focus group discussions and elders told that in the last three to four decades the traditional banana-coffee-beans farming system of Masaka district has undergone noticeable and negative changes. One such change concerns the fragmentation of land, especially of the *kibanja*, the land parcel around the homestead. The *kibanja* is commonly used for growing bananas, coffee and beans, and in some cases for animal husbandry. Most of the crops grown by people are meant for subsistence, with

the exception of coffee, which, its numerous cultural functions notwithstanding, is cultivated primarily as a cash crop. In Masaka, land inheritance is generally patrilineal, passing from father to son(s). This means that in the absence of arable land on which to extend the *kibanja*, each generation of parents has to sub-divide the available holdings to bequeath land to their sons, which contributed to a decline in farm income. The key informant from the district agriculture department said that in many communities, men and young boys have responded to this situation by engaging in fishing. Fishing communities are often among the groups at highest risk in countries with a high HIV prevalence rate. According to the information provided by the key informants, fishermen's vulnerability to HIV stems from complex, interacting causes that may include: the mobility of many fishermen, the time fishermen spend away from home, fishermen's daily access to income in a context of poverty – which is often spent on drinking and marrying another woman or sleeping with prostitutes, the ready availability of commercial sex at fish landing site, and sub-cultures of risk-taking among some fishermen.

Given their migratory nature, fishing communities have limited social cohesion and could lack the socio-cultural norms that regulate behaviour in stable communities (MAAIF, 2003). This does not only encourage “free sexual behaviour” but also reduces opportunities (for women, in particular) to benefit from the traditional social safety nets that exist in more stable rural communities. According to the key informants, the high mobility in the fishing communities and lack of strong reciprocal networks make AIDS prevention interventions difficult in the fishing communities. They also said that since fishing is a male-dominated activity and men outnumber women in the fishing sites, commercial sex becomes a “lucrative” activity. Some key informants pointed at the type of income-generating opportunities for women in fishing communities, such as fish trade, petty trade, running local restaurants and beer brewing and selling, which often are carried out in conjunction with transactional sex. A key informant from the health personnel reported that the number and type of sexual contacts among fishermen increases their exposure to HIV. Having more than one wife or partner is a sign of manhood and it gains men respect. Furthermore, people perceive landing sites as places with economic potential. Selling fish is the main source of income at landing sites. Because fish is a natural resource, people believe that fishermen can spend their money freely, knowing that they will get more the next day. Given such opportunities, both men and women have been attracted to the landing sites to go there and start a business. Additionally, landing sites offer anonymity. Someone from the AIDS coordination personnel indicated that people who have lost their partner to AIDS migrate to landing sites in these fishing villages. They go there to search for anonymity and the promise of freeing themselves from stigmatisation. Among such people, women who arrive at the landing sites quickly get “married”, and often do so without undergoing HIV testing. As a consequence, the disease spreads further. According to health personnel, at the landing sites, some of the key factors influencing the risk of infection with

HIV include the regularity of sexual activity, having many casual sexual partners, and the possibility of one's spouse or regular partner having sexual intercourse with someone else. In spite of being a high-risk group, fishing communities have limited access to health facilities, including drugs to treat STDs, which further exacerbates the vulnerability of fishing communities (MoH, 1998; MAAIF, 2003).

2.2.3 Labour migration and population mobility

According to key informants (health, agriculture, and community development personnel), the transformation of Masaka into an urban centre could be traced back to the early days of British colonialism in Uganda. Before then, Masaka was not more than a small trading post among many others along the trade route that connected Zanzibar, Pemba and Buganda and was used by Arab and Swahili traders. The growth of Masaka as a commercial and administrative centre at the zenith of the Kingdom of Buganda in 1900 helped transform the area. This period was characterised by the urban expansion of Masaka town. This growth included the establishment of coffee, cotton, tobacco, tea and sugar cane plantations. Moreover, agro-processing factories started to appear as well. All of these enterprises attracted labour from rural counties. As a result of these economic activities, Masaka became a magnet for migrants coming from all corners of Uganda as well as from neighbouring countries, particularly Rwanda. One key informant from the district health department stated that this labour movement pattern played a role in the transmission of STDs from the late 1890s to around the 1950s. Moreover, the majority of my key informants from health department and AIDS coordination office agreed that in Masaka, HIV spread in the late 1970s and early 1980s following the migrant labourers' routes and long distance truck drivers' stopovers.

Through population movements, HIV reached areas previously unaffected by the disease. A key informant from the district AIDS coordination office stated that six groups of migrants are said to have influenced the spread of the AIDS epidemic in sub-Saharan Africa: migrant labourers, female itinerant traders, truck drivers, commercial sex workers, refugee populations and military personnel. According to a key informant from district health department there are two categories of studies on the influence of mobility on the HIV pandemic: studies focusing on the spread of HIV along transport corridors (e.g. Orubuloye *et al.*, 1993), and studies on migration processes that increase people's vulnerability to HIV. He argued that long-distance truck driving contributes greatly to the spread of HIV. Documentary evidence shows the importance of migrant labour in the creation of markets for prostitution (MoH, 2005). Migration increases the extent of sexual networking and heightens the HIV risk through encounters with casual partners (MAAIF, 2003). Nombo (2010) found this in her study in Kilombero district in Tanzania, where migrants who were attracted by the sugar plantation and factory and who were separated from their families, proved to be highly vulnerable to HIV infection. One of my

informants in the district health department pointed out that the circular nature of migration places people under increased risk of contracting HIV. Because when migrants frequently visit their hometowns in order to maintain links with their origins, they become potential vectors and pathways of HIV and AIDS.

In- and out-migration of HIV-infected persons to and from urban areas, as well as a higher concentration of vulnerable populations, are important variables of the dynamics of the AIDS epidemic (Wawer *et al.*, 1998). The informants in the district AIDS coordination office indicated that urban areas also constitute regions of anonymity, where prostitution thrives. Transactional sex may have different definitions in different contexts. In this study, “prostitution” is used to refer to the practice of engaging in sexual activity in exchange for money or other material items, like food. An important consideration here is the element of exploitation in the relationship of a more affluent male partner with a woman in a vulnerable socio-economic situation. The key informants in the district AIDS coordination office identified poverty as a major driver of transactional sex among young women. In addition, the desire of young women for a fancy lifestyle also explains their vulnerability to transactional sex and the risk of HIV infection. They move to urban places, like Masaka town, hoping to acquire jobs and achieve the lifestyle of their dreams.

2.2.4 STDs, AIDS and the demographic picture

As discussed above, untreated STDs facilitate the transmission of HIV. Although documentary evidence in Masaka is limited owing to the destruction of records during the war, interviews with medical workers who served during the Amin period confirmed that the incidence of sexually transmitted diseases was on the rise during this period. A medical expert interviewed revealed that the period 1971-1986 was characterised by all kinds of STDs because of the failure to treat them due to the breakdown of the health infrastructure. He added that yaws and venereal diseases, including gonorrhoea and syphilis, were a big health hazard. However, he also said that not all kinds of STDs are likely to be co-factors in HIV transmission. It is only if STDs go undetected and untreated that they increase the likelihood of transmission of an ulcerative STD and HIV.

In 2009, HIV prevalence in Masaka was 8.5%, which was slightly above the national prevalence rate of 6.4%. In places like the fishing landing sites, it can be more than 10%. The findings from key informant interviews with district health department revealed that such places where prevalence is above the national average, such as fishing villages and highway stopovers were the epicentre of the spread of AIDS in Masaka. As they also said and is evident from the Ministry of Health and MRC report (MoH, 2005), women tend to be biologically more susceptible to HIV infection than men are. Hence, HIV prevalence by sex as a result of women’s

higher biological susceptibility and higher socio-economic vulnerability to HIV infection. Available data for some selected villages in Masaka show women's slightly higher HIV prevalence rates than men over the years from 1990 to 2005 (Figure 2.3).

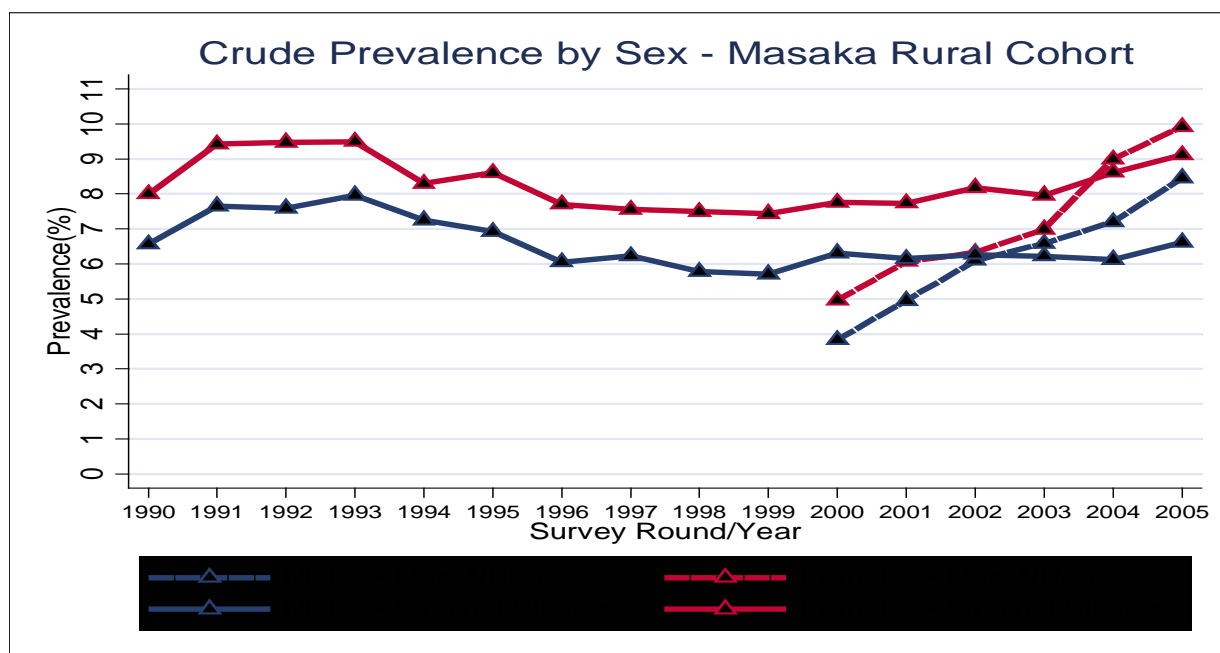


Figure 2.3 Crude Prevalence by sex in Masaka since 1990-2005
Source: MoH and MRC, 2010.

Figure 2.4 shows that the incidence rate (new HIV infections) in some selected 15 villages in Masaka where long-term studies have been conducted, during 1997-2005 was 5.7% on average, which is close to the national average incidence rate of 6.4 % for the same period.

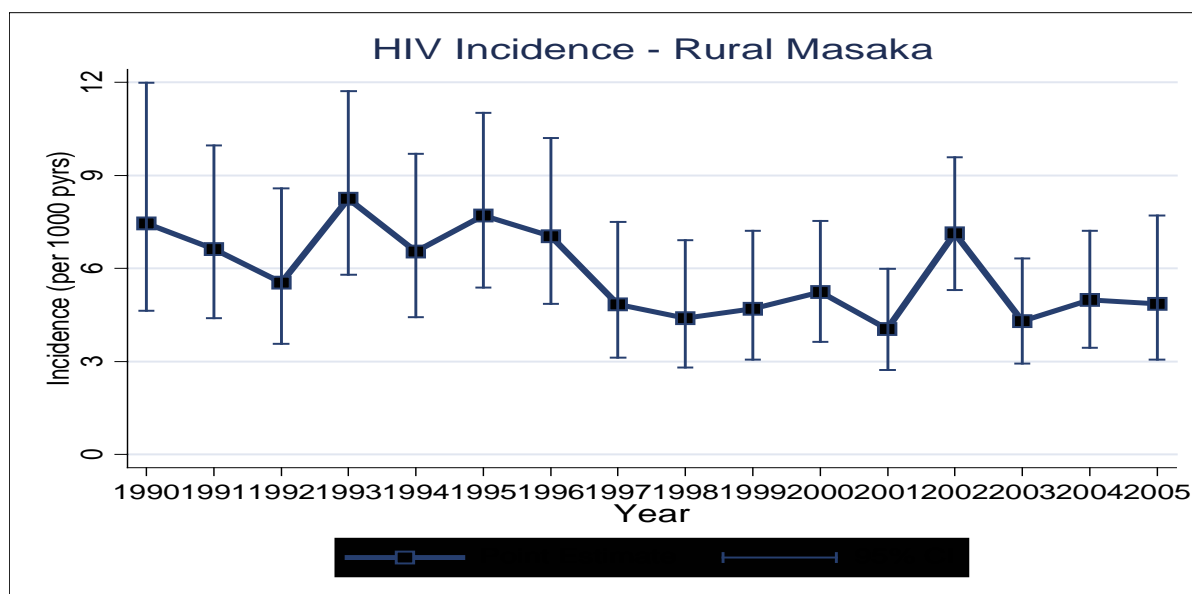


Figure 2.4: New HIV infection rate in Rural Masaka district
Source: MoH and MRC, 2010.

Available data about gender difference in new HIV infections for Masaka district over the years 1990-2005 show that except for the early period, HIV incidence is higher among women than men.

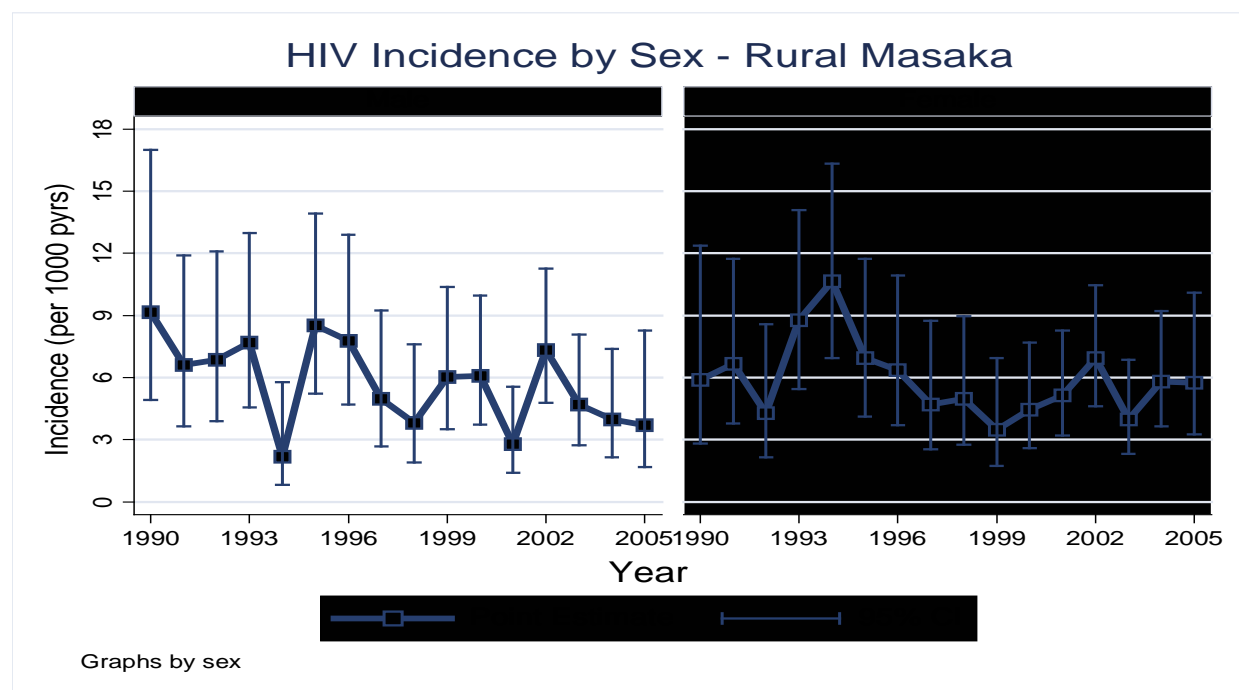


Figure 2.5: HIV incidence by sex in rural Masaka

Source: MoH and MRC, 2010.

Since 1990 to the present, the district intensified its efforts provide HIV testing and counselling. According to the documents accessed at the district health services department and interviews with key health personnel, all health centres from health centres grade II to grade IV and the district referral hospital provided HIV counselling and testing services and over 68% of the HIV positive clients tested, confirmed positive and counselled are put on ARV treatment. Table 2.2 presents the number of hospitals providing ART drugs in Masaka district from 2005 to 2011. Table 2.2 shows that during 2005-2011, a total of 46,947 adults and 2189 children were on ART drugs, yielding 51,124 individuals receiving ART.

Table 2.2 ART data for Masaka district in 2005-2011

Agency	Duration of support	Sub County division	Total adults	Total children	Total	Ownership
Uganda CARES	12 years	Katwe/ Butego	15,461	1,988	17,449	Government partner
Kitovu Mobile	Twenty years	Nyendo /Ssenyange	Not available	Not available	Not available	Not known
TASO Uganda	Ten years	Katwe/Butego	30,013	2,058	32,071	PNFP(CSO/ NGO)

Kiyumba Health Centre IV	Five years	Mukungwe	648	57	705	Government
Kyanamukaa kHealth Centre 1V	Five years	Kyanamukaaka	825	74	899	Government
AIDS Child	Not Known	Masaka Municipality	Not available	Not available	Not available	NGO
Lambu Health Centre 11	Four years	Bukakata	Not available	Not available	Not available	PNFP/NGO
Total			46,947	4,177	51,124	

Source: HMIS DDHS Office, Masaka District

2.3 Discussion and conclusion

The findings of the study suggest that political instability (civil and political conflicts) contributes to disease risk by increasing the transmission potential and that the governance crisis was a critical factor in the spread of the AIDS epidemic in Uganda. The political instability that the country experienced from 1966 to 1985 created favourable conditions for the occurrence of catastrophes, including the emergence and spread of HIV and AIDS. Kasozi (1999) examined the origins of the appallingly high levels of violence from independence in 1962 to 1985. He attributed the violence in Uganda to causes like social inequality, the failure to develop legitimate conflict resolution mechanisms, lack of a common language, and gender inequality. Civil and political conflicts have long been recognised as causing conditions favourable for outbreaks of infectious diseases. In Uganda, the emergence of the HIV/AIDS epidemic in the late 1970s coincided with the period in which the country was engaged in extensive civil and political conflicts. These further compromised health and social infrastructures and an already fragile economy.

The increased population mobility as a result of the governance and economic crises in Uganda meant that people were particularly exposed to contracting HIV. Kiwanuka *et al.* (2008) observed that in Uganda, AIDS and HIV incidence are highest in urban areas because of the concentration of migrant labour. The areas of labour migration with highest prevalence rates of HIV and AIDS in the country are found in the crescent zones along the shores of Lake Victoria, particularly in Rakai, Masaka, Kampala and Entebbe (Berkley *et al.*, 1989). For instance, about 86% of the sex workers in the town of Rakai (an area of major concentration centre south of Kampala) were found to be HIV positive (MoH, 2005). In fact, compared to Kampala and

Entebbe, the area located south of Kampala had one of the highest incidence rates in Uganda. The historical pattern of STD epidemiology in Uganda is intimately related to the country's migrant labour (Smallman-Raynor and Cliff, 1991). This could explain that the highest prevalence of HIV is found in the areas of high economic activity and rapid development. A study by the Ministry of Health (MoH, 2005) showed, however, that some rural areas (particularly in southwestern Uganda) also had high prevalence rates of HIV, although not as high as those of urban centres. Masaka became an epicentre of the AIDS epidemic due to the following reasons: 1) high labour mobility since 1970s and population displacement during the war of 1978-1979; 2) high prevalence of sexually transmitted diseases; 3) rapid urbanisation accompanied by a decline in health services; 4) changes in the Buganda family and values; 5) decline in farm and non-farm based livelihoods; 6) the intensification of poverty and the emergence of fishing communities as a result of poverty. These factors caused people's vulnerability to HIV to increase and created a situation of a high burden of epidemic diseases in the Masaka district.

The findings in this study are corroborated by earlier studies (Bakamanume, 1998; Barry, 2006; Sherman, 2007), which showed that the political situation shapes a disease epidemic. The political environment is critical in the outbreak and course of an epidemic, because it determines which interventions can be implemented. When there is a political crisis, social and health infrastructures are dismantled and the likelihood of disease epidemics occurring becomes high. When the political environment is stable and the health system is functioning properly, epidemic outbreaks can be brought under control. The economic situation in Uganda in the 1970s and early 1980s was affected by political instability. Lyons (1994) called AIDS the pre-eminent public health threat of present times and showed that the socio-economic factors crucial in the transmission of AIDS and other sexually transmitted diseases have deep historical roots, such as political and civil instability, colonial penetration, the introduction of forced labour, and the migrant labour system that increased people's exposure to STDs. Her long-term analysis revealed alarming incidence rates of STDs, which undoubtedly contributed to the transmission of HIV. Lyons concluded that there is need for the effective control of STDs as one of the control measures for reducing HIV spread in Uganda. Such effective control was not present during the governance crisis that Uganda experienced. The country in general, and including Masaka, lacked proper health facilities. This was a propitious situation for the epidemic to develop rapidly and almost unnoticeably. The establishment of a stable government in 1986 brought considerable improvements. Hospitals were furnished with equipment, medical doctors and medicaments. Moreover, HIV/AIDS interventions were institutionalised and from 1987 onwards the country was able to reverse the trend. The pervasiveness of AIDS diminished from 30% in 1992 to 7.1% in 2000 and to 6.3% in 2010 (UAC, 2008b). This illustrates how a political situation can shape epidemic emergence and control.

Increased labour migration and war during the 1970s until 1985 led to the expansion of sexual networks, making the Ugandan population more vulnerable to HIV infection. The study by Hunt (1989) showed that from the mid-1980s, as Uganda became increasingly urbanised, one of the most damaging trends was the pattern of migration that had developed. As men left rural areas to seek employment in urban centres like Kampala, Masaka, Jinja and Kasese, social relationships and familial ties were weakened and new sexual networks were formed. Hunt's study showed that migration increased men's exposure to a variety of STDs since the majority did not move with their spouses and took up new sexual relationships. STD rates were significantly higher in the urban areas of Uganda than in the rural areas. However, not just men were affected by the above migration patterns. A study by UAC (1998) shows that as some men returned to their homes in the countryside, they often returned carrying the HIV virus and infected their wives. In situations like this, women are often not in a position to insist on safe sex. Also Gupta (2000), UNAIDS (2004) and Müller (2005) noted that increased mobility increases people's vulnerability to STDs, including HIV/AIDS.

The relationships between structural factors such as the ones reviewed above, poverty and HIV/AIDS are manifold. Such factors and conditions facilitate the return of old diseases as well as the emergence of new ones such as HIV and AIDS. While women who live in poverty are more vulnerable to getting infected, gender alone does not determine risk. In the context of the AIDS epidemic in Uganda, the most important aspect of poverty was that it forced people to engage in survival activities that increased their exposure to HIV. When HIV started to spread locally, it first tended to affect the rich because they could afford casual sex or many sex partners, and when it reached the rural areas and villages, it spread locally. In his study of AIDS in northern Tanzania, Rugalema (1999a) called the AIDS epidemic 'the catastrophe among catastrophes', saying:

"In general, people of northern Tanzania did not think of AIDS as something terribly new. Rather, they saw it in the wider context of other crises predating it. During and for a few years after World War II, the study area was struck by famine partly due to drought and partly due to rationing imposed by the British colonial government in Tanganyika. Most households had to dispose of their assets" (Rugalema, 1999a: 75).

He further observed that:

"In the early 1970s, drought led to widespread food shortages in the area, particularly in 1973-1974. This caused generalised hunger throughout Tanzania and the situation was made worse by the world oil price shock... a few years later there was *olushengolwa* Amin (Amin's war), that is the 1978-1979 war between Uganda and Tanzania" (Rugalema, 1999a: 75).

Rugalema's study site is located about 72 kilometres from the Ugandan border. It not only received some of the displaced people from the border villages, but it also suffered the economic disruption brought about by the war. Comparable to the Tanzania case, during the 1970s Uganda was characterised by poor national economic performance in general and a decline in coffee production in particular.

Rugalema suggests that an epidemic is best understood in the broader social, economic, political, cultural and environmental context in which society finds itself in a given period of time. In this light, the AIDS epidemic in Uganda also has to be seen as a result of the breakdown of the economy. There was a general breakdown of agriculture triggered by the lack of incentives for agricultural production. Farmers struggled to make a living. Moreover, they not only had to battle drought and diseases affecting crops and livestock, but also political instability and market reforms. The onslaught of HIV and AIDS further impaired household responsiveness as available household resources became compromised. For young people, these shocks added to the real or perceived insecurity and low returns of agriculture. The sense that they could improve their material well-being from rural enterprises was eroded. At the same time, the long-established patterns of migration to employment centres were failing to provide as many opportunities as in former times. Schooling became less of an assurance of progress. These structural shocks affected the expectations, hopes and commitment to work within the prevailing economy. As a result, young people were increasingly forced to seek alternative opportunities for income generation and social support. Richards (1990) describes a similar situation in Sierra Leone:

“Some Sierra Leoneans were involved in the war there and in neighbouring countries from the late 1980s. Young men from Burkina Faso, Sierra Leone and other West African countries found opportunities constricted by economic crises in labour-absorbing countries (Côte d'Ivoire and Nigeria). Young people were blocked from economic opportunities in their home areas (where very limited opportunities existed) and through the migrant labour system. The shocks that ran through the system included loss of income, loss of self-respect and confidence, rejection as “marginal” and unemployed i.e. street people, thieves, and beggars” (Richards, 1990: 34).

In the case of Uganda, the shocks of war and stigma made eventual death by AIDS far less compelling than the immediate need for food or companionship and social acceptance. Rugalema (1999b) found that as HIV and AIDS cut short the normal life expectation, to young people in Tanzania it meant that they would have to do with the time they would get. Life had to be lived to the full, but perhaps over 30-40 years rather than the normal life span. Such an attitude to death in the era of AIDS and in the given socio-economic circumstances is not conducive to behavioural change. It can be expressed as: “Why change my sexual behaviour

when I have no opportunities and there is little hope for improving my life?” The general sense of hopelessness created by the situation in society exacerbated the spread of the epidemic. In the early days of the epidemic (1980s) in Uganda, there was no hope in the society and people expected AIDS to kill everyone. This attitude was accompanied by changes in the socio-cultural context. There was loss of social cohesion as people migrated in search of jobs and household members were never united in confronting the common problems of poverty, food and nutrition insecurity, and the emergence of epidemic diseases, including HIV/AIDS.

AIDS is different from other epidemics that human beings have experienced because of the way it attacks its victims through sexual activity and its ability to be in a given population without being noticed for some time, which poses challenges to respond to the epidemic. Uganda, including Masaka, experienced a high-risk situation from the 1970s to 1989, due to political and military instability, the breakdown of the economy and of social and medical infrastructures, and social dislocation during the period as a result of instability and movements of impoverished people to trading centres and fishing villages. Many of them easily fell prey to the diseases of poverty such as malnutrition and tuberculosis, and to parasitic infections and STDs (cf. Stillwaggon, 2006). Furthermore, political instability in Uganda obstructed the accumulation of social cohesion, which allegedly (e.g. Barnett and Blaikie, 1992) provides some protection against the spread of AIDS.

To conclude, this chapter presented evidence about how the political and economic context shaped the emergence and course of the AIDS epidemic in the country and in Masaka district in particular. We have shown that the ways in which civil unrest that Uganda experienced between 1962 and 1985 facilitated the spread of HIV. The long duration of the conflict, the barbarism of the parties involved in it and the brutal acts during Amin’s regime, as well as the geographical scale at which it unfolded, all added to the gravity of the situation. In this context, other factors contributed to the spread of the epidemic, such as the increased population mixing following large-scale population movements, the intensification of sexual violence, and the fragmentation of families and the resultant vulnerable household structures.

The mechanisms identified in this chapter together form an explanatory model for understanding the emergence and course of the epidemic. It is built on Ford’s (1971) broad disease ecological framework, in which the interactions of multiple factors (environmental, social and biological), working through different mechanisms and at differing levels (individual, household, community, national), and of which the dynamics are changing over time. Furthermore, the findings presented in this chapter illustrate Stillwaggon’s point (2006) of the ecology of poverty in which the spread of HIV and AIDS is embedded and, finally, the

findings testify to the synergistic nature of the interactions between AIDS and ecological factors (Niehof and Price, 2008).

Chapter 3: The General and AIDS-related Profiles of the Survey Households

Much has been written about the impact of AIDS-induced mortality in rural households in Uganda and Africa in general. The focus of this chapter is specifically on the magnitude of AIDS-related morbidity and mortality as well as their impact on the size and structure of affected households. As the literature suggests, AIDS was expected to significantly change the demographic features of households (Barnett and Blaikie, 1992). Rugalema (2002) argued that AIDS is, first and foremost, a disease that affects human health and leads to prolonged morbidity (sickness) and eventually mortality (death), which may have an impact on household structure and size. Also Niehof (2012) points at the structural demographic effects of the epidemic. In their seminal study, Barnett and Blaikie (1992) showed that epidemic diseases such as AIDS would also have profound socio-economic effects. They argued that in some poor countries like those of Africa, AIDS would reduce the number of adults who can produce food and care for the young and the old. Barnett and Blaikie (1992:3) further argued that:

“The levels of infection are so high in some countries – in Uganda about eight per cent of the population may be infected – that the number of deaths over the next decades will almost inevitably slow rates of population increase and in some particularly heavily infected areas which will result in population decline. A disease mainly affecting people aged between 15 and 50 years of age will result in large numbers of orphans, shortage of labour, loss of expensively trained specialists, as well as increasing the burden of health and other forms of care” (Barnett and Blaikie, 1992:3).

As stated earlier, Barnett and Blaikie (1992), Rugalema (1999a), Ssewayana (2003) and Niehof (2012) argued that AIDS mortality would result in demographic changes at the household level. To see the magnitude and effects of AIDS-related mortality in the study area, we analysed the data obtained from the AIDS-confirmed and non-confirmed households (see Chapter 1) by assessing the significance of the socio-demographic differences between the two categories of households. Starting from the assumption that an epidemic is a context-dependent phenomenon. Hence, when the context changes, the impact of the epidemic will also change. We also assumed that given the wide availability of antiretroviral therapy (ART), HIV-positive individuals on antiretroviral therapy (ART) now have a life expectancy comparable to that of the general population. An argument is advanced that since ARV medicine became widely available, AIDS-related deaths are in decline and that this has positive implications for the demographic and socio-economic characteristics of households and for welfare in general. To test the validity of our argument, we investigated whether the AIDS epidemic caused household demographic changes in the study area, examining variables such as household composition and structure, household headship by gender, educational level, wealth status, dependency ratio, morbidity and mortality. Moreover, we looked at the degree to which households attracted new members

or sent away members to live elsewhere (fostering in or fostering out children, migration). This chapter attempts to determine AIDS impacts by comparing AIDS-confirmed and non-confirmed households for the variables listed above, for the period 2007-2009. It starts with comparing the general profiles of the two categories of households in the survey.

3.1 General profile of the households in the survey

Much of the work on the impact of HIV/AIDS on household demographics and the population in general is premised on the assumption that, in the absence of AIDS, mortality is concentrated in the young and the old, whereas AIDS-related deaths are concentrated in the age group 15-59. Therefore, it was assumed that by shifts in the usual mortality pattern, AIDS would alter the demographic characteristics of affected households. This would cause the following structural changes at the population level: the already high dependency ratio would rise (because of increased mortality in the productive age group of 15-60 years), there would be more women-headed households, and more children orphaned would increase fostering and increase the burden of child care on the active labour force (Barnett and Blaikie, 1992; Ntozi, 1997; Rugalema, 1999a, 2000). This section compares variables such as household composition and structure, household headship by gender, educational level, income status and dependency ratio between households with confirmed HIV and AIDS status and households of which this status is not confirmed.

Table 3.1 presents the general profile of the socio-demographic characteristics of the households in the study area according to HIV and AIDS status. The numbers are averages based on the data collected in the surveys conducted in the years 2007-2009.

Table 3.1: General profile of survey households according to AIDS status, 2007-2009(*)

Profile Variables	Parameters	AIDS-con- firmed HHs	Non- confirmed HHs	Total
Gender of the HH head	Male	(105) 65.6%	(192)85.7%	297
	Female	(55)34.4%	(32)14.3%	87
	Total	160 (100%)	224 (100%)	384
	Chi-square, (p-value)	21.496, df=1,(0.000)		
Average age of the HH head	Mean	52.4	51.4	384
Occupation HH head	Farming	(84)52.5%	(116)51.8%	201
	Informal sector	(30)18.8%	(45)20.1%	75
	Salary/wage	(21)13.1%	(28)12.5%	49
	Both farming and informal sector	(19)11.9%	(22)9.8%	40
	Fishing	(4)2.5%	(7)3.1%	11
	Fishing and farming	(2)1.2%	(6)2.63%	8
	Total	160 (100%)	224 (100%)	384
	Chi-square, (p-value)	1.534, df=5, (0.909)		
Education of the HH head	None	14(8.8%)	22(9.8%)	36
	Primary	81(50.6%)	103(45.9%)	184
	Secondary	26(16.3%)	44(19.6%)	70
	Vocational	12(7.5%)	17(7.6%)	29
	Tertiary	26(16.3%)	36(16.1%)	62
	Not Known	1(0.6%)	2(0.9%)	3
	Total	160 (100%)	224(100%)	384
	Chi-square, (p-value)	1.212, df 5, (0.944)		
Education of the Spouse	None	12(7.5%)	17(7.5%)	29
	Primary	47(29.4%)	65(29.0%)	112
	Secondary	21(13.1%)	31(13.8%)	52
	Vocational	2(1.3%)	3(1.3%)	5
	Tertiary	9(5.6%)	12(5.4%)	21
	Beneficiary of adult literacy	69(43.1%)	96(42.8%)	165
	Total	160(100%)	224(100%)	384
	Chi-square, (p-value)	0.60, df=5, (0.999)		
Average household size		Mean=5.8	Mean=6.0	384
Household age composition	Total number of household members below 15	22(13.8%)	57(25.4%)	79
	Total number of household members aged 15-59 years	119(74.4%)	135(60.3%)	254
	Total number of household members 60 and above	19(11.8%)	32(14.3%)	51
	Total	160(100%)	224(100%)	384
	Chi-square, (p-value)	9.356, df=2, (0.009)		
Dependency ratio		34.45	65.93	384

(*) Averages of three years (2007, 2008, 2009)

Source: Author's household survey data

Gender of the household head is an important element of the demographic structure because of the differences in the gender roles of men and women and the different effects of HIV/AIDS on these. Table 3.1 shows that there are more female heads in confirmed households than non-confirmed households and that the relationship between gender of household head and household HIV and AIDS status is significant ($p=0.000$). The key informants attributed this to male labour migration, death of male spouses, or to increasing cases of separation and divorce where women preferred not to remarry. The latter cases were related to cultural rules which prohibit widows from remarrying – rules that do not commonly apply to widowers. Regarding the average age of the household heads, according to earlier studies AIDS-confirmed households would include households headed by orphans because of AIDS-related mortality, which would lower the average age of the household head. However, the difference between the average ages of the household heads of both categories of households (52.4 and 51.4, respectively) is not significant.

Previous studies have shown that occupation of the household head is important when explaining the vulnerability of the households to HIV infection and in coping with the AIDS epidemic impact (Barnett and Blaikie, 1992; Rugalema, 1999b, 2000). Persons engaged in occupations like fishing, working in the army, mobile truck drivers and those working in wildlife conservation and plantations have been found to be particularly at risk of HIV infection (MAAIF, 2003). The studied households were engaged in farming, informal sector work, fishing and formal employment. We expected to find the proportions of households engaged in fishing and informal sector to be higher in the category of confirmed households, but this does not seem to be the case. The results of the chi-square test show that the occupation of the household head is not significantly associated with household status ($p= 0.909$). It was also necessary to establish whether the education level of the spouse was associated with household status. Table 3.1 shows that the education level of household heads and spouses reveal minimal differences and no significant relationship between education levels of household head and spouse and household HIV and AIDS status was found (p -values 0.944 and 0.999, respectively).

We expected a difference in household size between confirmed and non-confirmed households as earlier studies had indicated that confirmed households would be smaller due to AIDs-related death and sending children away to the extended family for care, but household size does not significantly differ between the two household categories (Table 3.1). When during the household survey household members were asked about changes in household size, they revealed that AIDS-confirmed households tended to attract new members from the extended family in the early stages of the AIDs epidemic. Additionally, key informants (elders) said that in male-headed households prime-age widowers would easily remarry, which would cause the household size to change again. When the matter was discussed in the focus group discussions, the

participants agreed on the household size being more or less the same for both AIDS-confirmed and non-confirmed households.

Earlier studies had suggested that the AIDS epidemic would have an impact on the household age structure and would cause a heavy dependency burden on households (Barnett and Blaikie 1992; Rugalema, 1999b). The dependency ratio is defined as the total of the young population below 15 years (14 years and below) plus those aged 60 years and above divided by the age group 15-59 (productive workforce) multiplied by 100. In demographic and economic studies, this ratio is used as an indicator of the population composition and its economic potential. In developing countries like Uganda, it ranges from 80 to 105 dependants per 100 productive persons, whereas in developed countries it ranges from 50 to 60 per 100 productive persons (Seeley *et al.*, 2010b). Table 3.1 shows that the dependency ratio for AIDS-confirmed households is 34.45 and for non-confirmed households 65.93. Both dependency ratio and household age composition differ significantly between the two types of households, but in another direction than expected. Also based on statements by respondents in the household survey, the following factors could explain the unexpected results: less movement out of the AIDS-affected households than non-affected households; return migration of adult sick household members (Du Preez and Niehof, 2010); lower fertility levels in female headed households (of which there is a significantly higher proportion among AIDS-confirmed households); availability and accessibility of ART which has reduced AIDS-related mortality and made it possible for infected people to live longer; remarriage of widowers; and extended family sending older children (above 14) to support AIDS-affected households.

3.2 AIDS-related profile of the survey households

In this section, we explore the impact of the AIDS epidemic as measured by indicators found in the literature. Earlier studies have shown indicators of AIDS impacts to include household economic status, education of children, morbidity and mortality, fostering of children and migration (Anderson, 1988; Barnett and Blaikie, 1992; Hunter *et al.*, 1993; Ntozi, 1997; Foster and Williamson, 2000; Rugalema, 2000; Seeley *et al.*, 2008; Niehof, 2012). In this section, we are going to see whether our data concur with the picture in the literature.

Past studies showed that AIDS would affect household economic status (Barnett and Whiteside, 2002) and others suggested that poor households are likely to be more affected than rich households (Foster, 1996; Ntozi and Zirimenya, 1999; Barnett and Whiteside, 2002; Seeley and Ekoru, 2010). To examine the impact of AIDS on the households' economic status, the proportions of better-off, less poor and poor households were analysed. The categorisation used a list of indicators, including resources or assets base, occupation, and education. During the

pre-testing four categories of households emerged: rich, fairly rich, poor and very poor. The very poor were those who did not have land and a dwelling and were reportedly mostly staying in the landing sites. During data entry, we eliminated this category, as there were no households matching the description. Therefore, three categories were used: better off, less poor and poor. The results show that confirmed households had slightly more households in the ‘better off’ category than non-confirmed households, non-confirmed households had slightly more households in the ‘less poor’ category than confirmed households, and that confirmed households had slightly more households in the ‘poor’ category than non-confirmed households. Household members during the survey said that this could reflect the effect of AIDS impact on such households. However, as shown in Table 3.2, the results of the chi-square test do not show a significant relationship between household HIV and AIDS status and economic status (p-value 0.286)

Table 3.2 Household economic status by Household HIV and AIDs status in 2007-2009

Variable	Parameter	AIDS-confirmed households	Non-confirmed households	Total
Household economic status	Better off	30(18.8%)	32(14.3%)	62
	Less poor	77(48.1%)	125(55.8%)	202
	Poor	53(33.1%)	67(29.9%)	120
	Total	160(100.0%)	224(100.0%)	384
Chi-Square, (p-value): 2.507, df=2, (0.286)				

Source: Author’s household survey data

Many of the past studies showed that household members from AIDS-confirmed households would be denied a chance to go to school compared to non-confirmed households or that children from AIDS-affected households are removed from school to care for sick household members, and such studies have shown that the burden of care is more on women (Barnett and Blaikie, 1992; Rugalema, 2000; MAAIF, 2003; Niehof, 2012). The results presented in Table 3.3 are insignificant (p-value 0.991), implying no association between education level of other household members and household HIV and AIDS status. The results of key informant interviews indicated that the education of other household members might be impacted by the effect of HIV/AIDS because of competing household demands i.e. medical bills, school fees and the cost of good feeding in confirmed households. Key informants further said that this might be changing due to antiretroviral therapy (ART) which has reduced AIDS-related morbidity.

Table: 3.3 Education of household members by household HIV/AIDS status 2007-2009

Variable	Parameters	AIDS-confirmed HHs	Non-confirmed HHs	Total
Education of other household members	None (N/A)	43(26.9%)	19(8.5%)	62
	Primary	37(23.1%)	44(19.6%)	81
	Secondary	37(23%)	35(15.6%)	72

	Vocational	26(16.0%)	98(43.8%)	124
	Tertiary	17(10.6%)	28(12.5%)	45
	Total	160 (100.0%)	224(100.0%)	384
Chi-square, (p-value): 7.840, df=4, (0.347)				

Source: Author's household survey data

Earlier studies suggested that confirmed households would have a higher incidence of illness due to the weakened immune system of people living with AIDS (Piwoz and Preble, 2000; Loevinsohn and Gillespie, 2003). Table 3.4 shows that confirmed households do report slightly more cases of morbidity than non-confirmed households do in the last 5-10 years prior to 2007. However the chi-square test does not indicate a significant relationship between morbidity and household HIV and AIDs status (p-value=0.423). During focus group discussions with women living with HIV, members revealed that when they take their medicine (ART), they are less frequently ill. During the household survey, when some members were asked as to why there is a reduction in morbidity, they said the Government and partners are implementing a combined programme that includes ART drugs, insecticide mosquito nets to prevent malaria, treatment of tuberculosis and education on improved sanitation, and hygiene, which they said could have reduced morbidity. According to district health personnel there has been a reduction in morbidity among confirmed households as a result of this combined programme, which includes prevention, treatment and care.

Table 3.4 Household morbidity and HIV/AIDS status in the last 5-10 years prior to 2007

Variable	Parameter	AIDS-confirmed households	Non-confirmed households	Total
Members of households who fell sick	Yes	114(71.3%)	151(67.4%)	265
	No	46(28.7%)	73(32.6%)	119
	Total	160(100.0%)	224(100.0%)	384
Chi-square, (p-value): 0.643, df=1, (0.423)				

Source: Author's household survey data

We further analysed morbidity in the period 2008 and 2009 to see if it differs from that in the last 5-10 years prior to 2007. Table 3.5 shows that in 2008, there was no significant difference between the two categories of the households, but in 2009 confirmed households experienced significantly more cases of morbidity (p-value 0.005). The District AIDS Coordinator attributed the increased morbidity in AIDS-confirmed households in 2009 to the shortage of ARV medicine because of a temporary interruption in its provision in 2009. He said that the situation changed after the temporary shortage was addressed and the Government ensured accessibility of ART drugs in all government hospitals.

Table 3.5 Morbidity in the households 2008 and 2009 by household HIV/AIDS status

Variable morbidity	Value	2008		2009	
		Confirmed households	Non-confirmed households	Confirmed households	Non-confirmed households
Did any household member fall sick in 2008 or 2009	Yes	113(70.6%)	145(64.7%)	117(73.1%)	133(59.4%)
	No	47(29.4%)	79(35.3%)	43(26.9%)	91(40.6%)
	Total	160(100.0%)	224(100.0%)	160(100.0%)	224(100.0%)
Chi-square, (p-values)		1.47 (0.225)		7.77 (0.005)	

Source: Author's household survey data

Based on earlier studies (Ntozi, 1997; Barnett and Blaikie, 1992; Rugalema, 2000; Yamano and Jayne, 2001; MAAIF, 2003), we expected to find confirmed households reporting more cases of mortality than non-confirmed households in the last 5-10 years prior to 2007. The results presented in Table 3.6 are highly significant, indicating a relationship between the household status and mortality in the household.

Table 3.6 Household mortality by HIV/AIDS status in the last 5-10 years prior to 2007

Variable mortality	Value	AIDS-confirmed households	Non-confirmed households	Total
Did any household member(s) die during this period	Yes	29 (18.1%)	9 (4.0%)	38
	No	131(81.9%)	215 (96.0%)	346
	Total	160(100.0%)	224(100.0%)	384
Chi-square, (p-value): 20.25, df=1, (0.000)				

Source: Author's household survey data

During the household survey, interviewed households members were asked about the high mortality in AIDS confirmed households during the 5-10 years prior to 2007 and they said that at that time ART was not readily available and accessible compared to the period from 2007 onwards. In an interview, the District Health Officer confirmed the above and added that prior to 2007, they had not fully scaled up the combination programme that addresses the impact of HIV/AIDS along the continuum of prevention, care and treatment. Participants in the focus group discussions also agreed that during the period of 5-10 year prior to 2007, ART drugs were hardly available.

We further compared household mortality between confirmed and non-confirmed households in 2008 and 2009. As shown in Table 3.7, there proved to be a significant relation between household status and mortality in the households (p-values 0.000 and 0.007 for 2008 and 2009, respectively). The health personnel informed us that towards the end of 2008 through the tail

end of 2009, there was a scarcity of ARV medicine which could have caused the mortality experienced in 2008 and 2009, adding that mortality keeps on declining with increased scaling up of ART and combination programmes. A participant in the focus group discussion with people living with AIDS said: “Our major challenge was lack of ART medicine which resulted in the death of our association members [...] Now that the government and partners have started to provide ART drugs at all health centres III, IV, and at district referral hospitals, there is hope for getting the drugs and we can live a little longer.”

Table 3.7 Mortality in the households in 2008 and 2009 by household HIV/AIDS status

Variable mortality	Value	2008		2009	
		Confirmed households	Non-confirmed households	Confirmed households	Non-confirmed households
Did any household member die in 2008 or 2009	Yes	19(11.9%)	10(4.5%)	11(6.9%)	4(1.8%)
	No	141(88.1%)	214(95.5%)	149(93.1%)	220(98.2%)
	Total	160(100.0%)	224(100.0%)	160(100.0%)	224(100.0%)
Chi-square (p-values)		7.53 (0.000)		7.34 (0.001)	

Source: Author's household survey data

We further analysed the major causes of death in the studied communities, expecting different patterns for confirmed and non-confirmed households. Table 3.8 shows both differences and similarities. Confirmed households reported AIDS sickness as a major cause of death, but also other causes that are reported by non-confirmed households as well. The results presented in Table 3.8 confirm the epidemiological literature on the causes of death in Uganda, which show malaria, respiratory infections, diabetes and related diseases, maternal related complications, and injuries as the major causes of death (MoH, 2012).

Table 3.8 Causes of deaths by household status in the last 5-10 years prior to 2007

Mortality	Parameter	Confirmed households	Non-confirmed households	Total
Causes of death (self-reported)	Malaria	33(20.6%)	36(16.1%)	69
	Respiratory infections	11(6.9%)	23(10.3%)	34
	AIDS sickness	24(15.0%)	0(0.0%)	24
	Diarrhoea	27(16.9%)	77(34.4%)	104
	Cancer and other related diseases	16(10.0%)	16(7.1%)	32

	Diabetis and related diseases	21(13.1%)	23(10.3%)	44
	Maternal complications	16(10.0%)	26(11.6%)	42
	Injuries/accidents	5(3.1%)	11(4.9%)	16
	Not known but referring to witchcraft	7(4.4%)	12(5.3%)	19
	Total	160(100.0%)	224(100.0%)	384

Source: Author's household survey data

Migration is another factor that may affect household size and composition and is related to HIV and AIDS in several ways (see Chapter 2). Migration increases the likelihood of an individual contracting HIV, especially if the person engages in unprotected sex (Setel, 1999; Niehof and Nombo, 2008). Migration has also been associated with coping with stigma, when an infected person would move to a place where they were not known (Rugalema, 2000). Table 3.9 shows that non-confirmed households reported significantly (p-value 0.024) more often the departure of a household member in the years prior to 2007 than confirmed households.

Table 3.9 Members leaving the household in the last 5-10 years prior to 2007

Variable migration	Value	AIDS-confirmed households	Non-confirmed households	Total
Members who have left the household in the last 5-10 years prior to 2007	Yes	111(69.4%)	178(79.5%)	289
	No	49(30.6%)	46(20.5%)	95
	Total	160(100.0%)	224(100.0%)	384
Chi-square, (p-value): 5.103, df=1, (0.024)				

Source: Author's household survey data

We further analysed the relationship between people moving out of their households and household status for the years 2008 and 2009. As Table 3.10 shows, these results are not significant. People moved out of the households for various reason. Schooling purposes, employment, trade and other work in the informal sector were commonly mentioned reasons. Apparently, in 2008 and 2009, this did not differ between the two types of households, whereas in the earlier years reasons may have been more related to AIDS, hence causing the difference for that period.

Table 3.10 Members leaving the household by HIV/AIDS status in 2008 and 2009

Variable migration	Value	2008		2009	
		AIDS-confirmed households	Non-confirmed households	AIDS-confirmed households	Non-confirmed households
Did any member(s) leave the	Yes	86(53.8%)	109(48.7%)	33(20.6%)	49(21.9%)
	No	74(46.2%)	115(51.3%)	127(79.4%)	175(78.1%)
	Total	160(100.0%)	224(100.0%)	160(100.0%)	224(100.0%)

household in 2008 or 2009					
Chi-square, (p-values)	0.967 (0.51)			0.08 (0.97)	

Source: Author's household survey data

We did the same analysis for people moving into the households in the last 5-10 years prior to 2007. The care needs of people living with AIDS elsewhere could compel them to return to their rural homestead (Du Preez and Niehof, 2010; Niehof, 2012). The results of the chi-square test presented in Table 3.11 show a significant relationship between household status and people moving into the households (p-value= 0.000), but the direction is the opposite of what we expected. When during the household survey respondents were asked about reasons why people moved into households, they mentioned care (return migration by people having AIDS to their homestead of origin) and adult children joining confirmed households to provide care and other forms of assistance (labour). These reasons do not explain the pattern we found.

Table 3.11 Members who moved into the household in the last 5-10 years prior to 2007

Variable	Value	AIDS-Confirmed households	Non-confirmed households	Total
Members who have moved into the household in the last 5-10 years from 2007-2009	Yes	43(26.9%)	103(46.0%)	146
	No	117(73.1%)	121(54.0%)	238
	Total	160(100.0%)	224(100.0%)	384
Chi-square, (p-value): 14.460, df=1, (0.000)				

Source: Author's household survey data

We did the same analysis for the years 2008 and 2009. In these years, both categories of households reported members joining the household, though more so in 2008 than in 2009. The results presented in Table 3.12 do not show a significant relationship between household status and people moving into households for the years 2008 and 2009. During the household survey, respondents were asked who these people were and they mentioned that they were mainly hired labourers from elsewhere and extended family members visiting. During focus group discussions people said that there is a reduction in return migration by PLWA as a result of ART which has made it possible for them to stay in their respective places.

Table 3.12 Members who have moved into the household in 2008 and 2009

Variable	Value	2008		2009	
		AIDS-confirmed households	Non-confirmed households	AIDS-confirmed households	Non-confirmed households
Members who have moved into	Yes	86 (53.8%)	109 (48.7%)	33 (20.6%)	49 (21.9%)
	No	74 (46.2%)	115 (51.3%)	127(79.4%)	175 (78.1%)

the household in the years 2008, 2009	Total	160(100.0%)	224(100.0%)	160(100.0%)	224(100.0%)
Chi-square, (p-values)		0.967 (0.325)		0.086 (0.768)	

Source: Author's household survey data

Fostering in and out of children is another factor that may reflect AIDS impact at household level. Fostering out of children by confirmed households could be viewed as a household response to the impact of AIDS by reducing household demands for care and education of children. Fostering in of children by AIDS-confirmed households could be seen as an attempt by such households to acquire additional labour. The results presented in Table 3.13 show confirmed households to be significantly (p-value = 0.009) less likely to take in a foster child than non-confirmed households in the last 5-10 years period to 2007.

Table 3.13 Fostering in of children by household status in the last 5-10 years prior to 2007

Variable fostering	Value	Confirmed households	Non-confirmed households	Total
Fostering in of children	Yes	43(26.9%)	89(39.7%)	132
	No	117(73.1%)	135(60.3%)	252
	Total	160(100.0%)	224(100.0%)	384
Chi-square, (p-value): 6.839, df=1, (0.009)				

Source: Author's household survey data

When doing the same analysis for the years 2008 and 2009, the results did not show a significant association between taking in foster children and household HIV and AIDS status (Table 3.14). During interviews with personnel from the district services department and representatives of the non-governmental organisations working in the area, it transpired that fostering in was more common in the period 1997-2007. Further, it was said that the introduction of antiretroviral therapy moderated AIDS and HIV impacts, as HIV positive individuals could live longer and take care of their children. A participant in the focus group discussion with people living with AIDS formulated this as follows: "We hope the government will continue giving us ART drugs, it is giving us hope. I was worried about my children staying alone at that tender age. I thank God, I'm still living and I pray that I live to see my children grow up and start their own home."

Table 3.14 Fostering in of children by household HIV/AIDS status in 2008 and 2009

Variable fostering	Value	2008		2009	
		AIDS-confirmed households	Non-confirmed households	AIDS-confirmed households	Non-confirmed households
	Yes	18(11.2%)	22(9.8%)	6(3.8%)	12(5.4%)

Did the household take in foster children in 2008, 2009	No	142(88.8%)	202(90.2%)	154(96.2%)	212(94.6%)
	Total	160(100.0%)	224(100.0%)	160(100.0%)	224(100.0%)
Chi-square, (p-values)		0.114(0.90)		0.539(0.204)	

Source: Author's household survey data

We further analysed fostering out of children in the last 5-10 years prior to 2007 and the association with household HIV and AIDS status (Table 3.15) is not significant (p-value 0.335).

Table 3.15 Fostering out of children in the last 5-10 years prior to 2007

Variable	Value	Confirmed households	Non-confirmed households	Total
Fostering out of children	Yes	10(6.2%)	20(8.9%)	30
	No	150(93.8%)	204(91.1%)	354
	Total	160(100.0%)	224(100.0%)	384
Chi-square, (p-value): 0.930, df=1, (0.335)				

Source: Author's household survey data

We did the same analysis for the years 2008 and 2009 (Table 3.16) and the results still indicate minimal fostering out of children. According to key informants from the district AIDS office and the district administration, fostering is no longer common practice. The District AIDS Coordinator said: “Fostering children in or out due to AIDS impact will soon no longer be a popular topic in social sciences and studies that try to understand how people respond to AIDS. With the introduction of ART, people living with HIV/AIDS can now live a bit longer with their children.” During the focus group discussion with people living with HIV/AIDS, the participants agreed that fosterage was done for reasons such as: 1) adjusting household size in response to shortages or surpluses; 2) distributing labour across extended family members, especially towards those that experience a labour shortage; 3) schooling, when a member of the extended family is willing to pay for school fees, or to reduce the distance travelled from the biological parents' home to school; 4) cases of death in the family and orphan-hood, especially when both parents died, either of AIDS or any other disease or misfortune; 5) to strengthen family ties; and 6) for cultural reasons. It was agreed that fostering has been common in Buganda culture and that fostering in and out of children will continue for cultural reasons. They further argued that increased rural connectivity, which has made it possible for families to remain in touch, is most likely to impact on fostering since young children are in constant touch with their relatives. The results on child fostering present a mixed picture of the impact of HIV/AIDS and points to no direct linkage with HIV and AIDS effects. Only fostering in of children in the pre-ART era shows a significant difference between AIDS-confirmed and non-confirmed households.

Table 3.16 Household fostering out of children in 2008 and 2009

Variable fostering	Value	2008		2009	
		AIDS-confirmed households	Non-confirmed households	AIDS-confirmed households	Non-confirmed households
Did the household foster out children in 2008 and 2009	Yes	16 (10.0%)	35 (15.6%)	18 (11.2%)	22 (10.8%)
	No	144(90.0%)	189 (84.4%)	142 (88.8%)	202 (90.2%)
	Total	160(100.0%)	224(100.0%)	160(100.0%)	224(100.0%)
Chi-square, (p-values)		2.564 (0.109)		0.204 (0.651)	

Source: Author's household survey data

3.3 Discussion and conclusion

Earlier studies have indicated that AIDS would result in demographic changes at household level, and would affect the age of the household head as well as the size and composition of the household. However, this study found that the impact of the AIDS epidemic on household size and composition seems to be more nuanced. The age of the household head proved to be around 51 years on average for both AIDS-confirmed and non-confirmed households. In this study, the proportions in the three age groups (<15, 15-59, ≥60 years old) and the resulting dependency ratios did indeed significantly differ between the two household categories, but in the opposite direction than expected. This implies that the effect of the HIV and AIDS epidemic on the dependency burden of the 15-59 age group was not visible at the time of this study, at least not directly. Non-confirmed households even had a greater dependency burden. The key informants attributed this to return migration (adults living with HIV/AIDS returning home for care, adult children joining confirmed households to provide care) and less movement out of confirmed households by adult members (especially those living with HIV/AIDS). The fact that AIDS-confirmed households counted a significantly higher proportion of female-headed households (see below) could be an explanatory factor as well, since the fertility of single women is likely to be lower than that of married women. Whereas, AIDS undoubtedly caused many adult deaths in Masaka in the past, there are other factors that could affect the population age structure and dependency ratio. Key informants also pointed at the introduction of antiretroviral therapy (ART), which has enabled infected members from confirmed households to live longer. The life-prolonging effect of ART through moderating the mortality of AIDS-related illnesses has indeed been reported in a number of studies (Kirungi *et al.*, 2006; Brinkhof *et al.*, 2009; Mills *et al.*, 2012; Johnson, 2013).

Regarding household size, the study found no significant difference between the AIDS-confirmed and non-confirmed households, with each type of household having about six members on average. Household headship by gender, however, yielded a strong association

with household HIV and AIDS status. This corroborates the finding in the literature that the number of female-headed households increases over time because of AIDS-related deaths (cf. Rugalema 1999b; Rugalema 2000; Urassa *et al.*, 2001; Seeley *et al.*, 2010a). The results of key informant interviews with elders and persons from non-governmental organisations and the Masaka district government suggest that female household headship was not very common before the emergence of the AIDS epidemic, especially in villages. With the emergence of AIDS, female household headship became more common in rural areas because of increased mortality due to AIDS. The significant relationship between female headship and a household history of AIDS was confirmed by participants in the focus group discussions who agreed that African cultural beliefs and norms normally prohibit women from remarrying, but not men. Also, Seeley and Ekoru (2010) found that women might not remarry after the death of their husbands but that men usually do so after the death of their wives. However, that AIDS is not the only cause of female household headship. Male labour migration (see Chapter 2) and the increased incidence of separation and divorce also increased the number of female-headed households.

The data presented in this chapter demonstrate that in the period 2007-2009 there was no association between the socio-economic status of the household and HIV and AIDS status of the household. In other words, there are similar proportions of better-off, less poor and poor households among the AIDS-confirmed and non-confirmed households. This finding seems to contradict previous evidence indicating that households affected by HIV/AIDS were more likely than unaffected households to be poor, regardless of the way poverty was measured. The study by Booysen and Arntz (2003) showed that households that experienced illness or death, especially in their recent past, were the poorest and were more than twice as likely to be chronically poor than non-affected households since they were less likely to improve their income position. In household interviews and focus group discussions the lack of difference between the two categories that we found was attributed to the introduction of life-prolonging therapy (ART) which can reduce morbidity and mortality and makes it possible for infected members of confirmed households to engage in some kind of economically productive work. Additionally, as Niehof (2012) pointed out, with the advent of ART, caregivers could now allocate the time formerly spent on care to economically productive purposes.

Contrary to my expectation that confirmed households would report more cases of morbidity than non-confirmed households, the results of this study showed no significant relationship between household status and morbidity. However, when morbidity experienced during the last 5-10 years prior to 2007 was compared with morbidity experienced in 2008 and 2009, the results show that more cases of morbidity than expected were reported by AIDS-confirmed households in 2009. The reason for this was the temporary suspension of ART medicine.

The results of this study show a strong association between household status and mortality experienced in the households in the last 5-10 years prior to 2007, with confirmed households reporting significantly more deaths. These results are in agreement with the WHO reports on AIDS being the leading cause of mortality among adults in those years (see also Barnett and Blaikie, 1992; Rugalema, 1999b; Epstein, 2004). Interviews with health personnel revealed that even with ART, there are some cases where patients fail to respond to ARV drugs, which results in death. The health personnel attributed failure to respond to the drugs to several reasons, including: required CD4-level to start medication; patients' lack of adherence to the medical prescriptions; stigmatisation where some patients might hide from their spouses that they take the medicine; and the requirement of good nutrition (some patients are first put on supplementary feeding before starting treatment).

Regarding child fostering, the results revealed a strong association between fostering in of children and AIDS status, with AIDS-confirmed households being significantly less likely to take in a foster child than non-confirmed households in the last 5-10 years prior to 2007. This is consistent with studies on child fostering that showed that non-affected households, which in this study are referred to as non-confirmed households, are likely to incur a heavy burden of child fostering (Hunter *et al.*, 1993; Rugalema 1999b; FAO, 2004; Du Preez and Niehof, 2008, 2010). For the years 2008 and 2009 no association between fostering in a child and household status was found. This was attributed to introduction of ART which has moderated the AIDs impacts and enables confirmed households to keep their children at home. Data presented in this chapter further show no significant association between fostering out of children in the 5-10 years prior to 2007 and household status. However, key informants interviewed said that in those years, the impact of AIDS on child fostering was considerable as there was little hope for HIV-positive individuals to survive. For the years 2008 and 2009, fostering out of children proved to be minimal, which key informants attributed to the introduction of ART from 2007 onwards. The results regarding the issue of child fostering do not indicate a direct linkage between fostering and HIV and AIDS status. Furthermore, not all fostering is because of HIV and AIDS. There is a tradition of fostering in Masaka district to promote socialisation of children, for example.

Regarding the impact of AIDS on household migration, the results show that the reported incidence of people moving out of the household did not significantly differ between confirmed and non-confirmed households. However, there is a significant relationship between household status and people moving into the households for the period 5-10 years prior to 2007. Key informants interviewed on the subject said that the majority these were migrants who returned home for care because they had AIDS. The key informants further indicated that out-migration

has declined because of positive changes taking place in rural areas, such as improvement of agriculture and rural infrastructure, more services being introduced in rural areas like schools and rural electrification, rural agro-processing industries and the growth of rural towns. These changes created alternative sources of rural livelihood, leading to a decline of out-migration.

In conclusion, studies conducted in the 1980s and 1990s had predicted that HIV and AIDS would have profound effects on the demographic features of households, particularly of those affected by AIDS-related mortality. The results of this study suggest that this currently does not seem the case. Although AIDS-related mortality did affect the households in the period of 5-10 years prior to 2007, at the time of the study this had no visible effect on household size and composition. The prospect that in the future HIV prevalence will continue to decline, promises more modest impacts on households than previously anticipated. Admittedly, at the time of the earlier studies it was difficult to foresee the impact of the increased coverage of ART. Furthermore, those studies might have overlooked two critical points: first, that the epidemic would peak and eventually decline, and, second, that society and people would continually change their behaviour and adjust their resources to lessen the impact of the epidemic.

Chapter 4: Agricultural Production, Land Ownership and Utilisation

This chapter analyses the broader impacts of HIV and AIDS on household land utilisation and changes in crop and animal production, and the possible implications for agricultural production. Given that in most rural agrarian households in Uganda and, indeed, in most of rural Africa, agricultural labour is the most important input for food and subsistence, anything that affects labour has consequences for the well-being of farming households. In many parts of rural Africa diseases are endemic and may limit productivity through morbidity and mortality effects (Ssewayana, 2003). The argument that morbidity affects the amount of time the household is able to invest in productive work is accepted almost axiomatically (Rugalema, 1999a). It is generally acknowledged that illness and, especially, death of a household member leads to changes in the demographic structure of households, which – in turn – may erode the household's ability to earn cash income. The extent to which illness affects household labour and how that, in turn, affects household cash income is said to differ with both the type of illness and the gender of the ill person (Rugalema, 1999a). Several studies have argued that the impact of HIV and AIDS on household livelihood emanates primarily from the decimation of labour of the adult individual who contracts HIV and dies of AIDS (Rugalema, 1999b). The conceptual framework for such studies focuses on the loss of income-earning potential of the sick or deceased individual and the inability of the survivors to substitute for the sick or deceased person.

In order to determine the consequences of HIV and AIDS for agricultural livelihoods, this chapter analyses variables directly related to land availability and utilisation on the farm. In the study area, a household is the primary source of labour deployed in the cultivation and management of the family farm (*kibanja*) and livestock, and (especially for women) in the provision of care. Evidence from various places in Africa has shown that because of AIDS-induced labour shortages, households tend to adopt less labour-demanding crops. These households also adjust their farm enterprises by reducing or eliminating any labour-intensive parts (such as livestock) or abandoning some of the land (decrease the acreage under cultivation) (Rugalema, 1999a). Using the evidence from the research, in this chapter we shall see whether our data confirm the impacts as documented in the literature.

In order to better understand the downstream effects of HIV and AIDS on household labour, land ownership and utilisation and agricultural productivity, it is necessary to look at the relationship between AIDS-related demographic changes in the household (see Chapter 3) and subsequent changes in household agricultural labour, also since part of labour of AIDS-confirmed households has to be reallocated to care. The linkage between AIDS-related mortality, changes in household composition, and the subsequent vulnerability of livelihood to

decreases in land utilisation and agricultural productivity has to be related to the institutions that govern social and economic transactions. Such institutions include those that govern the rules of kinship, access to land, social claims, fostering of orphans, inheritance of assets, organisation of labour both within and external to the household, and gender roles (Rugalema, 1999a).

4.1 AIDS and the context of agriculture in Uganda and Masaka

Agriculture is the most important sector of the Ugandan economy; it contributes nearly 20% of the gross domestic product (GDP), accounts for 48% of exports, and provides a large proportion of raw materials for industry. Food processing alone accounts for 40% of total manufacturing. The sector employs 73% of the population aged 10 years and above (UBOS, 2012). According to Uganda's 2012-2015 development strategy, agriculture remains the cornerstone in the country's effort to reduce poverty. The World Bank's World Development Report on agriculture in Uganda states it is time to place agriculture afresh at the centre of the development agenda, in a vastly different context of opportunities and challenges (Wodon and Zaman, 2008). This kind of renewed interest in agriculture also comes in the context of the widely documented impact of the AIDS epidemic on the sector, volatile global food prices, the importance of nutrition for the efficacy of ARV drugs (WHO, 2004), and an urgent need for Uganda to implement suitable measures to address these problems. Most of the factors judged to contribute to the situation are related to the increasing global demand for food, supply-side issues (e.g. the rise in biofuel production and growing meat consumption in emerging economies), as well as global trade policies and climate change (Weiser *et al.*, 2012). The Government of Uganda, however, recognises that once the performance of agriculture improves, farmers' livelihoods and economic growth will improve too, and developed the Plan for Modernisation of Agriculture (PMA) in order to maintain adequate and regular food supplies (UBOS, 2012). Despite the challenges of the agricultural sector, the study sites surveyed here have never experienced severe famine or food shortages, although other parts of Uganda have periodically suffered severe drought and famine (FAO, 2013).

An earlier study by Sewankambo *et al.* (1994) showed that AIDS-related mortality and other pre-existing conditions have contributed to a decline in agricultural productivity in the districts of Masaka and Rakai in Uganda. The study of Hunter *et al.* (1993) revealed that these two districts were the most fertile in Uganda and also had high HIV-positive prevalence rates. The study reported that 66% of the households had experienced land use decline during the past five years prior to 1993. Rugalema (1999a) showed that the extent of impact of the disease on a household is a function of its size and structure. AIDS morbidity of a non-productive household member has a less disastrous effect on the household than the morbidity and eventual death of a household head in the productive ages. In the first decades of the epidemic, the majority of

households affected by HIV and AIDS were likely to be young and characterised by large numbers of dependants (Barnett and Blaikie, 1992; Hunter *et al.*, 1993). A study by Rau *et al.* (2008) documented the serious impact of AIDS on such households. Table 4.1 provides a summary. Although Rau *et al.* (2008) mention loss of agricultural knowledge and skills as an impact of HIV/AIDS, the study by Fagbemissie and Price (2008) shows that AIDS orphans did acquire these skills and knowledge to be able to fend for themselves.

Table 4.1: The impact of HIV/AIDS on agrarian communities and households

Immediate impacts	Noted agricultural responses	Assumed long-term consequences for agriculture-related activities
Loss of labour due to illness, death, and caring	Decrease in area cultivated and changes in crop mix; less attention to care of livestock, soil and/or water	Potential decreases in overall food production (food availability, access and stability)
Cutbacks in food availability and consumption	Decreased energy for farm or market tasks	Increased child and adult malnutrition (food utilisation and access)
Loss of income and increased medical and funeral expenses	Disinvestments of assets, including sale of livestock and equipment; renting of land; pieces of work on farm	Increased socio-economic inequalities and new or deeper improvement for some
Increased dependency, with women and old adults assuming greater household responsibilities	Less time spent on farm production or marketing	Growing gender and age inequalities
Loss of knowledge and skills essential to agriculture	Loss of knowledge and skills for farming,	Loss of efficiency, greater stress on natural resource base, increased food insecurity
Loss of assets, i.e. land and equipment/livestock	Female- and child-headed households; dependence on non-farm employment and/or begging	Deepening impoverishment for affected household members

Source: adapted from Rau *et al.* (2008: 11) and MAAIF (2003).

The objective of this chapter is to explore the impact of the AIDS epidemic on land utilisation and agricultural production among rural farming households in Masaka district by comparing these for AIDS-confirmed and non-confirmed households.

4.2 Landownership

Previous studies (e.g. Rugalema, 1999b, 2000; MAAIF, 2003; Niehof, 2008) have shown that AIDS would have an impact on household assets, including land disposal to take care of the sick household member(s) or to pay for other associated costs of morbidity and in case of

mortality. These and other studies (Loevinsohn and Gillespie, 2003; Niehof and Price, 2008) have further shown that AIDS related morbidity and mortality would cause a reduction in the area cultivated to accommodate labour constraints, reduced range of cash crops such as coffee (Barnett and Blaikie, 1992), substitution of labour and storage demanding crops such as savoury banana by cassava and sweet potatoes, reduction in the range of relish crops that are a source of micro-nutrients, decrease in the number of small livestock, and increased insect, animal and possibly viral pests as cultivated area fell and ecological control broke down. In this chapter we shall compare changes in land ownership and utilisation, and in the production of crops and livestock production between AIDS-confirmed and non-confirmed households, starting with possible impact on landownership.

The results presented in Table 4.2 show that the differences in landownership between non-confirmed and confirmed households are not significant (p -value=0.557). Key informants (district agriculture officials and community elders) interviewed on the subject said that with time there has been a reduction in the gap in land ownership between the two categories of households, which they attributed to reduced morbidity-associated costs in confirmed households due to the introduction of ART, which has enabled infected members in confirmed households to do some work and earn a living. One of them said: “These days people living with HIV/AIDS receive therapy which has helped them to reduce the cost of medical care. Those who are in good employment are buying land and are seriously doing farming and other investments.” The key informants further said that buying and selling land is common in both confirmed and non-confirmed households due to poverty whereby households sell land to pay for school fees and meet other household needs. Respondents in the household survey who were asked about the issue of differences in land ownership between the two categories of the households considered these differences minimal. Participants in the focus group discussion with people living with HIV/AIDS said that land as a disposable asset used to be sold to take care of medical bills but that with the availability and accessibility of ART, selling land for medical reasons had declined. Table 4.2 shows landownership in acres by household HIV and AIDS status during 2007-2009.

Table 4.2 Landownership in acres by household HIV and AIDS status 2007-2009

Variable	Parameter	Confirmed households	Non-confirmed households	Total
Landownership in acres	2-4 acres	22(13.8%)	34(15.2%)	56
	5-6 acres	46(28.7%)	77(34.4%)	123

	7-8 acres	52(32.5%)	64(28.6%)	116
	≥ 8 acres	40(25.0%)	49(21.8%)	89
	Total	160(100.0%)	224(100.0%)	384
Chi-square, (p-value): 2.076, df= 3, (0.557)				

Source: Author's household survey data

The study also attempted to find out if the amount of land owned varied according to household economic status categorised as better off, less poor and poor, as shown in Table 4.3. The results indicate that the amount of land owned is more related to economic status than HIV and AIDS status. Better-off and less poor households owned more land than poor households did. The chi-square is significant (p-value =0.00), implying an association between land ownership and household economic status.

Table 4.3 Land ownership by socio-economic status 2007-2009

Variable	Values	Better off	Less poor	Poor	Total
Landownershi p in acres	2-4 acres	6(12.2%)	15(6.6%)	35(32.7%)	56
	5-6 acres	20(40.8%)	50(21.9%)	53(49.5%)	123
	7-8 acres	13(26.5%)	98(43.0%)	5(4.7%)	116
	≥ 8 acres	10(20.5%)	65(28.5%)	14(13.1%)	89
	Total	49 (100.0%)	228 (100.0%)	107 (100.0%)	384
Chi-square, (p-value): 532.962, df= 6, (0.000)					

Source: Author's household survey data

As argued above, previous studies have shown that households with members living with AIDS may be forced to dispose of their assets, including land, because of AIDS-induced costs and impoverishment. However, as shown in Table 4.4, no significant difference in changes in land-ownership between confirmed and non-confirmed households (p-value 0.581) was found.

Table 4.4 Changes in the land owned by household HIV/AIDS status 2007-2009

Variable	Values	AIDS-confirmed households	Non-confirmed households	Total
Changes in the amount of land owned	Yes	50(31.2%)	51(22.8%)	101
	No	110(68.8%)	173 (77.2%)	373
	Total	160(100.0%)	224(100.0%)	384
Chi-square, (p-value): 0.305, df=1, (0.581)				

Source: Author's household survey data

There were several reasons for changes in land owned. Table 4.5 indicates that the causes of the change in land owned according to the respondents were buying more land, selling part of the land due to poverty, land given to elder sons to enable them to start their own families. The pattern does not significantly differ between the two categories of households.

Table 4.5 Causes of the change in land owned by household status 2007-2009

Variable	Parameters	Confirmed households	Non-confirmed households	Total
Causes of the changes in land owned	Bought more land	8(17.0%)	12(22.2%)	20
	Sold part of the land due to poverty	22(46.8%)	29(53.7%)	51
	Given to elder sons	17(36.2%)	13(24.1%)	30
	Total	47(100.0%)	54 (100.0 %)	101
Chi-square, (p-value): 1.442, df=2, (0.696)				

Source: Author's household survey data

As Table 4.6 shows, also between changes in the amount of land owned and household economic status, no significant relationship was found.

Table 4.6 Changes in the amount of land owned by socio-economic status 2007-2009

Variable	Values	Better off	Less poor	Poor	Total
Were there change(s) in amount of land owned	Yes	31(16.9%)	52(37.9%)	18(25.8%)	101
	No	152(83.1%)	85(62.1%)	46(74.2%)	283
	Total	183(100%)	137(100.0%)	62(100.0%)	384
Chi-square, (p-value): 3.508, df=2, (0.173)					

Source: Author's household survey data

According to both key informants and participants in the focus group discussion with people living with HIV/AIDS, the informal sector in rural small towns and trading centres has become

larger and provides opportunities for many people to join the informal sector, which appears to be more lucrative than farming.

The results further show that there is a significant relationship (p-value 0.000) between major causes of change in the amount of land owned and household economic status (see Table 4.7). The better off and less poor households bought more land than the poor households, the latter more often selling part of their land. This concurs with previous studies that have shown that the poor, and especially widows, would sell land to take care of medical bills and other household needs (Wiegers, 2008; Karuhanga, 2008, 2010; Nombo, 2010). In the household survey, people said that buying and selling of land is quite common in rural village towns and small trading centres. Participants in the focus group discussion with elders said that land transactions are common among the better off and less poor, who buy land. Our survey data show this as well.

Table 4.7 Causes of changes in amount of land owned by socio-economic status 2007-2009

Variable	Parameters	Better off	Less poor	Poor	Total
What caused the changes in land owned	Bought more land	18(56.3%)	26(45.6%)	5(41.7%)	49
	Sold part of the land	14(43.7%)	31(54.4%)	7(58.3%)	52
	Total	32(100.0%)	57(100.0%)	12(100.0)	101
Chi-square, (p-value): 25.165, df=2, (0.000)					

Source: Author's household survey data

4.3 Land utilisation and farming practices

People farm because they need food of sufficient quality and quantity for food security and to get income to buy food, land, daily necessities and services, (medical care, shelter, school fees). The literature suggests that confirmed households would farm less than non-confirmed households because of the impact of AIDS on household labour availability. The results in Table 4.8 show that during 2007-2009 non-confirmed households utilised a slightly higher amount of land than confirmed households and that, in line with the findings on land ownership, few households cultivated more than eight acres of land. However, the chi-square does not suggest a significant relationship between land utilisation and household status (p-value=0.789). The interviews with key informants provided the following plausible explanations. First, it is possible that households may be overcoming the effects of the AIDS epidemic. Second, households have traditional land use arrangements so that even after the

death of the household member, extended family members could still use the land as they wait for the children to grow up and take over the land. Third, the children from households affected by AIDS in the early 1980s have grown up and are now adults able to utilise their land. Fourth, some of the children could have gone to school and are able to hire labour, which could also result in more land under use. Fifth, some extended family members could be mitigating labour shortages in the households by offering labour. Lastly, the introduction of ART could have made it possible for the infected individuals in AIDS-confirmed households to engage in farming or the informal sector to earn income which – when invested in farming – could also result in an increase of land utilisation.

Table 4.8 Amount of land under use 2007-2009 by household HIV and AIDS status

Variable	Parameter	Confirmed households	Non-confirmed households	Total
Proportion of land under use	2-4 acres	39(24.4 %)	56(25.0%)	95
	5-6 acres	68(42.5%)	93(41.5%)	161
	7-8 acres	39(24.4%)	63(28.1%)	102
	≥ 8 acres	14(8.7%)	12(5.4%)	26
	Total	160(100.0%)	224(100.0%)	384
Chi-square, (p-value): 2.415, df= 3, (0.789)				

Source: Author's household survey data

We further explored whether the two types of households significantly differed in terms of land use changes during 2007-2009. As Table 4.9 shows, this is not the case ($p=0.588$).

Table 4.9 Changes in the amount of land under use in 2007-2009

Variable	Values	AIDS-confirmed households	Non-confirmed households	Total
Changes in the amount of land under use in 2007-2009	Yes	31(19.4%)	43(19.2%)	74
	No	129(80.6%)	181(80.8%)	310
	Total	160 (100.0%)	224 (100.0%)	384
Chi-square, (p-value): 0.293, df=1, (0.588)				

Source: Author's household survey data

During the household survey, respondents stated that ill health (including AIDS), poverty and old age affect an individual's productivity. In their opinion, most households with old people were no longer capable of practicing conservation agriculture and modern methods of farming that require more labour and resources for hiring extra labour. Households that used to keep livestock reported that they no longer do so because men could no longer graze the animals. Most of the respondents interviewed during the household survey reported that they could no longer afford to hire labour for field maintenance. Poverty also affected the purchase of agricultural inputs such as seeds, equipment and tools. Participants in the focus group discussion

agreed on the disastrous effects of poverty, sickness and death on land ownership and utilisation. They further mentioned reasons related to pests, diseases, and soil fertility decline, which render poor farmers unable to buy herbicides and pesticides, resulting in reduction of land use for crops and livestock. This could explain that if there are changes in land use, these concern decrease rather than increase (see Table 4.10).

Table 4.10 Changes in land use 2007-2009 by household HIV and AIDS status

Variable	Parameter	Confirmed households	Non-confirmed households	Total
What were the changes in land under use	Increase in amount of land under use	13(8.1%)	9(4.0%)	22
	Decrease in amount of land under use	21(13.1%)	31(13.8%)	52
	The amount of land under use remained the same	50(31.3%)	98(43.8%)	148
	Can't tell on the changes because of extended family land use/not applicable	76(47.5%)	86 (38.4%)	162
	Total	160(100.0%)	224(100.0%)	384

Source: Author's household survey data

We further analysed land use by household socio-economic status. Table 4.11 shows that amounts of land under use are significantly higher among better-off and less poor households.

Table 4.11 Land use by socio-economic status 2007-2009

Variable	Parameter	Better off	Less poor	Poor	Total
Amount of land under use	2-4 acres	8 (13.1%)	22(9.3%)	65(74.7%)	95
	5-6 acres	17(27.9%)	125(53.0%)	19(21.9%)	161
	7-8 acres	24(39.4%)	75(31.8%)	3(3.4%)	102
	≥ 8 acres	12(19.6%)	14(5.9%)	0(0.0%)	26
	Total	61(100%)	236(100%)	87(100%)	384
Chi-square, (p-value): 5.330, df= 3, (0 .000)					

Source: Author's household survey data

Table 4.12 shows the changes in the amount of land utilised according to socioeconomic status.

Table 4.12: Changes in land use by socio-economic status 2007-2009.

Variable	Values	Better off	Less poor	Poor	Total
Were there changes in the amount of land under use	Yes	16(25.8%)	33(16.3%)	25(20.0%)	74
	No	46(74.2%)	169(83.7%)	95(80.0%)	310
	Total	62(100.0%)	202(100.0%)	120(100.0%)	384
Chi-square, (p-value): 0.624, df=2, (0.732)					

Source: Author's household survey data

Table 4.12 shows that the better-off households reported more changes than the other two household categories, although the overall pattern is not significant ($p=0.732$). Respondents in the household survey and focus group participants said that better-off and less poor households were more involved in the informal sector and in trade in the trading centres and fishing villages than poor households.

There does not seem to be a significant relationship between the type of changes in the amount of land use and economic status (Table 4.13).

Table 4.13 Type of changes in amount of land utilised by socio-economic status

Variable	Parameters	Better off	Less poor	Poor	Total
What were the changes	Increase in proportion of land under use	5(8.2%)	13(6.4%)	11(9.2%)	29
	Decrease in proportion of land under use	12(19.3%)	19(9.4%)	14(11.7%)	45
	The proportion of land under use remained the same	45(72.5%)	170(84.2%)	95(79.2%)	310
	Total	62(100.0%)	202(100.0%)	120(100.0%)	384
Chi-square, (p-value): 4.591, df=4, (0.597)					

Source: Author's household survey data

4.4 Changes in crops and livestock

As was documented in previous studies, the reduction in available labour and household resources associated with HIV and AIDS frequently induces changes in cropping patterns of affected households, such as changes to crops that require lower levels of labour, less use of fertilizer and herbicides, and more flexible planting schedules. Table 4.14 shows changes in crops and livestock in the study area.

Table 4:14 Changes in crops and livestock by household HIV and AIDS status

Crop / livestock	Values	Confirmed households		Non-confirmed households	
		N	%	N	%
Coffee	Decrease	21	13.1%	31	13.8%
	Increase	2	1.3%	0	0.0%
	Not applicable	137	85.6%	193	86.2%
	Total	160	100.0	224	100.0
Banana	Decrease	63	39.4%	86	38.4%
	Increase	84	52.5%	119	53.1%
	Not applicable	15	9.4%	19	8.5%
	Total	160	100.0	224	100.0
Tubers	Decrease	65	40.6%	94	42.0%

	Increase	78	48.8%	116	51.3%
	Not applicable	17	10.6%	15	6.7%
	Total	160	100.0	224	100.0
Cereals	Decrease	75	46.9%	102	45.5%
	Increase	61	38.1%	91	40.6%
	Not applicable	24	15.0%	31	13.8%
	Total	160	100.0	224	100.0
Vegetables	Decrease	62	38.8%	91	40.6%
	Increase	75	46.9%	118	52.7%
	Not applicable	23	14.4%	15	6.7%
	Total	160	100.0	224	100.0
Livestock	Decrease	71	44.4%	98	43.8%
	Increase	46	28.8%	51	22.8%
	Not applicable	43	26.8%	75	33.4%
	Total	160	100.0	224	100.0

Source: Author's household survey data

Coffee -Table 4.14 shows that the majority of the interviewed respondents of both confirmed and non-confirmed households said that they did not experience a change. The results further show that those who did experience a change in the growing of coffee, it was a decline rather than an increase, for both household categories. According to respondents in the household survey, the major reasons for coffee decline include a labour shift to off-farm activities, increased pests and disease, soil infertility, limited capital to invest in agro inputs due to poverty, and vagaries of nature (drought, floods). The district agriculture personnel revealed that the majority of the households grew coffee as the main cash crop in the 1970s. In the late 1980s and mid-1990s, coffee production declined. Coffee was substituted by bananas, which are a traditional food in the area and grown as a commercial commodity. They added that the labour diversion to banana cultivation was due to increased prices for bananas as a result of the growth and expansion of the market in Masaka and Kampala city. The key informants also said that coffee growing declined due to price fluctuations and constraints such as pests and diseases (e.g. red blister disease, coffee leaf rust, and coffee berry disease). Other common pests included coffee borer beetle, coffee root and coffee steam borers.

Bananas In contrast to coffee, the results presented in Table 4.14 show that both confirmed and non-confirmed households reported an increase in banana growing, which corroborates the statement of key informants that banana cultivation increased mainly due to increased prices for bananas in Masaka and Kampala (see above). When those who reported a decline in banana growing were asked about the reasons, they mentioned pests and diseases such as banana weevils (which are traditionally controlled by trapping them manually, a practice that is labour-intensive), diversion of labour to other sources of livelihood, as well as decline in soil fertility. Respondents in the household survey also revealed that households responded to the decline of

matooke (banana starch) production by increasing the cultivation of staples such as cassava, maize and sweet potato, and the production of cereals as staple foods. The latter were said to be better suited to the area, especially if planted in time and properly managed.

Tubers Table 4.14 shows that the increase in the cultivation of tubers is greater than the decrease. Key informants (agriculture extension personnel and elders) said that tubers (cassava and sweet potato) became important staples owing to declining soil fertility, labour diversion to off-farm livelihood options, and the unpredictable weather, which is currently making farming operations very complicated. Respondents in the household survey and key informants also revealed that crop husbandry of tubers face the problems of cassava mosaic disease (CMD) and cassava brown streak virus/disease, which are exacerbated by millipedes and mammalian damage. The agricultural extension staff indicated that the high density of the whitefly could contribute to low crop productivity. However, they recognised the government's considerable effort to control diseases and pests. With respect to sweet potato production, the informants named different varieties of sweet potatoes grown on the farms. These were: Osokut, a local variety, Akara red, and NASPOT 1, which is a new variety introduced by the agricultural extension services and is grown by the majority of farmers owing to its high yielding potential and good taste. According to the experts in agricultural production interviewed, sweet potato production is also threatened by the sweet potato virus disease (SPVD), caused by an infection known as sweet potato chlorotic stunt virus (SPCSV), and the sweet potato feathery mottle virus (SPFMV), which are transmitted by aphids and the whitefly, respectively.

Cereals and Legumes Table 4:14 does not show differences in changes in the growing of cereals according to household status. The agriculture extension personnel and elders said that pests and diseases, especially the maize stalk borer and the maize streak virus, which have caused some losses in crop production, challenge the production of maize. Other pests mentioned by key informants include millipedes and natural enemies such as ruminants and wild animals. Regarding beans, they stated that the cultivation of beans faces the following challenges: fungal diseases, angular leaf spot, which is common in Andean beans, and soybean rust. The most important pests in the growing stage are bean stem maggots, followed by millipedes, foliage beetles, pod bugs and sapsuckers (such as aphids), in addition to mammals. Bruchids, however, pose a threat in the storage stage.

Vegetables and fruits regarding changes in the growing of vegetables and fruits Table 4.14 shows no difference according to household status. The key informants said that the major obstacles in growing vegetable growing like tomatoes, pumpkins and eggplants, are pests and plant diseases, especially fungal diseases, which attack tomatoes. This was also reported by the

participants in the focus group discussions and respondents in the household survey. The latter added that the lack of money to buy fungicides due to poverty is problematic.

Livestock Regarding livestock, the results presented in Table 4.14 show that respondents reported more decline in livestock production than an increase or remaining the same, and that this does not differ according to household status. Participants of the focus group discussions revealed that the community engaged in animal rearing on a very small scale but considered livestock an important asset.

Table 4.15 Constraints to agricultural production in the household

Variable	Parameters	Household HIV and AIDS status		Total
		Confirmed households	Non-confirmed households	
Major constraints to agriculture production in among household	Labour constraint	24(15.0%)	35(15.6%)	59
	Land shortage	3(1.8%)	5(2.2%)	8
	Vagaries of nature (drought, floods, pests and diseases)	2(1.3%)	1(0.5%)	3
	Low soil fertility	15(9.4%)	24(10.7%)	39
	Limited capital to buy agro-inputs	116(72.5%)	159(71.0%)	275
	Total	160 (100.0%)	224 (100.0%)	384
Chi-square, (p-value): 1.047, df=4, (0.903)				

Source: Author's household survey data

Besides documenting the above problems facing the growing of crops and rearing animals, we asked respondents in the household survey about the major constraints to agricultural production they experience. The results are presented in Table 4.15. The table shows that the major constraints reported are labour constraint as a result of labour diversion, land shortage, vagaries of nature (drought, floods, pests and diseases), low soil fertility, and lack of capital. There is no significant difference according to household HIV and AIDS status.

4.5 Determinants of land use other than household HIV and AIDS status

In order to assess whether there were significant statistical associations between the dependent variable amount of land under use and a number of other variables measured in the study, we did some further testing. The variables tested include: gender of the household head; education of the household head, spouse and other household members; fostering in of children; fostering out of children; occupation of the household head; morbidity; and mortality. The results are presented in Table 4.16 (see also Appendix II).

Table 4.16: Chi-square tests for association between selected explanatory variables and

amount of land under use

Selected explanatory variables	Association with amount of land under use	
	Chi-square	Df, P-value
Gender of the household head	2.736	Df =2, P-value=0.255
Education of the household head	1.496	Df =4, P-value=0.960
Education of the spouse	1.249	Df =4, P-value=0.870
Household's members with primary education	11.439	Df =4, P-value=0.022**
Household's members with secondary education	24.649	Df =4, P-value=0.017**
Household's members with vocational education	5.401	Df =4, P-value=0.249
Household's members with tertiary education	18.656	Df =2, P-value=0.001***
Household's fostering in of children	4.129	Df =2, P-value=0.127
Household's fostering out of children	2.105	Df =2, P-value=0.349
Occupation of the household head	36.370	Df =4, P-value=0.000***
Morbidity in the household	0.592	Df =2, P-value=0.744
Mortality in the household	1.464	Df =2, P-value=0.481

Author's household survey data. ** significant at 5%; *** significant at 1%.

Table 4.16 shows that there is no significant statistical association between amount of land under use and gender of the household head, education of the household head, education of the spouse, fostering in of children, fostering out of children, morbidity and mortality. The results show a significant relationship between households with members with primary education and land utilisation. This could be attributed to the fact that when household members are following primary and secondary education, they mostly live still at home and are able to provide extra labour for crops and livestock after school hours, whereas those following vocational training are mostly at boarding schools. The results further show a significant relationship between households with members with tertiary level of education and land utilisation. This is attributed to the fact that such households get remittances which they invest in agriculture. The significant relationship between occupation of the household head and land utilisation is mainly attributed to the fact that household heads whose occupation is farming invest more in agriculture and

they are most likely to have more land utilised for crops and livestock than those households where the main occupation of the household head is not farming.

Further, we conducted t-tests to test the association between some non-nominal explanatory variables and land use. The explanatory variables include age of the household head; household size; households with members below 15 years, members aged 15-59, and members aged 60 and above; and amount of land owned by the household.

Table 4.17 T-test of variance on some of the explanatory variables and land use

Selected explanatory variables	Association with land use	
	T-test	P-value
Age of the household head	-70.9846	p-value=0.000***
Household size	37.4541	P-value=0.000***
Amount of land owned by the household	7.2400	p-value=0.000***
Household with members below 15 years	-31.9562	p-value=0.000***
Household with members between 15 and 59 years	6.7193	p-value=0.000***
Households with members 60 years and above	-37.7138	p-value=0.000***

*Author's household survey data. *** significant at 1%.*

The results in Table 4.17 show that all relationships yield a significant test result, in which the factor of household labour availability seems to play a crucial role. The relationship between amount of land under use and age of the household head is negative, implying that the older one is, the less land is cultivated. As the household head grows old, children will have left the household for either employment or work in the informal sector, as well as to start their own households. Such households will reduce the amount of land under use and maintain a backyard garden, and they might receive remittances from children from which they can buy food and meet other household needs. The variable households with members below 15 also shows a negative association with amount of land use. These households might lack enough labour to invest in agricultural production since the children are too young to provide enough labour. The negative relationship with households with members above 60 years and land use could be explained by lesser labour availability in the household as well, also because in such households the children will probably have left the household to start their own households. The positive relationship with the variable households with members aged 15-59 years is best explained by available labour in these households. Additionally, some household members may be gainfully employed and able to hire labour. Household size is also positively related with amount of land under use. Such households need to produce enough food to feed the household.

4.6 Discussion and conclusion

The objective of the chapter was to assess AIDS impacts on land ownership, land use, farming practices and crops cultivated by comparing AIDS-confirmed and non-confirmed households for these variables. The impact of HIV and AIDS on agricultural production, the cornerstone of rural livelihoods, has long been debated. Barnett and Blaikie (1992) found that in the 1980s, there was a steady decline in the quantity and quality of agricultural production by affected households. Studies have indicated that AIDS-related morbidity would result in loss of household assets, which in turn would result in a reduction in the amount of land owned and the area under cultivation, and, hence, cause a decline in agricultural production (Hunter *et al.*, 1993; Barnett and Blaikie, 1992; Ssewayana, 2003; Karuhanga, 2010). The results of this study show, however, that the size of land owned does on average not significantly differ between confirmed and non-confirmed households. The implication of this finding calls for the need to explore the changing context of the AIDS epidemic as well as the mechanisms responsible for mitigating AIDS impacts on land ownership and utilisation. In other words, there is a need for differentiation between the short, medium, and long-term effects of the AIDS epidemic, which has been done in some studies (Barnett *et al.*, 2010; Niehof *et al.*, 2010; Seeley *et al.*, 2010a).

I also found no significant difference between the two types of households (confirmed and non-confirmed) in relation to the amount of land under use, which could have been expected on the basis of earlier studies (Gillespie, 1989; Barnett and Blaikie, 1992; Hunter *et al.*, 1993; NAADS, 2003). The key informants interviewed on the subject attributed this situation to the introduction of ART, which could have mitigated the impact of AIDS on agricultural labour and reduced medical expenses. They further said that the diversity of the farming system offers households flexibility in how to manage land utilisation for farming since a wide range of crops can be grown throughout the year. The literature also suggests that the AIDS epidemic would result in loss of knowledge and skills essential to agriculture (Rau *et al.*, 2008; MAAIF, 2003), an issue which was not investigated in this study. However, Fagbemissi and Price (2008: 241) conclude that the “findings [of their study] indicate that there is a need for rethinking the implications of HIV/AIDS on farming knowledge.”

Regarding the changes in the types of crops grown and livestock practices in Masaka, according to the key informants interviewed, bananas, cereals (mainly maize) and legumes (especially beans) increased in importance to households – both as cash and food crops, whereas the importance of coffee declined. This is reflected in the survey results and, apparently, applies to confirmed and non-confirmed households alike, as the difference between them is not significant. The decreased importance of coffee was driven by the unstable prices of the past

years. Nonetheless, it continues to be grown as a cash crop. About half of the surveyed households experienced a decline of banana production, a finding consistent with the findings of Seeley (2013). Still, this study found that all households were involved in small-scale the cultivation of banana, an important traditional crop in Buganda. Although cash crop production did drop, banana remains the most important crop in Buganda households. Our results do not show significant differences in the diversity of crops grown and livestock practices between confirmed and non-confirmed households. According to key informants, the Buganda farming system, especially cropping patterns, has undergone changes related to land use and crop use, and the contribution of crops to household consumption and income has changed as well.

Contrary to my earlier assumption that AIDS-related mortality would have an impact on the areas and crops under cultivation and result in a decline of agricultural production, the results of this study do not show this. There is also no significant difference in livestock husbandry between confirmed and unconfirmed households. Whereas earlier studies attributed decline of livestock production to the AIDS epidemic (Hunter *et al.*, 1993; Haslwimmer, 1994), Mugisha *et al.* (2008) attribute it to a wide range of factors, including diseases and pests. It seems likely that the changes in cropping patterns and animal husbandry that we found are due to factors like crop prices, pests, diseases and drought, and that HIV and AIDS could have played a part in these changes as well (Hunter *et al.*, 1993; Seeley *et al.*, 2010b). AIDS impacts have not occurred in isolation. Factors such as seasonality, crop prices, drought, population growth, pests, diseases and morbidity and mortality from other causes, probably interacted with HIV and AIDS to cause the above changes. Furthermore, the AIDS-confirmed households could have recovered from the severe impacts of AIDS in the early years because of the introduction and increasing availability of ART. This could explain why the earlier concerns about AIDS impacts on household labour about affecting the area under cultivation and agricultural production were not unfounded, but that ART has changed the context. As Masquiller *et al.* (2015) argue, the rollout of ART has redefined AIDS as a chronic rather than a terminal illness.

The findings of this study point to other drivers of changes in rural livelihoods than just HIV and AIDS. The results show that in Masaka the livelihoods of the majority of the rural households remained agriculture-based, in terms of food security and as a source of income to meet basic household needs. But key informants and participants in focus group discussions mentioned several factors that affect agricultural production in the study area. One of these is high population growth, which results in over-utilisation of land and too limited fallow periods to allow the soil to regain its fertility, with soil fertility degeneration as a result. Key informants further pointed to the growth of the informal sector in the countryside, which absorbs some of the agricultural labour and causes livelihood diversification that affects growing of crops and livestock rearing. More general constraints to agricultural production that were mentioned

included changes in the onset and offset of rains due to climate change, which affects farming operations, and increased incidence of pests and diseases, which affect crops and livestock. It was further revealed that the government's policy of universal primary and secondary education increases the aspirations of the young people and encourages them to look for other options rather than making a living in agriculture. Lastly, the results of interviews with key informants show that unstable commodity prices create uncertainty, and that poor soils due to less use of fertilizers and changes in livestock rearing practices to zero grazing that limit natural fertilisation from cow dung, add to expenses on agricultural inputs.

To conclude, the results of this study show that in the past decades a wide range of factors drove changes in land ownership and utilisation and changes in crops and livestock practices in the study area. The unfortunate coincidence of human diseases, especially HIV and AIDS, and agricultural epidemics (pests and diseases of crops and livestock) makes it difficult to attribute the changes to the AIDS epidemic only. As discussed in Chapter 1, AIDS impact measurement is notoriously difficult because of the attribution problem (Murphy *et al.*, 2005; Wiegers, 2008), the intertwining of AIDS and other (poverty-related) factors that affect households (Niehof and Price, 2008), and the synergistic relationship between poverty and AIDS (Stillwaggon, 2006; Masanjala, 2007). In agreement with these studies, we found that in our study area HIV/AIDS is one of more factors that affect agricultural production and rural livelihoods. There are no significant differences in amount of land owned and under cultivation between AIDS-confirmed and non-confirmed households, but there is significant association with household economic status. Changes in crop and livestock production in the studied communities seem to be associated with changes taking place in the wider context of rural development rather than just the AIDS status of households.

Chapter 5: AIDS and Household Food Security

The chapter argues that to better assess the downstream impacts of AIDS on household agricultural production and food security, it is necessary to understand the relationship between AIDS-related demographic changes in the household and subsequent changes in food security at the household level. Analytically, as Aron (2000) cautioned, there cannot be a linear relationship between these two because other institutions than the household (especially those that determine access to assets) are also important. The linkages between AIDS mortality, changes in household composition and subsequent vulnerability to food insecurity have to be related to the institutions that govern social and economic transactions. These institutions have salient effects on demographic outcomes and include those that govern the rules of kinship, access to land, social claims, fostering of orphans, inheritance of assets, organisation of labour both within and external to the household and gender roles (Rugalema, 1999a). With respect to demographic characteristics, the gender and age of those who die of AIDS and those who survive are of great importance (Rugalema, 1999b). Death of a man may have different consequences for the household than the death of a woman, because labour is gender-specific. Against this background, the relationship between household HIV and AIDS status and household food security is explored.

5.1 The concept of food security and its indicators

In 2010, FAO estimated that 925 million people were still undernourished and that 98% of the world's undernourished people live in developing countries, representing almost 16% of the population of these countries. Studies have shown that these countries are characterised by long-lasting or recurring crises, both natural and human-induced, to which they have a limited capacity to respond (FAO, 2010). In Uganda, at least 4 million Ugandans are food insecure and even those who are not, do not have in a balanced diet (MAAIF, 2014). It is further estimated that of 70-80% of Ugandan children the diet is of inadequate diversity and lacks nutrient-rich foods. As a result, 33% of children in the country are stunted (UNAP, 2010). The MAAIF (2014) report shows that 50-80% of the households spend more than half of their income on buying food rations and that 60% of the households eat food from five or less food groups daily. Studies have generated many debates on the causes of food and nutrition insecurity in Africa. Causes and policy interventions have been analysed. These analyses have drawn upon a wide range of disciplines (agricultural economics, sociology and nutrition studies) and aimed at understanding the complex nature of food insecurity (Devereux, 2000). A thorough review of literature shows a deepening theoretical and empirical understanding of food and nutrition insecurity that has generated increasingly sophisticated analytical frameworks, definitions of food security, and

policy recommendations (Maxwell and Frankenberger, 1992). Since the seminal work of Amartya Sen (1981) food insecurity is no longer just attributed to the failure of agriculture to produce sufficient food at the national level, but, instead, is regarded as a household-level entitlement failure to access to sufficient food (Weiser *et al.*, 2011). This has led to linking food security to livelihoods and to shifting the discussion on famine from a supply-side to a demand-side perspective (Devereux, 2000). Subsequent studies on food security have also shown that chronic food insecurity (undernourishment) and acute food insecurity (famine) result from both limited food availability and restricted access to food. In studies on food insecurity in Africa in particular, it is seen as the product of a combination of low agricultural productivity and low incomes, which are considered a consequence of inadequate policies and institutional failures (Devereux, 2000).

An analysis of the literature reveals that five key process outcomes have dominated the discussion on the explanation of food and nutrition insecurity. These include: 1) entitlement; 2) household nutrition; 3) poverty and vulnerability; 4) variant famine; and 5) technology. The entitlement approach focuses on four crucial dimensions: food availability; stability of supplies; access to supplies; and food utilisation (FAO, 1996b, 2003). This focus influenced a paradigm shift in thinking about food security in terms of food supply and availability to a focus on people's access to food, implying a realisation that focusing on the national-level food supply does not realistically reflect the food situation at the individual household level, as was the case during famines in Africa in the mid-1970s and 1980s (Frankenberger and McCaston, 1998). Besides, there is the challenge of equal food distribution, which can limit food accessibility due to a decline of people's entitlements (Baro and Deubel, 2006). In this respect, the entitlement approach to food security focuses on the circumstances of people who cannot access food as well as their entitlement relations, which are based on four distinct forms of ownership: production, trade, labour and transfers (Baro and Deubel, 2006).

Maxwell and Frankenberger (1992) define household food security as the ability of households to secure sufficient food from its own production and/or through purchases in order to meet the dietary needs of their members. According to this definition, a household is food secure if it has stabilised access to food across seasons and transitory shortages to a sustained food supply in the long term, taking into account food adequacy, nutrient and safety requirements, and cultural preferences (FAO, 1996a). In short, when households have an equitable availability of stable quantities of nutritious food, they are regarded as food secure. Moreover, this definition acknowledges that nutritional security is not an automatic outcome of household food security. As a result of unequal intra-household food distribution, individual household members may end up eating nutrient-poor diets and being malnourished, even if the household itself is food secure (cf. Ssewanyana and Kasirye, 2010). A nutrition-secure household is one with sufficient

food in which adequate attention is paid to the required dietary intake of its members, as well as their health care and sanitation needs. Some studies stress that HIV/AIDS and nutrition security are closely intertwined (e.g. Weiser *et al.*, 2011). HIV infection affects nutrition through increased energy requirements, and a reduction of food intake and malabsorption of nutrients increase the risk of opportunistic infections. Nutrition insecurity also causes weight loss and a quicker onset of AIDS, and it enhances the transmission of HIV from mother to child (UNAIDS, 2005). Hence, people living with HIV and AIDS need to receive not only optimised medical treatment that slows down the progression of the disease but also proper nutrition, in order to strengthen their immune system against opportunistic infections (UNAIDS, 2004). Therefore, it is crucial for HIV-infected people to have access to nutritional support that encompasses food security, nutrition security and health care aspects.

Apart from nutrition, another factor that is fundamental in the understanding of household food security is gender. Almost universally, in most households women are the caretakers of food security and nutrition in the household, since in most cultural scripts women's reproductive role includes 'feeding the family' (Niehof, 2016). To enact this role, women are expected to engage in practices such as cultivation of food crops, procurement, gathering or exchanging of food, and processing and preparing it. However, they are often constrained by their limited control over the resources and assets they need, such as access to land, agricultural inputs, formal credit facilities, appropriate technologies, and training and extension services. Moreover, the entitlements that facilitate access to assets and resources are often gender-specific, hence require gender to be taken into account in the analysis of household food security (Niehof, 2016).

In vulnerability approaches it is argued that when individuals, households or particular groups in a given population are not able to cope with adverse events that may happen to them, they become vulnerable (FAO, 2003). In the context of food insecurity, vulnerability refers to a wide range of causal factors that deprive people of their entitlement to sufficient food to meet their basic requirements and their ability to respond to adverse situations. This vulnerability to food insecurity can occur at various levels. At country or community levels, it can result from wars and climatic shocks, at the household and individual levels from factors like gender inequality, ethnicity, political affiliation, health, and intra-household discrimination. The overall argument in these approaches is that the process outcome is such that a decline in access to entitlements and endowments such as land and labour leads to vulnerability and to food insecurity. The strength of this explanation lies in its consideration of different causal factors across households that make them more or less vulnerable to food insecurity. These range from environmental, economic and political factors to stagnating agricultural production, intra-household food distribution issues, access rights to resources and assets, and the erosion of the household asset base (FAO, 2004).

The variant famine explanation gained momentum in 2002-2003, during the southern African famine. De Waal and Whiteside (2003) argued that during this period HIV/AIDS had such serious adverse impacts on food security that it resulted in what they called a “new variant famine”. This new variant famine is not a short-term episode of acute food insecurity like conventional famines, but rather a new kind of acute food crisis of which there is limited recovery. Because of HIV and AIDS, households have been made more susceptible and less resilient to external shocks. Moreover, the new variant famine explanation does not exclude other causes of the 2002-2003 crises such as drought and mismanagement of food reserves, but rather sees the negative impacts of these other causal factors as compounded by HIV/AIDS. De Waal and Whiteside (2003) argue that the widespread vulnerability to famine seen in southern Africa in 2002-2003 cannot be explained as a result of climatic conditions only. The “new variant famine” explanation has found its place as the theory behind conventional famines in Africa. However, the theory depends on assumptions that do not necessarily apply to all areas impacted by HIV and AIDS. De Waal and Whiteside (2003) highlight four new factors that are characteristic for the HIV/AIDS epidemic. These are: 1) household-level labour shortages due to adult morbidity and mortality, and the related increase in numbers of dependants; 2) loss of assets and skills due to adult mortality; 3) the burden of caring for sick adults and children orphaned by AIDS; and 4) the vicious interactions between malnutrition and HIV/AIDS. The present study will test these assumptions.

IFAD considers that households are only food secure when food availability, equal access to food, the stability of food supplies and the 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. This is achieved by using mainly family labour, land and other resources, as well as by using household income and assets that can be quickly turned into cash for purchasing food. Considering the complexities of the concept of food and nutrition security, in this study, food security is taken to refer to the availability of food in all households and household members, at all times, and in sufficient, safe and nutritious amounts for an active and healthy life. The question pursued in this chapter is: What has been the impact of the AIDS epidemic on the food security of AIDS-confirmed and AIDS non-confirmed households?

Recent studies on food security in Uganda have used different indicators of household food and nutrition security status. For instance, Weiser *et al.* (2010) studied how a household ranks different food items and how this ranking is linked to poverty. The World Food Programme (FAO, 2009) used diversity as a measure of food insecurity. In his analysis of food adequacy in 16 districts in Uganda, Bahiigwa (1999), on the other hand, used the households’ own perception of having something to eat, at all times, and basically having enough to feed the

household as a measure of food security status. Other studies in Uganda by Ssewayena (2003) and Ssewayena *et al.* (2006) have used the caloric intake standard as a measure of food security. FAO (2003) and Maxwell and Smith (2011) used this approach of caloric intake to assess the food security status in Uganda as well, while the United Nations Health Survey captures information on the actual food consumed using a seven-day recall period (Maxwell and Smith, 2011).

In this study, two measurements of food and nutrition security status were used: dietary diversity and households' (i.e. respondents') subjective perception of their household's food security. The present study recorded food availability and food consumption in the household in the period of the one week prior to the interview. It also captured the sources of food consumed in the household (i.e. from own production, purchase, labour exchange, etc.). The actual consumption of quantities of calories and nutrients (in relation to adequacy levels) was not measured. As explained in Chapter 1, a household survey using a questionnaire was conducted to collect the information. The respondents were also asked to indicate how their household had coped with food shortages in the previous 12 months. They could choose from six different responses: reduced amount of food consumed; reduced number of meals consumed; providing labour for food; diversification of food production (cultivating fast-growing crops); purchasing food from the market; and relying on annual crops. We compared household food security and food consumption of AIDS-confirmed and non-confirmed households. Finally, further analysis was done on the association of household food security with other variables, i.e. household socio-economic status, gender and age of the household head, household age composition and size, occupation and educational level of household members, morbidity and mortality experienced in the household over time, and land ownership and utilisation.

In this chapter, we first present a profile of the major types of food available to the households, followed by the presentation of the types of food types consumed in the surveyed households and the sources of these foods. Subsequently, the households' perceptions of their own food security and nutrition status and the causes of food and nutrition insecurity are presented. The chapter concludes by testing the association of household food security with selected variables.

5.2 Food availability and consumption

As can be seen in Table 5.1, households have a wide range of food types available for consumption. The food groups have different nutrient contents. Because past studies have pointed

at the negative impacts of AIDS on household food security, I expected to find confirmed households having more challenges with food availability than non-confirmed households.

The results presented in Table 5.1 indicate that food availability among confirmed and non-confirmed households does not seem not to differ significantly for most food groups. For instance, 84.4% of confirmed households reported availability of cereals compared to 79.0% of non-confirmed households, which is not a significant difference (p-value = 0.185). Regarding roots and tubers, non-confirmed households reported a little more availability of roots and tubers than confirmed households did, but the difference is not statistically significant (p-value = 0.451). Respondents in the household survey said that cassava and yams are considered famine reserve crops, which explains the availability of the roots and tubers in the study area. Table 5.1 further shows that there are no significant differences in the availability of fruits and vegetables between the two categories of households (p-values are 0.903 and 0.856, respectively). The same applies to meat, eggs, fish and pulse/legumes (p-values being 0.476, 0.082, 0.711, and 0.965, respectively).

For the items milk and milk products, oils/fats and sugar, however, Table 5.1 shows that availability is significantly higher among AIDS-confirmed households than among and non-confirmed households are significant. A key informant (district agriculture personnel) attributed this to interventions for the benefit of households affected by AIDS. He revealed that in the study area, churches, NGOs, and the oil refinery have supported affected households with goods such as a cow, oils, sugar, and children school materials.

Table 5.1 Household food availability during 2007-2009 by household HIV and AIDS status

Variable Food availability	Values	Confirmed households	Non-confirmed households	Total
Cereals	Yes	135(84.4%)	177(79.0%)	312
	No	25(15.6%)	47(21.0%)	72
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square= 1.758, df=1, p= 0.185</i>			
Roots and tubers	Yes	125(78.1%)	182(81.3%)	307
	No	35(21.9%)	42(18.7%)	77
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square= 0.569, df=,1 p= 0.451</i>			
Vegetables	Yes	122(76.2%)	172(76.8%)	294
	No	38(23.8%)	52(23.2%)	90
	Total	160 (100.0%)	224 (100.0%)	384

	<i>Chi-square</i> = 0.015, <i>df</i> =1, <i>p</i> = 0.903			
Fruits	Yes	122(76.2%)	169 (75.4%)	291
	No	38(23.3%)	55(24.6%)	93
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square</i> = 0.033, <i>df</i> =1, <i>p</i> = 0.856			
Meat	Yes	57(35.6%)	72(32.1%)	129
	No	103(64.4%)	152(67.9%)	255
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square</i> = 0.507, <i>df</i> =1, <i>p</i> = 0.476			
Eggs	Yes	66 (41.2%)	73(32.6%)	139
	No	94(58.8%)	151(67.4%)	245
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square</i> = 3.031, <i>df</i> =1, <i>p</i> = 0.082			
Fish	Yes	28(17.5%)	36(16.1%)	64
	No	132(82.5%)	188(83.9%)	320
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square</i> = 0.137, <i>df</i> =1, <i>p</i> = 0.711			
Pulse/legumes	Yes	129(80.6%)	181(80.8%)	310
	No	31(19.4%)	43(19.2%)	74
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square</i> = 0.002, <i>df</i> =1, <i>p</i> = 0.965			
Milk	Yes	84(52.5%)	94(42.0%)	178
	No	76(47.5%)	130(58.0%)	206
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square</i> = 4.166, <i>df</i> =1, <i>p</i> = 0.041**			
Oil/fats	Yes	89(55.6%)	34(15.2%)	123
	No	71(44.4%)	190(84.8%)	261
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square</i> = 57.4, <i>df</i> =1, <i>p</i> = 0.000***			
Sugar	Yes	85(53.1%)	34(15.2%)	119
	No	75(46.9%)	190(84.8%)	265
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square</i> = 61.3, <i>df</i> =1, <i>p</i> = 0.000***			

Source: Author's household survey data. ** significant at 5%; *** significant at 1%.

5.3 Households' weekly food intake

Food availability is different from consumption (Hoddinott and Yohannes, 2002). Hence, in the survey we asked about the food types consumed in the household during the week prior to the interview, to see whether there are differences in the consumption of various food types by household status (West *et al.*, 1987). This section presents the major food types consumed in the households, taking into account their nutritional values. We had expected confirmed households to be consuming more foods with high nutritional value than non-confirmed households since people living with AIDS need to boost their immune system. The results of the comparison between the two categories of households of the consumption of foods from the different food groups are presented in Table 5.2.

Table 5.2 Average weekly food consumption by household status in 2007-2009

Variable Food consumption	Values	Household HIV and AIDs status		Total
		Confirmed households	Non-confirmed households	
Cereals	Yes	124 (77.5%)	169 (75.4)	293
	No	36 (22.5%)	55 (24.6%)	91
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square= 0.218, df=1, p= 0.641</i>			
Roots and tubers	Yes	118 (73.8%)	171 (76.3%)	289
	No	42 (26.2%)	53 (23.7%)	95
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square= 0.336, df=1, p=0 .562</i>			
Vegetables	Yes	119 (74.4%)	170 (75.9%)	289
	No	41 (25.6%)	54 (24.1%)	95
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square= 0.115, df=1, p= 0.734</i>			
Fruits	Yes	117 (73.1%)	163 (72.8%)	280
	No	43(26.9%)	61 (27.2%)	104
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square= 0.006, df=1, p= 0.938</i>			
Meat	Yes	57 (35.6%)	73(36.2%)	130
	No	103 (64.4%)	151 (63.8%)	254
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square=0.384, df=1, p= 0.535</i>			
Eggs	Yes	66 (16.9%)	72 (32.1%)	138
	No	94 (83.1%)	152 (67.9%)	246
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square= 3.362, df=1 p= 0.067</i>			

Fish	Yes	28 (17.5%)	36 (16.1%)	64
	No	132 (82.5%)	188 (83.9%)	320
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square= 0.137, df=1, p= 0.711</i>			
Pulse/legumes	Yes	125 (78.1%)	177 (79.0%)	302
	No	35 (21.9%)	47 (21.0%)	82
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square=0.0040, df=1, p= 0.883</i>			
Milk	Yes	83 (51.9%)	92 (41.1%)	175
	No	77 (48.1%)	132 (58.9%)	209
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square=4.392, df=1, p= 0.036**</i>			
Oil/fats	Yes	89 (55.6%)	36 (16.1%)	125
	No	71 (44.4%)	188 (83.9%)	259
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square=66.506, df=1, p= 0.000***</i>			
Sugar	Yes	85 (53.1%)	34 (15.2%)	119
	No	75 (46.9%)	190 (84.8%)	265
	Total	160 (100.0%)	224 (100.0%)	384
	<i>Chi-square= 62.842, df=1, p=0.000***</i>			

Source: Author's household survey data. ** significant at 5%; *** significant at 1%.

We further analysed the household consumption of selected foods according to gender of the household head. Table 5.3 shows that households headed by females consumed slightly more meat, eggs and milk than those headed by males, whereas households headed by males consumed more cereals and fish than those headed by females. However, the results of the chi-square tests do not indicate a significant statistical relationship between gender of household headship and consumption of selected foods.

Table 5.3 Household consumption of selected foods by gender of the household head in 2007-2009

Variable Consumption of selected food in week prior to survey	Values	Gender of household head		Total
		Male	Female	
Cereals	Yes	231(77.8%)	62(71.3%)	293
	No	66(22.2%)	25(28.7%)	91
	Total	297 (100.0%)	87 (100.0%)	384
	<i>Chi-square=1.579, df=1, p= 0.209</i>			
Meat	Yes	100(33.7%)	30(34.5%)	130

	No	197(66.3%)	57(65.5%)	254
	Total	297 (100.0%)	87 (100.0%)	384
	<i>Chi-square=0.020 , df=1 p= 0.888</i>			
Eggs	Yes	103(34.7%)	35(40.2%)	138
	No	194(65.3%)	52(59.8%)	246
	Total	297 (100.0%)	87 (100.0%)	384
	<i>Chi-square=0.900, df=1, p= 0.343</i>			
Fish	Yes	53(17.8%)	11(12.6%)	64
	No	244(82.2%)	76(87.4%)	320
	Total	297 (100.0%)	87 (100.0%)	384
	<i>Chi-square= 1.311, df=1, p=0.252</i>			
Milk	Yes	131(44.1%)	44(50.6%)	175
	No	166(55.9%)	43(49.4%)	209
	Total	297 (100.0%)	87 (100.0%)	384
	<i>Chi-square= 1.135, df=1, p= 0.287</i>			

Source: Author's household survey data

We also analysed the food consumed in the survey households according to household socio-economic status. The results are presented in Table 5.4. The table shows that socio-economic status makes a significant difference in the consumption of nutritious foods.

Table 5.4 Consumption of selected foods according to household socio-economic status in 2007-2009

Variable Food consumption	Values	Household socio-economic status			Total
		Better off	Less poor	Poor	
Cereals	Yes	51(83.6%)	142(70.0%)	100(83.3%)	293
	No	10(16.4%)	61(30.0%)	209(16.7%)	91
	Total	61 (100.0%)	203 (100.0%)	120(100%)	384
	<i>Chi-square= .9.610, df=2, p= 0.008**</i>				
Meat	Yes	29(47.5%)	79 (38.9%)	22(18.3%)	130
	No	32(52.5%)	124(61.1%)	98(81.7%)	254
	Total	61 (100.0%)	203 (100.0%)	120(100%)	384
	<i>Chi-square=20.335, df=2, p= 0.000***</i>				
Eggs	Yes	30(49.2%)	70(34.5%)	38(31.7%)	138
	No	31(50.8%)	133(65.5%)	82(68.3%)	246
	Total	61 (100.0%)	203 (100.0%)	120(100%)	384
	<i>Chi-square= 5.874, df=2, p= 0.055**</i>				
Fish	Yes	15(24.6%)	25(12.3%)	24(20.0%)	64

	No	46(75.4%)	178(87.7%)	96(80.0%)	320
	Total	61 (100.0%)	203 (100.0%)	120(100%)	384
	<i>Chi-square= 6.485, df=2, p= 0.039**</i>				
Milk	Yes	38(62.3%)	110(54.2%)	27(22.5%)	175
	No	23(37.7%)	93(45.8%)	93(77.5%)	209
	Total	61 (100.0%)	203 (100.0%)	120(100%)	384
	<i>Chi-square=38.705,df=2, p= 0.000***</i>				

Author's household survey data. ** significant at 5%; *** significant at 1%.

The large majority of households derived their food from a combination of own production at the farm and food purchases. Only in a few cases food was acquired through exchange for labour, remittances or food gifts.

5.3.1 Discussion of the different food groups consumed

Cereals. These include maize soy blend, pasta, and rice, locally known as *kawunga* (*posho*/maize), chapatti, sorghum, biscuit, bread (wheat) and millet. The key experts in nutrition interviewed at Masaka referral hospital revealed that these are essential sources of nutrients and fibre and are rich in protein, carbohydrates, fat, vitamins, iron and some trace minerals essential to human life. Table 5.2 shows that confirmed households reported slightly (but not significantly) more consumption of cereals (77.5%) than non-confirmed households (75.4%). According to key informants however, there is a reduction in cereals availability and consumption by households, especially for maize. They attributed this to the increased demand for maize and selling of the crop to earn household income. Maize is gaining status as a cash crop due to the increased demand by boarding schools around Masaka, trade in maize in urban centres and Kampala city, and export to Juba in South Sudan and Kenya.

Roots and tubers. These include Irish potato, sweet potato, cassava and yams, plantain and bananas. According to interviews with nutrition experts at Masaka regional referral hospital and scientific insights on nutrition as documented in the literature, roots and tubers are rich in carbohydrates, protein, vitamins and minerals, all essential to human life. We further analysed the consumption of roots and tubers and the results presented in Table 5.2 show that non-confirmed households consumed slightly more tubers and roots than confirmed households (76.3% and 73.3%). However, the difference is not significant. During the survey, when asked about the major food types that constitute their diet, respondents revealed that the consumption of sweet potato and cassava has increased in the last three decades and that these two crops have come to constitute a big component of the household diet. A key informant from the district agricultural extension office commented: "There is an increase in trade mainly bananas, maize and beans for household income, which leaves households with roots and tubers as the

only stable source of household food.” Key informants further revealed that very few households have Irish potato and the crop is not widely grown, whereas yams are planted in banana plantations.

Vegetables and fruits. These include sukuma wiki, sombe, spinach, pumpkin, cabbage, tomato, onion, and dodo, bitter Solanum, carrot, cauliflower, eggplant. Most vegetables are naturally low in fat and calories but are full of valuable nutrients that include potassium, dietary fibre, folate (folic acid) and vitamins A and C. Table 5.2 shows that almost equal percentages of confirmed and non-confirmed households consumed vegetables (73.1% and 72.8 %, respectively), hence the relationship is not significant (p -value = 0.938). Farmers and extension personnel said that the majority of the households grow onions and tomatoes, *dodo* (amaranths) and pumpkins. Cabbage, amaranths/ *sukuma wiki*, eggplant and carrot seemed to be scarce in the survey households; these were considered to be for the well-off households.

Fruits include mango, papaya, guava, watermelon, avocado, orange, lemon, jackfruit, passion fruit, pineapple, banana, etc. According to the nutrition experts interviewed these are full of valuable nutrients that include fibre, vitamins, minerals (including folate) and potassium. Fruits and vegetables help to protect against major illnesses such as heart diseases and cancer, may help to keep a healthy weight and provide antioxidants. Table 5.2 does not show a significant difference in the consumption of fruits by household status. Respondents in the survey said that fruits are naturally available, especially mango, orange and jackfruit. According to some key informants, people’s lack of knowledge of the nutritional values of fruits limits fruit consumption. One of them said that if people knew the nutritional value of these fruits, you would see them in the backyard gardens and they would grow them on large scale.

Meat, eggs, fish and pulses. Meat food types include goat, mutton, beef, chicken, liver, kidney, heart, etc. Meat is rich in calories, saturated fat, protein, cholesterol, and vitamins A and E, calcium and magnesium. During the household survey, respondents were asked if they had consumed meat in the previous one week and the majority of the respondents stated that they had not. The difference between confirmed and non-confirmed households is not statistically significant (p -value=0.535).

As shown in nutrition literature, eggs are an important source of iron, vitamin A, D and E, and folate, which are important for cell growth, and protein, which essential for building and repairing muscles, organs, skin and other body tissues. During the household survey, it transpired that the majority of the survey households had poultry but sold the eggs and chickens to earn income to meet household needs. The relationships with household HIV and AIDS

status and socio-economic status are moderately significant (p-values of 0.067 and 0.055, respectively).

Fish includes dried and fresh fish. It is rich in protein, acids and vitamins such as D and B2 (riboflavin), calcium and phosphorous, and is a great source of minerals such as iron, zinc, iodine, magnesium and potassium. Masaka is located on the shores of Lake Victoria, so we expected the majority of the households to consume fish. Table 5.2 shows that the majority of both confirmed and non-confirmed households (82.5% and 83.9%, respectively) did not consume fish during the past week and the difference is not significant. When asked why the consumption of fish was so low yet living near Lake Victoria, respondents in the survey said that fish is too expensive for them. Key informants said that the commercialisation of fish and leasing of the lake has made it difficult for the majority of the rural poor households to access fish since it is mainly sold at high prices in urban places and for export.

Pulses include legumes, beans, soybean, sesame, lentils, nuts, field peas, cowpeas, groundnuts, etc. Legumes are a good source of protein and calories required for a healthy body. The majority of the survey households, both confirmed and non-confirmed households, consumed legumes to more or less the same extent. According to agriculture extension personnel the consumption of legumes is declining due to increased demand for beans in boarding schools, urban centers, the army barracks, and export to Juba, Kenya and Rwanda. One of them said: "I'm worried about the mushrooming trade in dry beans in this area. Poor farmers cannot afford meat, and they were at least getting some protein from beans. Now, with this ever increasing trade in beans in urban areas and export to Juba-south Sudan, and Rwanda, I don't know what will happen to these poor rural households. The government should intervene and introduce alternative income generating activities. The nutrition situation of these rural communities is at risk."

Milk and milk products, oils/fats, and sugar. Milk products include fresh milk, powder milk, yogurt, etc. These products contain nutrients that are essential for health, such as calcium, vitamin D and protein. The results presented in Table 5.2 show a significant relationship between household status and consumption of milk and milk products, oils and fat and sugar with confirmed households significantly consuming more of these food types than non-confirmed households. The key informant at the health centre attributed the higher milk consumption among confirmed households to milk availability resulting from interventions that support affected households to engage in enterprises such as zero grazing (heifer projects), but also to the counselling services these households receive on the importance of good feeding to boost their immune system. He also said that some affected households are given sugar and oils by NGOs. He added that sugar, oils and milk are food groups which are normally consumed

when there is low appetite for food. When people fall sick, they lose appetite, and most patients take tea, milk and milk products or spiced or fried foods until they regain their appetite. He explained that HIV-positive people react differently when they start medication. Some lose appetite, and then health workers have to find a solution, but patients also have their own methods of management by using locally available foods.

5.4 Households' perception of dietary intake and food security status

The study also explored the households' own perceptions regarding nutrition and a balanced diet. The majority of the respondents in the household survey perceived that they were unable to meet the minimum requirements of dietary intake. Most of them had some knowledge of what a balanced diet should include, but reported they could not afford such foods. In addition, people who grew the foods that are considered part of a balanced diet sold them in order to earn the income necessary to send children to school and meet other basic needs. Although confirmed and non-confirmed households did not differ much in this, key informants noted that confirmed households mind their diet more than non-confirmed households. We assessed the perception of diet diversity by asking the informants if they ate protein-rich foods such as fish, meat, chicken, eggs, vegetables and milk on a regular basis. Even amidst scarcity, especially respondents from confirmed households said to eat more protein-rich foods. However, the chi-square tests do not indicate a significant difference according to household HIV and AIDS status, except for eggs (moderately significant) but then in the wrong direction (Table 5.2). It could be that the answers of confirmed households reflect what they learned at the counselling rather than their actual consumption. The discrepancy could be caused by the fact that implementing the food advices is not feasible because of low income, which also causes households to sell the nutritional food crops they produce and eggs instead of consuming those themselves. The results of the household survey further indicate that cereals and roots and tubers were the most important sources of calories in the households (Table 5.2). The dependence on relatively poor sources of calories such as sweet potato and cassava was very common. This could explain the reported cases of child stunting in Masaka district (UNAP, 2010).

Key informants thought that households headed by women consume more balanced diets than those headed by men, which would be in agreement with women's assigned moral responsibility for 'feeding the family' (cf. Niehof, 2016) that would make women more inclined to allocate their labour to food production and spend more money on food than men. However, the survey results do not reflect this, since the differences between female- and male-headed households are not significant (Table 5.3). During the household survey, it was also said that a large part of the population consumes less food than required. Participants in the focus group

discussions said that even among those who eat two or more meals per day, these meals are often of a low nutritional value. It was also said that those who are rich are likely to have a balanced diet because they can afford it and that the educated are likely to get a balanced diet – especially when they have money – because they are knowledgeable about the importance of good nutrition. The results presented in Table 5.4 seems to confirm this general opinion. According to participants in the focus group discussions, the differences in nutritional status were related to whether or not the household owned poultry and kept livestock, household economic status, contact with extension agents or with NGOs that supply protein-rich beans, orange-fleshed sweet potato, and other nutritious crops.

Key informants pointed out that household consumption patterns are seasonal, following the rain-fed agricultural cycle, especially for the poor households who cannot afford to buy food from the market. According to key informants calorie intake is high in the harvest season and then declines until the next harvest season. They saw this as a consequence of a heavy dependence on rain-fed agriculture, poor storage and preservation facilities in the rural households, and poverty which reduces a household's ability to purchase food from the market. Given that the main agricultural season runs from March to May, followed by the first harvest in July, and that the second season runs from August to October, followed by the harvest in December and January, calorie and protein intakes are highest in January and July and lowest during the planting seasons of March to June and August to October.

The results of interviews with key informants which were debated further during in the focus group discussions with members of confirmed and non-confirmed households, revealed that household economic status remains an important variable in determining household calorie intake and that efforts to increase calorie intake would imply raising household income. Food prices in the rural towns and trading centres also matter; an increase in the prices of food would restrict the capacity of poor households to gain access to more nutritious foods. Land ownership and area under cultivation were also deemed important variables for calorie intake. The level of education of the household head was considered important as well, since education improves knowledge and food preferences. Household headship by gender was deemed important in determining food intake. Households headed by women were thought to be more calorie-secure than those headed by men because women are more likely to spend their income on household food consumption. Table 5.3 on household consumption of selected foods according to gender of the household head does indeed show that households headed by women consumed slightly more rich foods than those headed by men, but the difference is not significant. People also said that household size and composition are important factors for household calorie intake and during the focus group discussions it was argued that households with more members in the productive ages (15–59) are more food secure than those with big numbers of dependents.

Overall, the results from the focus group discussions and key informant interviews seem to suggest that many households are faced with food insecurity and income poverty. This indicates that whereas the studied households may be having a wide range of food varieties available, the actual calorie and protein contributions seem to be concentrated in a few food items. The results also suggest that dietary intake for both calories and protein is heavily dependent on the agricultural cropping season, which has implications for the household health and nutritional status and for the incidence of child stunting.

Table 5.5 summarizes the households' rating of their own food security status. Most households considered themselves moderately food secure or food insecure and very few households reported their status as food secure. The results of the chi-square test do not yield a significant relationship between household HIV and AIDS status and household rating of their food security status.

Table 5.5 Households' rating of their food security by household HIV and AIDS status in 2007-2009

Variable	Values	AIDS-confirmed households	Non-confirmed households	Total
How would you rate your household food security	Food secure	34(21.2%)	35(16.6%)	69
	Moderately food secure	80(50.0%)	131(58.4%)	211
	Food insecure	46(28.8%)	58(25.9%)	104
	Total	160(100.0%)	224(100.0%)	384
Chi-square, (p-value): 2.65, df=2, (0.266)				

Source: Author's household survey data

Regarding self-reported food security according to gender of the household head, Table 5.6 shows that households headed by women were more moderately food secure than those headed by men, and women-headed households also reported more often to be food insecure and less often food secure, but the pattern is not statistically significant.

Table 5.6 Self-rated food security status by gender of the household head in 2007-2009

Variable	Values	Male	Female	Total
How would you rate your household food security	Food secure	57(19.2%)	9(10.4)	69
	Moderately food secure	164(55.2%)	53(60.9%)	211
	Food insecure	76(25.6%)	25(28.7%)	104
	Total	297(100.0%)	87(100.0%)	384
Chi-square, (p-value): 3.705, df=2, (0.157)				

Source: Author's household survey data

Table 5.7 shows the reported causes of food shortages.

Table 5.7 Reported causes of food shortage by household HIV/AIDS status in 2007-2009

Variable	Parameters	AIDS-confirmed households	Non-confirmed households	Total
Major causes of food shortage among household	Seasonal changes (heavy rainfall and drought periods)	39(58.2%)	58(61.1%)	97
	Pests and diseases for crops and animals	28(41.8%)	35(36.8%)	63
	Land shortage	0(0.0%)	2(2.1%)	2
	Total	67(100.0%)	95(100.0%)	162

Source: Author's household survey data

As Table 5.7 shows, seasonal changes and pests and diseases are the major reported causes of food shortages. Key informants and participants in the focus group discussions said that seasonal changes and lack of financial capital to invest in agro-inputs are the major causes of food shortages, followed by pests and diseases and land shortage due to population growth.

During interviews and discussions, several factors were mentioned as responsible for food insecurity in the study area. Participants in the focus group discussions agreed that the prevalence of diseases of crops, animals and human beings are a great setback to ensuring household food security. A key informant said: "There is a problem of poverty in this area which limits the ability of households to buy improved seeds and equipment for irrigation which make farmers dependent on weather and when the onset of rain is not as predictable as it used to be, farmers experience heavy losses. If farmers were not poor, they would invest in irrigation, better storage facilities which would help them overcome some constraints facing agriculture production and improve food security." Respondents in the household survey also mentioned that the increase of food prices greatly limits their ability to buy food in the market. They further pointed at high population growth (see Chapter 2) while land has remained the same, which has caused soil fertility degeneration as land is not left fallow, resulting in poor agricultural production and food insecurity. In the focus group discussions there was a consensus that in some cases there is food wastage, due to poor storage facilities and preservation. Harvested food is consumed in the one to two months after the harvest season and sometimes especially the perishable foods are wasted, all of which adds to causing food shortages.

5.5 Household food shortages and coping strategies

Many households reported coping with the inadequacy of homegrown food by relying on their social capital. Half of the households in both categories mentioned food gifts from extended family and friends as the coping strategy. Although food gifts are rarely mentioned as a source of food, in the studied community extended family members, referred to as *ekika* or *eyumba*, are people with whom one commonly shares food. Other coping strategies are less common (see Table 5.8).

Table 5.8 Major coping strategies by household HIV/AIDs status in 2007-2009

Variable	Parameters	AIDS-confirmed household	Non-confirmed households	Total
Common household coping strategies during periods of food shortage	Reducing amount of food consumed at a meal	3(1.9%)	9(4.0%)	12
	Reducing the number of meals per day	2(1.2%)	13(5.8%)	15
	Labour for other people to get food	1(0.6%)	2(0.9%)	3
	Diversification of food production (short term crop varieties)	34(21.2%)	33(14.7%)	67
	Buying food from the market	3(1.9%)	7(3.1%)	10
	Relying on annual crops	37(23.1%)	45(20.1%)	82
	Food gifts from extended family and friends	80(50.0%)	115(51.3%)	195
	Total	160(100.0%)	224(100.0%)	384

Source: Author's household survey data

The results presented in the foregoing sections do not show a significant statistical difference regarding the types of food groups consumed, household rating of their food security status, perceived causes of food shortages and coping strategies employed during food shortages between confirmed and non-confirmed households. The next section explores other possible determinants of household food security.

5.6 Determinants of household food security

To assess whether there were significant statistical associations between the dependent variable household rating of their food security status and a number of the dummy variables measured in the study, we did some further testing. The variables tested include: education, occupation

of the household head, household economic status, and morbidity and mortality. Table 5.9 presents the results 5.9 (see also Appendix III).

Table 5.9 Chi-square tests for associations between some of the explanatory variables and food security

Selected explanatory variables	Association with household food security	
	Chi-square	Df, P-value
Education of the household head	3.118	Df=4, p-value=0.210
Education of the spouse	0.755	Df=4, p-value=0.944
Household members with primary education	18.763	Df=4, p-value=0.001***
Household members with secondary education	18.049	Df=12, p-value=0.114
Household members with vocational education	5.271	Df=4, p-value=0.261
Household members with tertiary education	12.255	Df=4, p-value=0.016**
Household's fostering in of children	1.921	Df=2, p-value=0.383
Household's fostering out of children	2.013	Df=2, p-value=0.365
Occupation of the household head	28.386	Df=4, p-value=0.002***
Household economic status	653.927	Df= 4, p-value=0.000***
Morbidity in the household	0.821	Df=2, P-value=0.663
Mortality in the household	2.103	Df=2, P-value=0.349

Author's household survey data. ** significant at 5%; *** significant at 1%.

Table 5.9 shows no significant statistical association between household food security and education of the household head and spouse, households with members in secondary education, households fostering in or out of children, and household morbidity and mortality experience. There appears to be a significant relationship between households with members with primary education and food security. This is explained by the fact that households with members who attained only primary education have a limited range of opportunities outside the agricultural sector. The positive association with households with members with tertiary level of education could be explained by high cognitive skills, ability to adopt improved farming methods, easier access to capital to invest in improved farming, and sufficient income to buy food from the market. Occupation of the household head shows a positive relationship with household food security because household heads whose occupation is farming invest more in agriculture and food security from own production. Lastly, household economic status yielded a position

association with household food security, which was to be expected because economic status is positively associated with land ownership and use (see Chapter 4) and determines the ability to buy food.

Further, we conducted t-tests to test the association between some non-nominal explanatory variables and household food security. The results are presented in Table 5.10. The results in Table 5.10 show a significant negative relationship between household food security and age of the household head. This implies that the older one is, the lower the likelihood of being food secure, possibly because the older one is, the less he or she is likely to invest in agriculture due to lack of energy and lack of means to hire labour for agriculture. The results show a negative association with households with members below 15 years, which may be attributed to the fact that such households lack sufficient labour to invest heavily in food security since the majority of the household members, are still below 15 years. The negative association between household food security and households with members aged 60 and above is mainly explained by the fact that those aged 60 and above are not able to provide enough labour required in the production of crops and animal rearing.

Table 5.10. T-Tests of some explanatory variables association with food security

Selected explanatory variables	Association with food security	
	T-test	P-value
Age of the household head	-73.0888	p-value=0.000***
Amount of land owned by the household	21.8391	p-value=0.000***
Household size	32.6947	p-value=0.000***
Household with members below 15 years	-20.4664	p-value=0.000***
Household with members between 15 and 59 years	19.1836	p-value=0.000***
Households with members above 60 years	-27.4926	p-value=0.000***
Amount of land under use	18.7614	p-value=0.000***

*Author's household survey data. *** significant at 1%.*

The results further show a positive association between the amount of land owned and household food security. Households that own much land had can produce more food for both consumption and sale than households that own a smaller amount of land. The results further show a positive association between proportion of household members aged 15-59 years and household food security. This is explained by the fact that households with more members in the age group (15-59) can contribute active and productive labour to agricultural production, hence such households are likely to be food secure. The positive association between household size and household food security could be explained by the availability of labour to invest in the production of crops and animal rearing.

5.7 Discussion and conclusion

The results presented in this chapter show that there is a wide range of food groups available to the rural farming households, ranging from cereals, roots and tubers, vegetables, fruits, meat and meat products, poultry and poultry products, and pulses. The results do not show a significant relationship between food availability and household HIV and AIDS status, which is contradictory to expectation and to findings from previous studies (NAADS, 2003; Tumushabe, 2003; FAO, 2003, 2004; Karuhanga, 2008). This could be explained by what key informants said about ART moderating AIDS impacts on households' food production and availability and by confirmed households receiving all kinds of support, such as the introduction of zero-grazing cows by NGOs and church-based organisations in the area, resulting in increased availability of milk.

The results of the study do not suggest differences between confirmed and non-confirmed households in terms of consumption from different food groups. The consumption from different food groups is rather related to agricultural seasons, which is consistent with the findings of previous studies (e.g. Handa and Mlay, 2006; Sahn *et al.*, 1989). Household income does have an influence on food security in terms of food groups consumed, as is indicated by the significant relationships with household economic status in Table 5.4. Table 5.4 shows a significant relationship of household economic status with consumption of cereals, meat, eggs, fish, and milk. Increasing food prices in the rural trading centres may further restrict poor households from accessing nutritious foods from the market. It seems that while the survey households may be having a wide range of food groups available, actual caloric and protein contributions are concentrated in fewer food items. When comparing the Tables 5.1 and 5.2, it can be seen that the percentages of affirmative answers to availability (Table 5.1) are for some food items higher than those of affirmative answers to consumption (Table 5.2). Confirmed household reported to be consuming more of milk, sugars and oils/fats, which could reflect the nutrition counselling they receive rather than the actual practice. It could also reflect the food and livelihood support they receive from church-based organisations and NGOs. Dietary intake for both calories and proteins is also heavily dependent on the agricultural season.

Regarding household's perception of their diet, respondents in the survey and key informants interviews said that the many households lack an adequate diet because poverty drives them to sell the food produced on the farm to meet other household needs. It was further suggested that less poor households headed by women most likely consume more protein-rich foods than those headed by men, but that poor households headed by women have poor diets due to poverty. The latter has been found in the literature as well (Buvinić and Gupta, 1997).

The survey results show that more than half of both confirmed and non-confirmed reported to be moderately food secure. Key informants pointed out that Masaka is located on a crescent of Lake Victoria with some patches of fertile soils, especially in the valley bottoms, which allows some farmers to grow food throughout the year. We did not find a significant relationship between household status and food security. As key informants told us, ART moderates the impact of AIDS on household labour since people living with HIV and AIDS who take the medication can farm and work to earn a living. The results further show that households headed by women reported to be more often moderately food secure and food insecure than those headed by males (Table 5.6), although the differences are not statistically significant. This points to the gendered nature of vulnerability to household food insecurity.

Regarding periods of food shortages, the results suggest that households, regardless of their HIV and AIDS status, do indeed sometimes experience periods of food shortages. Statements by key informants and respondents in the household survey indicate that these are due to complex and interrelated factors, such as selling food produce and limited livelihood options to generate income (cf. FAO, 2010), rather than just the HIV/AIDS status of households. Declining soil fertility was also mentioned as a driver of food shortages, which corroborates a study by Leakey (2013). Over-dependence on weather and the decline of soil fertility, as well as climate changes, pests and diseases, and resulting low crop yields are some of the findings that the present study shares with those of Bahigwa (1999) and Nuwagaba and Namateefu (2013). A study by the Government of Uganda (UBOS, 2012) found that food shortages are exacerbated by weak purchasing power due to poverty. In this study, significant relationships between economic status and food consumption could indeed be observed (Table 5.4).

The results of interviews in the household survey and of the focus group discussions further show that food and nutrition insecurity in Masaka are influenced by immediate factors and underlying causes in the local context. One of such factors is the erratic rain pattern in the recent past coupled with delayed onset of first rains. This affects farmers' operations and production dynamics, which in turn affects food production and, consequently, household food security. Another factor that was mentioned is the incidence of pests and diseases of crops, animals and humans, which have an effect on food production and household food security. Furthermore, in the focus group discussions there was a consensus that population movement to urban places especially by the young energetic youth and leaving the old generation on the farm, has affected agricultural production and food security. It was also pointed out that the population of Masaka population has been increasing while food production seems to have been declining. Key informants said that population growth in Masaka has caused massive deforestation and encroachment of protected areas such as swamps, which might have adverse effects on the

weather and climatic conditions experienced in Masaka. They also mentioned that poor storage and post-harvest processing technologies and facilities in the area result in food wastage.

Underlying causes of food and nutrition insecurity that came to the fore in key informant interviews and focus group discussions include the increasing food trade, which leads people to sell the available food in order to get money for necessities, given the lack of other income generating activities. It was further revealed that there is generally a decline in extension services and that poor farmers lack advice on better farming methods especially from the extension personnel, which is a result of insufficient technical monitoring and inadequate local government resources. The reduction in the budgets of district and national agriculture advisory services (NAADS) has allegedly led to decline in extension services. There is low adaptation capacity of households and communities to climate change effects, due to lack of timely information and failure of the district to enact local ordinances for food and nutrition security which would handle many challenges facing household food and nutrition security.

The results of the household survey presented in Table 5.8 show some of the strategies adopted by households to cope with the problem of food shortages. As Corbett (1988) has shown, households use a wide range of coping strategies in the situation of food shortages. Relying on families and extended family members is a common coping strategy. Other strategies, mentioned by key informants, include intercropping by combining cereals with perennial crops and following the right procedures for spacing and managing crops. Farming at the bottom of a fertile valley during the periods of unpredictable rainfall is a common practice of households that own land in this area. The growing of famine reserve crops such as yams, cassava, sweet potatoes with a short maturation period is another common practice. In situations where soil fertility was lost, intercropping was introduced. One of the most common strategies is household income diversification (cf. Niehof, 2004). This strategy implies that households participate in both farming and the informal sector in order to minimise the disadvantages of relying on one source of income. Other strategies include labour assistance from other households, especially for growing famine reserve crops, and in the care for sick family members.

The objective of this chapter was to explore the validity of the assumptions about the impacts of HIV and AIDS on household food security. The results presented here suggest that there is a need to consider the context specificity, the wider environment, and the long-term perspective in order to understand these impacts. It is concluded that a wide range of factors cause food shortages in the rural farming households of Masaka. Thus, HIV and AIDS cannot be held to be solely responsible for food insecurity in the studied community. Additionally, when the course of an epidemic changes, because of medication becoming available, the burden of its

impact on household and community food and nutrition security also changes. Finally, the results of this study suggest that there is need to understand the context in which households have attempted to cope with the effects of the AIDS epidemic on food security through the use of a wide range of coping strategies.

Chapter 6: Households' Resilience to AIDS Impacts

In this chapter, we argue that while it is undisputable that people suffered in the early stages of the epidemic, not all rural households faced a decline in livelihood security as a result of the AIDS epidemic. Several factors condition the capacity of households to adapt to the impact of AIDS. These include gender, age and the role of HIV-infected individuals, the household asset level prior to AIDS morbidity and mortality, characteristics of the adults remaining in the household, the ability of households to attract new members, availability of informal and formal sources of support and livelihood opportunities, the household production system and its labour requirements, and household social capital. Little is known about the context, strategies, and mechanisms used by such households who attempted to rebuild their lives and livelihoods. Although 'coping' is an over-used term in the AIDS-related literature, we find it appropriate to use the concept in describing the ways in which households have faced the problems brought to them by drought, pests, and diseases (including the AIDS epidemic) and how they have managed to recover their livelihoods. Several studies (see Rugalema, 1999a, 2000; Mutangadura *et al.*, 1999; Barnett and Whiteside, 2002; Yamano and Jayne, 2004; De Waal, 2005) have all shown that households will always attempt to cope with a stress or a shock like AIDS. In this study, the concept of coping strategy refers to the continuous efforts or series of continuous adjustments of household members to minimize or to overcome a stressful event or shock.

We argue that in order to understand households' strategies to recover their livelihoods in the face of the AIDS epidemic, it is necessary to analyse the impact of the epidemic along the household life cycle. It is also necessary to assess the stage of the epidemic, as well as the developments taking place in society. Moreover, it is necessary to take into account the household's social capital, which determines its ability to cope. The objective of this chapter is to explore the household's strategies and mechanisms to recover or sustain their livelihoods in the face of the AIDS epidemic. The impact of AIDS epidemic on households is illustrated by identifying the phases in the development cycle of selected households over a 15-year period. Each case presented here covers subsequent phases of the household life cycle, and considers the different stages of the AIDS epidemic, as well a wide range of welfare indicators pertinent to subsistence in an agrarian environment. These case studies represent a qualitative in-depth study of how the emergence of AIDS in the households caused morbidity and mortality, leading to stress and impoverishment. They also describe how households have coped with these calamities and how resilient they have been. In this way, the longer-term impact of AIDS on agrarian households is explored. Six AIDS-confirmed households were purposively selected and their stories are presented in this chapter. For each phase in the evolution of the disease, typical household circumstances are described, reflecting a 15-year period. Before presenting

the case studies, I shall discuss the concept of resilience and relate it to social capital and livelihood.

6.1 The concept of resilience

6.1.1 Social capital and resilience

The concept of social capital is a well-researched concept and is defined differently in many fields of study. Our interest is not to repeat all discussions on the concept here but to borrow some of the key analytical standpoints relevant to the present study. What appears to be emerging as a consensus from the several definitions of social capital is that it is based on social norms and social networks and the trust generated by these (cf. Nombo and Niehof, 2008). There are two forms of social capital that are common in literature, i.e. structural social capital, which includes networks and structures in which people are embedded, and cognitive social capital which includes trust, shared beliefs, norms of obligation and reciprocity. In some of the literature, social capital includes three key types of capital (vertical, horizontal and formalised relations). Horizontal capital includes horizontal social groups such as associations, clubs and voluntary agencies that bring people together to pursue one or more objectives in which they have a common interest (Putnam, 1993). Vertical social capital includes linkages and relations among different groups (Coleman, 1990), and formalised capital includes formal relations and structures of macro-institutions such as political, legal and judicial systems. All these three levels are complementary and together they may maximise the socio-economic impact of social capital.

In the literature, also a distinction is made between bonding, bridging and linking social capital (Ferlander, 2007; Nombo and Niehof, 2008). Bonding social capital comprises the social ties within a particular group, which enable individuals and households to meet their daily needs and overcome difficulties (Putnam, 2000). Bridging capital refers to relations between heterogeneous groups and helps to strengthen ties across such groups, which is more important for getting ahead. Linking social capital comprises connections with people in positions of power and is characterised by relations between those within a hierarchy but at different levels, which helps one to gain access to resources, ideas and information from informal institutions beyond one's own community. These types of social capital can help households cope and become resilient to the impact of AIDS.

Research has been done on social capital, macro-level economic development and poverty (Dhesi, 2000); the distribution of social capital and income (Narayan and Pritchett, 1999); social capital as a safety net (Morduch, 1999) and the role of the social network of neighbours to overcome problems (Wilkinson, 2002); as a form of safeguarding health and against illness

(Ferlander, 2007); HIV/AIDS stigma, care and orphans and social capital (Evans, 2005); social capital and economic growth (Routledge and Von Amsberg, 2003); social capital and information exchange among rural households (Katungi *et al.*, 2008); and, more recently, on social capital and resilience to AIDS impacts (Wiegiers *et al.*, 2006; Nombo and Niehof, 2008). Despite all these studies on social capital, there is still scanty literature on the role of social capital in households and communities confronted with AIDS and on how social capital may enhance the coping capacity of the households while reducing their sensitivity to crises and strengthening the resilience of the affected households. This is what the present chapter attempts to explore.

6.1.2 Livelihood, vulnerability and resilience

From a livelihood perspective, resilience means that a livelihood system is able to absorb impacts of distress such as drought, diseases, economic fluctuations or political upheavals without resulting in significant changes to its structural features or declines in output. In AIDS research, resilience has been approached from emotional/psychological and material/economic dimensions (Wiegiers *et al.*, 2006). The emotional/psychological dimension is about the ability to accept one's status, endure the pain, stay positive and see beyond the illness. The material or economic dimension refers to the responses households adopt to avoid the worst impact of AIDS on their livelihood or to rebuild their lives faster than normal (Loevinsohn and Gillespie, 2003). Wiegiers *et al.* (2006) show that key concepts associated with resilience in the context of AIDS include: shocks, resistance, vulnerability, and the ability of the individuals or households to adapt to these shocks.

Shocks such as AIDS are sudden and may have more severe consequences for people's livelihoods than gradual changes that allow people to adapt. Shocks affect the vulnerability of the system and its components. There may be different types of shock and these may include a disease outbreak, weather-related and geophysical events including slides, droughts, earthquakes, etc. Closely related to resilience is the concept of resistance. Both refer to coping with shocks but differ in the sense that resistance refers to the ability of the household to cope without changing its structure or functions and resilience means a livelihood is able to revert to the original state. Loevinsohn and Gillespie (2003) argue that resistance to HIV includes avoiding exposure to the virus and escaping infection once one is exposed, i.e. through ensuring access to the best nutrition to strengthen the immune system. Loevinsohn and Gillespie's (2003) study suggests that resistance to HIV exposure is determined by behaviour and the risk environment and that several causal factors increase the likelihood of an individual to engage in unprotected sex. These include: gender roles, power asymmetries between men and women, and cultural norms of masculinity and femininity which encourage male infidelity and discourage women from negotiating safer sex; the socio-economic disempowerment of women

and girls, which exposes them to gender-based violence and sexual exploitation; and poverty, which contributes to increased exposure risk through increasing the likelihood of transactional sex to secure food and income.

The concept of vulnerability describes the proneness of people, households and communities to an acute fall in the level of certain variables or livelihood outcomes. Barnett and Whiteside (2002) and Loevinsohn and Gillespie (2003) all approached vulnerability in the context of AIDS to refer to the likelihood of AIDS having a negative impact on food security and other livelihood outcomes. Furthermore, vulnerability to AIDS-related adversity encompasses the inability to cope, the disruption to livelihoods and loss of livelihood security. Coping strategies, on the other hand, encompass temporary responses that individuals, households and communities adopt in order to avert the negative effects. In the AIDS literature, coping strategies aim at maintaining or improving household food security, raising and supplementing income, and alleviating the loss of labour (Mutagandura *et al.*, 1999). Ultimately, coping strategies are adopted to sustain the economic viability of a household and to avert disintegration (Sauerborn *et al.*, 1996; Rugalema, 1999b).

The level of resilience to AIDS impacts differs among households and is influenced by several factors. These include the livelihood system, the available production options, the resource endowment at the onset of the crisis, the household's capability to exploit available options and resources; gender, which influences the capacity to persist or adapt (Moser, 1998); or vulnerability to AIDS due to limited access to assets or low levels of education and economic status. In this chapter, we argue that in order to understand households' strategies to recover their livelihoods in the face of the AIDS epidemic, it is necessary to analyse the impact of the epidemic along the household life cycle. It is also necessary to assess the stage of the epidemic, as well as the developments taking place in society. Moreover, it is necessary to take into account the household social capital, which determines the household's ability to cope.

Niehof (2008) referred to resilience as the ability to bounce back, which has to do both with internal strength and with external factors challenging it, and maintains that defining resilience requires looking at resilience of what or whom and to what. In this study, we focus on resilience of people and households to the impacts of AIDS. The two dimension of resilience raise a question about their interrelationship, i.e. how do they interface? Do the kind and severity of the challenges and shocks people face affect their strength, or do people have a given amount of strength irrespective of the challenges they are confronted with? This leads to further questions, such as why are some people stronger than others and what are their sources of strength. What causes some people to be able to bounce back even under the most adverse circumstances while others cannot? According to Niehof (2008), when phrased differently these

questions reflect the discourse on vulnerability in the livelihood literature, where a distinction is made between vulnerability of the livelihood system and its external physical and institutional vulnerability context. The literature also distinguishes between sensitivity and resilience. The intensity with which a system experiences a shock (sensitivity) determines the degree to which it is difficult to bounce back (resilience) (Davies, 1993). Niehof (2008) concludes that if the vulnerability context affects people's own vulnerability or sensitivity, it will also play a role in shaping the scope and impacts of shocks and stress and the opportunities for dealing with them. Hence, the two dimensions of resilience in fact hide a multi-layered (and gendered) process, which is socially, culturally, and institutionally embedded. Niehof (2008) sees people's agency as a mediating factor in the interface between their sensitivity and vulnerability on the one hand and the external vulnerability context on the other, which – at the end of the day – together determine the outcome of the process in terms of resilience. In the following section, we shall explore some of the above questions, using empirical data provided by six case studies on household's resilience to the impacts of HIV and AIDS in Masaka district.

6.2 Presentation of the cases

Case 1: Ssengendo's household: The importance of the household domestic cycle

Phase 1: Development of the household 1972-1994

A member of an AIDS-confirmed household, Ssengendo, was born in the late 1950s. He is a trained teacher and has been living in the community since his childhood. The household was formed in 1970 and comprised 10 members in 1994. In 1994, the couple had eight children, five boys (aged 24, 21, 17, 10 and 8) and three girls (aged 19, 15 and 13). Together, household members make an average of 7.8 consumption units², according to our calculations using the FAO scale. When asked about the nutrition status of the household at that time, Ssengendo stated that it was generally good. He based his response on the health status of the household members: they seldom fell ill, with the exception of occasional episodes of malaria.

The household's agricultural labour force consisted of the household head and his wife, four adult children, and occasionally hired labour during the peak season and when children were at school. On average, the household cultivated 3.5 acres of land to meet its subsistence and commercial needs. The crops grown by the household included: banana, coffee, vegetables and fruits, cereals such as maize, beans, groundnuts, and tubers such as sweet potato. Cassava and yams were grown as famine reserve crops.

² The household food consumption units of a household are an expression of its age and sex composition. They are calculated by adding together the individual consumption units of the household members. This was done using the scale developed by FAO (Ferro-Luzzi, 2003).

Regarding the food production situation, the household is located in the rich fertile region around Lake Victoria. This location receives reliable rainfall throughout the year. Moreover, the area has a rich cropping system, which favours the cultivation of perennial, semi-perennial and annual crops. These crops are grown over two cropping seasons. The diversity of crops grown by the household provides security against crop failures, especially for short-term cereal crops. The household reported experiencing short periods of food shortage, which would not last for more than one or two months. The household head reported that these shortages were seasonal and normally not severe. Moreover, the household has, over the years, maintained consumption of two meals a day. Thanks to the fact that the household would use stored food, this pattern would also be present during periods of poor harvest. The household would also purchase food from the market occasionally, using income earned from the sale of surplus produce during good harvest seasons as well as using the salary of the household head.

Phase 2: The onset of AIDS and eventual demise (1994-2002)

AIDS entered the household and altered the household composition and size in the period between 1994 and 2002. The household head was then 53 years old and his wife 49. The household lost five members in that period (1994-2002). The first death to be recorded in the household was that of their first son, born in 1995. The deaths of their second and third child both occurred in 1997. Then the wife of the first-born son died in 1998, followed by the death of the wife of the second-born son in 1999, and the death of the grandchild born in 2000. In 2001 and 2002 the fourth- and fifth-born daughters got married. Household size declined from 10 to six members. Two adult (16 and 18 years old) members of the extended family joined the family and the household benefitted from social capital from the extended family as the children were in boarding schools. The household head recalled that his surviving children would fear to return home after the school holidays because of the psychological trauma experienced as a result of the death of their elder siblings. It was revealed that the presence of their relatives almost in the same age group helped the children to absorb the shock and to agree to stay home during the holidays. Because of the social network comprising the extended family, the children were able to overcome their problem.

The household faced agricultural labour shortages between 1994 and 2002, during the peak of the planting and harvest seasons owing to increased morbidity and mortality and the diversion of household labour to the care of the sick. The latter was a gender-specific task. The household responded by bringing in two adult children and hiring labour once in a while to work on the farm. Owing to labour shortages, the household was unable to utilise all of its five acres of land. At the peak of the AIDS morbidity in the household (1994-2000), on average, 2.5 acres of land were utilised.

AIDS-related mortality affected the household farming activities and the types of crops grown over time. The household grew coffee as a cash crop, but later coffee growing declined owing to price fluctuations. Pests and diseases and labour diversion to the cultivation of bananas (which were fetching better prices, besides being grown for subsistence) were other factors that affected coffee production. In addition to growing coffee and bananas, the household grew cassava, sweet potato, maize, beans and pulses such as beans and soybean. They also cultivated fruits and vegetables, and tended animals (especially cattle, goats and poultry). The production of the above crops in the household declined in the period 1994 to 2001, due to not only to labour diversion to care for the sick but also due to increased medical costs, which reduced hired labour and – in turn – increased the incidence of pests and diseases in crops and animals.

Concerning household food availability, the household experienced short periods of food shortages, especially from 1995 to 2000. The household head recalls that this situation was due to reductions in the quantity and quality of food crops grown and livestock kept, as well as labour diversion and shortages, which were caused by multiple shocks besides the AIDS epidemic. During the period, the household resorted to growing staple crops, especially tubers such as sweet potato and cassava, but also beans. The fact that the farm was located within a rich farming area with stable rainfall throughout the year shielded it from specific crop failures. Because of this situation, the household was able to have access to some food even during the period of labour shortages. During this period, the household relied on banana and famine reserve crops such as sweet potato, cassava and yams. The household sold its assets (e.g. cows and land) to pay school fees for the children in a boarding school.

Phase 3: The household's attempt to recover its livelihood

In Ssegendo's household, the situation changed from 2003 to 2008. In 2008, household head was aged 59. He started to gain hope as the surviving children had finished school and started to support the family. In the meantime, they had bought five more hectares of land. The household started hiring labour again in 2008. They also started growing the variety of crops that they used to grow before, and were able to control pests and diseases for crops and livestock. The household attempted to recover its livelihood in spite of the problems caused by AIDS mortality.

Conclusions about the case

From the above case study it is possible to draw the following observations. Regarding household food availability, the household responded to the problem of labour shortage by bringing in two adult males from the extended family network. Crop mixing together with seeking assistance from community members (women) helped the household in securing food crops such as sweet potato and cassava. The farm's location in a rich farming area with stable

rainfall played a role in minimising the risk of crop failure. As a result, the household had access to food even in the periods of labour shortage by relying on banana and famine reserve crops. The household sold its assets (e.g. cows and land) to pay for school fees. The household responded to the shock of AIDS by relying, first, on its own resources and, second, on the resources available in the community and social networks. Factors other than AIDS that were responsible for the changes in land use and in the production of cash and food crops that the household reportedly experienced were unstable prices for cash crops; pests and diseases; loss of soil fertility; labour diversion; crop failure due to the vagaries of nature; and changes in climatic cycles.

The case study shows the resilience of the household facing HIV and AIDS. As argued above, in the short term AIDS affects the household with increased morbidity and mortality, and associated costs and losses. In the long term, however, this household made a successful attempt to recover from the shocks by mobilising its resources (internal and external) and the ability of the household to take advantage of alternative options, i.e. extended family labour and education of surviving children. The household was able to face the challenges posed by the AIDS epidemic and put in place a strategy. It learned from the shock and adapted to the challenges, thus demonstrating resilience. The case study also illustrates the importance of social capital in adjusting to the impact of the AIDS epidemic.

Case 2: Kityo's household

Phase 1: The original household

Kityo, “a son of the soil”, was born in the late 1950s. In 1990, Kityo's AIDS-confirmed household had five members: a husband, a wife, and three children. The household head (Kityo) died in 1992, and the following year his wife died too. The three young children were taken care of by their aunt, who also provided education for them. Apart from the effort their aunt made to send them to vocational school, the children also benefitted from the government's universal primary and secondary education policy. In 1995 the youngest child died. The daughter got married in 2007. The remaining son, who is a trained primary school teacher, has returned to the ancestral home and teaches in the nearby primary school.

Phase 2: Land use and farming after the original household dissolved

With the death of both parents and a child due to AIDS, the young and newly formed household was dissolved. Getting information on the history of labour allocation in the household was difficult. The parents had been staying in their marital home for only seven years before dying of AIDS. My informant spoke about how both parents worked together on the banana farm, and how they would occasionally hire labour. Upon the death of the husband, his sister (the aunt of the children) came into the household for two years to take care of the sick wife, who later died

in 1993. In 1994, she decided to take the children to her marital home and the household fell apart. The grandmother kept their land until 2000, when she died. Her elder son, who lived in the nearby village, managed the land until 2008 when Kityo's son returned to his ancestral home. Since 2008, the son has been working on the farm. Particularly, he manages a banana plantation and he hires labour to plant sweet potato, cassava and beans and to help weeding and harvesting.

The original size of the land owned by the household was five acres. This size has not changed. The grandmother kept the land together with an aunt and an uncle until the son returned to his parents' land. Kityo's sister told me that, originally, the deceased couple would use three acres of land for growing both food and cash crops. She recalled that the use of the land decreased when the grandmother started using it, as she alone could not cultivate more than one acre. Much of the land was utilised in the early 2000s, when the orphans' uncle started using the fields to grow cereals and would cultivate approximately four acres of land. In 2008, the surface under cultivation again dropped. There is no permanent pattern for land use because the current occupant (son) is only managing a banana plantation and plants cereals for commercial purposes.

There has been a change in land use over time. The land was originally used for growing bananas, sweet potatoes, cassava, maize, beans and soybeans (1990). From 1995 to 2000 the land was used for growing maize and beans only. From 2000 to 2008, the land was used for growing maize, beans and soybeans. Nowadays, the land is used for growing bananas, beans, sweet potatoes, maize, tomatoes and onions. Importantly, this household reported few pests and diseases. Regarding the food security status, there is a short history of food security of the household. Since 2008, the household has been food secure because the adult orphan has returned to his parents' land. As a primary school teacher, he can afford hiring the labour necessary for growing both food and cash crops. He is also able to purchase extra food from the market when there is need.

Phase 3: New household formed by the surviving adult son

From 2008 onwards, with the return of the surviving son, a new household emerged. Although the surviving daughter got married, she still comes to the household newly created by her brother. The surviving son has married and has one child.

Conclusions about the case

From this case, it is possible to draw a few points. The original household dissolved. However, using the land and other resources of the parental household, a new household was formed. The orphans survived by relying on their aunt, who provided for their education until they were able

to return to their parents' land. Their grandmother and, later, the uncle kept the land safe and intact. AIDS entered the household at a very critical stage in the household's life course, causing its dissolution.

This case illustrates how AIDS mortality can dissolve households, depending on the age and gender of the deceased person, but it also highlights the possibility for the younger generations to build their own household and livelihood based on the land and other resources inherited from their parents. It shows how the surviving children and their closest kin coped by using extended family support, community-based mechanisms, and even the national government, through the universal primary education scheme. The case also illustrates the importance of vertical, horizontal and formalised forms of social capital that the survivors could benefit from.

Case 3: Nalugoye's household: struggling or coping?

Phase 1: Household formation and disasters

Nalugoye's household is another AIDS-confirmed household. Nalugoye was born in the late 1940s and comes from a district far from Masaka. She migrated to the study area with her then husband, who later abandoned her and married another woman. She lived with her seven children: three boys and four girls. Her first-born daughter passed away in 1994. Her two other daughters died between 1997 and 1998. In the period between 2001 and 2005, she lost her two eldest sons and two of their children. The household size reduced from eight members in 1990 to three in 2003. Disaster followed upon disaster, as in 2006 the wives of her sons also died. The three surviving orphans stayed with Nalugoye in her house. The oldest one, aged 17, attended upper secondary school at the time, the other two children were seven and 10 years old.

In Nalugoye's household labour allocation between 1990 and 1996 followed the traditional division and allocation of work. The sons were responsible for coffee, banana cultivation was done by joint family labour. The daughters and the female household head (and, occasionally, her sons) tended the sweet potato and cassava fields. All household members worked on the cereal fields. From 1996 to 2000, there was a change in labour allocation in the household. Adult male children had left the household to study and work. Some of the activities that were specifically for male adult children were taken over by the household head and her daughter, who died later. During this period, women were in charge of managing and harvesting coffee, while the banana fields were taken over by the young boys.

Labour allocation underwent further changes as mortality in the household increased from 1994 to 2005. Female labour was diverted to the care of the sick children, as they became bedridden. Nalugoye would divide her time between farm management and care for the ill. Her daughters

would take turns with her to take care of the ailing sons. Moreover, the sons' wives would help nurse their husbands. After the death of her sons, Nalugoye had to nurse her daughters-in-law and grandchild. Since 1994, she recalled, her life has been characterised by looking after her sick children and grandchildren who did not survive AIDS. Her hope is now in the grandchildren. As she took care of the children, they also take care of her, as she has become older and weaker.

Phase 2: Household sells assets to care for the sick

Since 1990, the size of Nalugoye's land decreased. At the time, the household owned seven acres of land. In 1995, the household started to experience a series of disasters. She sold first her three cows and one acre of land. In 1998, she sold another two acres of the property in order to afford the medicines for her ailing children. She was living on four acres of land but sold part of it mainly to meet the medical costs. During the period of high morbidity in the household, the amount of land under use also declined. In the early 1990s, approximately four acres of land were utilised. In the period between 1995 and 2005, the land surface under cultivation decreased again and, on average, one acre was under use, dropping further to half an acre between 1998 and 1999. From 2005 to date, the land surface under cultivation has increased as a result of labour inputs from her grandchildren and some of her neighbours, who help her once in a while. Not only did morbidity and mortality affect the amount of Nalugoye's land under use, also the types of crops grown by the household were affected. Originally, the household grew coffee, banana, maize, beans, millet, and soya beans. The production of coffee and banana declined between 1994 and 2005, while the household increased the amount of sweet potato, beans and maize produced because these crops are less labour-intensive.

Phase 3: The household continues to struggle

In 2009, the orphans started earning money in the informal sector (trade) to pay for their education. They also allocated their labour to on-farm activities, and since 2005 there has been a slight increase in the surface of land under cultivation. The cultivation of banana, sweet potato, maize and beans has increased, but millet cropping has been completely abandoned because of its high labour demands. Once more, the household has food and only experiences some seasonal shortages of food. The old woman has hope that her grandchildren will restore the household. When visiting the household in 2014 and 2016, we found that one of her grandchildren had joined the Uganda Police and he was beginning to take care of the siblings and his grandmother who is now old and very weak.

Conclusions about the case

The household, which was moving towards dissolution, has continued to survive. Adjustments were made by making use of the resources in the broader community, where orphans attained

education under the government programme for universal primary education and secondary education. The household has also relied on the extended family, which has supported the orphans so that school fees could be paid. The above also illustrates that not all households face the same impacts of the AIDS epidemic. In some households, the impact is very severe, while other households can more easily adjust and reorganise their lives and livelihood. The case study also shows a gendered type vulnerability to the AIDS epidemic: Nalugoye, a single mother, lacked resources (cows and poultry, and land) that could have been easily converted into cash.

Case 4: Basaalwa: The continuous reorganisation of livelihoods

Phase 1: A promising household is formed

Basaalwa, head of another AIDS-confirmed household, was relatively wealthy from the 1980s to the late 1990s. During that period, the household was composed of eight children (five sons and three daughters) and two parents. Changes in household composition were attributed to migration by its members, mainly in pursuit of education and employment opportunities. Four adult children (three boys and one girl) had left the household for education in Kampala and eastern Uganda, reducing the household size to six members. By 1994, five people were residing in the household (four children and their mother), as the husband also left for Kampala to look for a job. The female spouse took over the headship of the family, but decisions would still be made in consultation with the husband. Out of the eight children, three attained university education, two obtained their diplomas, and three finished primary school. More changes in household size and composition occurred in the subsequent years. In 1997, a daughter got married. In 1998, one of the sons joined the army, a second daughter left the country to pursue studies abroad, and two of the sons settled in Kampala for formal employment. In 2000, the second daughter also got married.

Phase 2: AIDS and disaster strike the household

The catastrophic events began in the early 2000s, when the son who had joined the informal sector (trade) died in 2001, followed by the one who had joined the army and died of occupational hazards, followed by the daughters who had got married in 1997 and 2000 and who fell ill and died. The son who had obtained formal employment in Kampala also died following the death of his sisters. These events forced the household head to return home. According to the female spouse I talked to, the head of the household never recovered from the loss and passed away in 2009. The household was reduced from 10 to four members (three children and their mother). The major causes of death in the household were AIDS, occupational hazards, and a heart attack.

The household owned approximately seven acres of land in 1980. By 1990, they had acquired two additional acres. The size of the land remained the same until 2006, when the household head sold four acres and purchased another two near their home. In the early 1980s, the area under cultivation was between five and six acres and this has changed from the 1990s to date. By 2000, the household was utilising three to four acres, and between 2007 and 2008, it was using one-and-a-half to two acres. The major reasons for the changes in the area under cultivation were reduced household size due to mortality – hence, a reduction in the amount of food needed by the household, changes in the market that demanded more staples and cereals, the effects of morbidity and mortality, and pests and diseases affecting coffee and maize. The household cultivated a variety of crops, which included millet, maize, coffee, cassava, bananas, beans and sweet potatoes. It used family labour and hired labour. In the early 2000s, the household stopped growing most of the crops and only continued growing bananas, beans and sweet potatoes. The rest of what they needed they bought from the market. They stopped growing coffee due to coffee wilt disease and price fluctuations and maize (mainly grown as a cash crop) owing to maize streak virus and income diversification.

Phase 3: The household attempts to recover its livelihood

From 2008 onwards, the household has attempted to recover its livelihood. Its welfare increased owing to the support provided by the surviving children. There were increases in the household assets from 2008 onwards. In 1980, the family was living in a semi-permanent house made of iron sheets and mud. By 2008, they were living in a permanent house made of bricks and iron sheets. In addition to that, the household accumulated assets such as a car, a good radio, and cows. Its ability to meet subsistence needs has been relatively good from early 2008 to the present. Moreover, the wife joined local or community support groups to help the community members in need. The household accessed traditional mechanisms of solidarity, such as the *ekika* (clan), the extended family, in-laws, and traditional administrative structures) and community mechanisms such as *munomukabbi* (a friend in need is a friend indeed), *omukaggo* (blood brotherhood), *omukwanoogwekinywi* (true friendship considered to be beyond and better than the usual friendship), *olusuku* and *ekyangi* (special relationships which involve some cultural practices). The household also subscribed to self-help groups, which were a recent creation, and maintained links with community initiatives.

Conclusions about the case

The analysis of this case study suggests that the pre-household assets and the continuous efforts of the household's members to recover their livelihood saved the household from depleting its resources. It also seems to suggest that the epidemic entered the household when the household had passed the peak of its development cycle, when the children were already working. Furthermore, this case study suggests that not all changes in the household were caused by AIDS

mortality. The changes that occurred to the land surface under cultivation and the variety of crops grown were due to a combination of factors besides changes in household size and composition due to AIDS. These factors included the household's consumption needs, changes in the market (which brought an increase in the demand for staples and cereals), pests and diseases, and the household's investment and reinvestment patterns. Further, it appears that the household has tried to adjust by reorganising its internal resources and livelihoods and by relying on community and traditional cultural support mechanisms.

Case 5: Kyazike household's: A continuous reconfiguration

Phase 1: Household forms before the 1980s and disintegrates in the 1990s

The Kyazike family, an HIV-confirmed household, was composed of nine members in 1990 (three boys and four girls, and husband and wife). By 1992, two of the girls had finished their primary education and two of the boys had finished their lower secondary education. The rest of the children did not finish primary school. In 1982, one of the sons dropped out of school to join the National Resistance Army (currently known as the Uganda People's Defence Forces). The other two boys stayed at home with their sisters. In 1997, the first-born daughter got married, followed by the other two in 1999 and the last in 2001. The son who joined the army in 1982 died of AIDS in 1996. His two children and his wife also passed away in 1998. The household head died in 2005 from a heart attack, and his wife, together with one of her two sons, decided to migrate to the Bunyoro region. The son who remained behind sold the land and gave the mother and brother their share. He then bought two acres of land near their ancestral home. The major reason for the migration of the other family members from their ancestral home was that they attributed their misfortune to their former home, claiming that it had brought them bad luck.

Phase 2: A new household is formed by the son who stayed near the ancestral home

The adult son, who stayed on near their ancestral home, formed a new household. It is now composed of five members (husband, wife, two daughters and a son). The household is headed by the husband, who is the main decision-maker. All the three children attend primary school. The household head reported that because of the history of AIDS in his parental home, he and his family had to test themselves for HIV. They did this in order to make sure that his family's bad luck would not follow his new family.

The family is still occupying the two acres of land that were bought after the sale of their ancestral land. They also rely on household labour (male and female spouse). The children do supplementary labour during the weekends and help with household chores such as fetching water, collecting firewood, and tending the goats in the evening. The entire land is under cultivation. They grow bananas, cassava, beans, sweet potatoes and cereals such as maize, and

sunflower. However, the cereals are grown on rented land, since they are cultivated for commercial purposes and on a large scale. The household is also engaged in goat rearing and poultry keeping.

The problems reported by the household include: limited land for expansion, crop diseases (i.e. black Sigatoka leaf spot and Fusarium wilt, which affect banana, the maize streak virus, and fungal diseases in sweet potato) and soil exhaustion. The interventions to overcome these problems included the use of ecological methods to control crop diseases (for example, applying ashes on banana plants). The household also started the intercropping of maize, beans and cassava to overcome land shortage, while beans were planted in order to solve the problem of soil exhaustion. They reported that intercropping prevented crop diseases and they grow varieties of sweet potatoes that are more resistant to pests and diseases. The household also joined labour associations in order to tackle labour demands during the peak seasons.

Phase 3: Looking ahead

The major changes experienced by this household included: growing of improved varieties of bananas and maize as well as increased output from maize production as a result of increased demand from the schools in the area. Moreover, the household faced the disintegration of the family, as most of its members left their original home to establish a new home elsewhere. Nevertheless, the newly founded household managed to meet its basic needs with support from the extended family. In short, the household has maintained its access to informal and formal solidarity mechanisms. The household head and his wife were looking ahead to acquire more land, support the children, and, in due course, acquire more livestock. The household became relatively food-secure and did not seem to face major challenges of food insecurity.

Conclusions about the case

The case shows that AIDS may cause the disintegration of a household, but that a new household may be created, which still goes through the normal household developmental stages. This newly created household does not experience the same challenges faced by the previously disintegrated household and is able to adapt to the changing circumstances thanks to the resilience of the son who founded it.

Case 6: Ssenteza's household continues to adjust in order to survive

Phase 1: Growth of the household and onset of AIDS morbidity and mortality

Ssenteza was born in the mid-1950s. He was active in the informal sector (trade) and married in the 1970s. By 2000, his household had eight members. In 2003, both husband and wife fell ill. They tested HIV-positive and immediately started taking ARV medicine. In 2004, the daughter got married, but shortly after being married her husband died of AIDS. In 2007, she

returned to her parental home where she died in 2008. In 2006, Ssenteza's second daughter got married. The household was reduced to six members.

The household used both its own and hired labour for its daily livelihood activities. Both adult male and female children worked on the farm. There were no gender-specific labour divisions. Hired labour was mainly used for animal rearing as well as for coffee and banana farming. The male spouse had more of a supervisory role, but also performed tasks such as pruning banana trees, harvesting coffee, or even looking after cows in the evening. The female spouse and adult female children managed the domestic chores in the household.

Phase 2: Living with HIV/AIDS

Ssenteza's property increased from five acres in 2005 to eight acres in 2008. When the couple learnt that they were sick, they started making investments for their children by buying land and building a small house in the trading centre from which they could earn additional income. They also increased the surface of land cultivated for coffee. The area under cultivation has been steadily increasing in response to the increases in the price for coffee, banana, maize and beans in the area.

Since 2000, the household has been growing banana, coffee, sweet potato, beans, maize, and vegetables and fruits both for subsistence and for sale. There has also been an increase in the surface of land cultivated with coffee and banana. This increase has been driven by changes in prices and better management practices used by the household. Compared to other households, the household reported fewer farming-related problems. The household has been food secure every year since 2000. Moreover, the household did not report any period of food insecurity. The household grows a variety of food crops, vegetables and fruits (home gardening) and earns enough income to purchase goods and services to supplement the homegrown food.

Conclusions about the case

Noteworthy about this case is that the household manages by rearranging their internal resources and by seeking medical help and using ARV medicine. The household also maintained traditional solidarity mechanisms (such as *ekika*, the extended family, in-laws, the traditional administrative structure) and community mechanisms (such as *munomukabi* and *omukaggo*), which are important sources of social capital. Moreover, the household also interacted with formal organisations. The case study here also illustrates the importance of pre-household assets and the ability of the household to use these assets in order to maintain its livelihood. Further, the case study also points to the importance of considering the stage of the epidemic and the changes taking place in society, in this case exemplified by the introduction of ART, which motivates people to be tested and get access to the medication. This lessened

the impact of the epidemic, as infected household members continued to work and earn a living. As argued earlier, an epidemic is a context-dependent phenomenon. When the context changes, the impacts of the epidemic are bound to change too.

6.3 Analysis and discussion

In all the case studies presented here, the role of social capital seems to be important in enhancing the households' ability to respond to the impacts of the AIDS epidemic. This includes all forms of social networks and community-based organisations, which help households to cope with the impacts of AIDS. Several studies have shown the importance of social capital in helping households adjust to shocks such as HIV/AIDS (e.g. Rugalema, 1999a; Mutagandura et al., 1999; Nombo and Niehof, 2008). Moreover, households may use a wide range of social ties, including those of the extended family, friends, and community and faith-based and community-based organisations. In our cases, these have helped the households to adjust to the impact of the AIDS epidemic. Thus, social capital seems to have been an important asset in for these households. It has helped them to cope by relieving the burden of caring for the ill, fostering orphans, and taking care of property. The social relations involved are based on values of respect and reciprocity. The results presented in the case studies show that people access different types of social capital, depending on a wide range of factors, including personal characteristics such as age, gender, family type, education, employment, personal attitude and values, and residence type. From the case studies it is evident that households' experienced different levels of shocks caused by the impact of AIDS and that several factors enabled the households to adapt. These include: the livelihood system, available production options, the resource endowment at the onset of the crisis, the household's capability to exploit available options and resources (Case 6, Ssenteza's household); gender, which influences the capacity to persist or adapt (cf. Moser, 1998), and vulnerability due to limited access to assets or low levels of education and economic status (Case 3, Nalugoye's household).

The six case studies put together show the resilience of the households in adapting to the impacts of the AIDS epidemic. The case studies show that resilience is a product of gravity of the impact of the AIDS epidemic, especially on the household's demographic structure, and the capacity of the household to use available resources, both material and social capital, to secure a livelihood. If the household experiences a serious impact on human, social, material, and financial capital, the recovery may take long, and the reverse holds true as well. The dynamic relationship between AIDS impact, adaptive capacity and resilience at the household level is depicted in Figure 6.1.

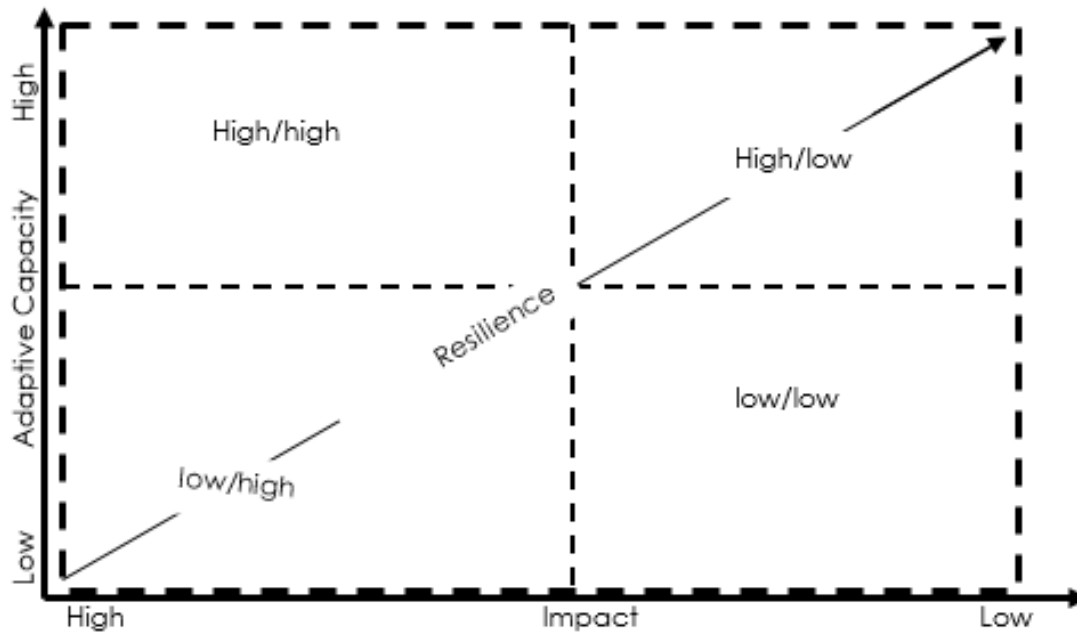


Figure 6.1: Resilience as the product of impact and adaptive capacity
Source: Rugalema *et al.* (2010: 40)

Below, we shall analyse the cases in terms of the impacts they suffered and the adaptive capacity they could muster (see Figure 6.1). The first case study (Ssengendo's household) suffered a specific type of vulnerability because of the roles of those who died in the household. The breadwinner kept on struggling to keep the household moving on despite the death of his children and grandchildren. The household experienced a high impact because the AIDS epidemic struck the household during the early stages when the epidemic had just been discovered and drugs to slow down the progression of the disease were still unavailable. The household shows an example of a high impact and high adaptive capacity, as assets were not sold to take care of the sick. The household also had a strong capacity to learn from the challenges it was experiencing owing to the impact of AIDS and organised its resources, both internal and external, which was key to its adaptation process.

The second case study, Kityo's household, is a typical example of high impact-low adaptive capacity when both parents died. It illustrates how AIDS mortality can dissolve households, depending on the age and gender of the deceased person. It also highlights the possibility of the younger generations to restore their households and livelihoods. The case study shows that the household attempted to cope by using extended family support, community-based mechanisms, and even the national government, by leveraging the universal primary education scheme. This example also illustrates the importance of different types of capital in helping households cope with the impact of disasters such as AIDS. In this case, the household benefitted from vertical linkages and relations among groups (cf. Coleman, 1990), horizontal linkages, i.e. the existence

of horizontal social groups such as associations, clubs and voluntary agencies that bring people together to pursue one or more objectives in which they have a common interest (cf. Putnam, 1993), and formalised forms of social capital (formal relations and structures of macro-institutions). These three levels are complementary and together they may help households in their attempts to adjust to the impact of the AIDS epidemic.

Case 3 (Nalugoye's household) also illustrates high impact-low adaptive capacity and shows us the vulnerability of women to AIDS impacts. Compared to the other case studies, Case 3 suggests that the gender of the household head, besides the resources available within and outside the household, is very important in the adaptation process to the impact of AIDS. This finding corroborates past studies (Rugalema, 1999a, 2000; Wiegers *et al.*, 2006) that suggested that the gender of the household head together with the available household resources determine the ability of a household to cope. The household has attempted to adjust by making use of external resources, such as the government's universal primary education programme that enables orphans to continue their education, relying on the extended family to support the orphans with school fees. The case study also illustrates the fact that not all households face the same impacts of the AIDS epidemic. In some households the impact is so severe that they cannot easily adjust and reorganise their lives and livelihood. The case also shows the gendered nature of vulnerability to the AIDS epidemic; Nalugoye, a single mother, lacked the resources that could easily be converted into cash. From the case of Nalugoye's household, it is clear that gender, wealth status, and linkages with external support organisations influence the ways in which people respond to the impact of the AIDS epidemic. In this case, the household moved into permanent impoverishment after experiencing AIDS mortality. Efforts of the household to recover were not promising owing to a breakdown in marriage, migration, and limited linkages with extended family members due to migration.

The fourth case study, Basaalwa's household, illustrates high impact-high adaptive capacity. It shows the importance of household assets before suffering the impacts of AIDS and the continuous efforts of the household's members to recover their livelihood. Furthermore, the findings of this case study suggest that not all changes in the household were caused by AIDS mortality. Changes in the surface of land under cultivation and the variety of crops grown were due to a combination of factors other than changes in household size and composition due to AIDS, such as changes in the market, pests and diseases, and the household's investment and reinvestment patterns. Further, it appears that the household has tried to adjust by reorganising its internal resources and livelihoods and by relying on community support mechanisms.

Case 5, Kyazike's household, illustrates high impact-high adaptive capacity. It also shows that AIDS may cause the disintegration of households, but that the newly created household still

passes through the normal household developmental stages while not experiencing the same challenges faced by the previously disintegrated household. The household tried to cope, first, by seeking help from extended family members, and then by falling back on community support mechanisms as well as the broad national framework, such as the universal primary education policy that helps orphans to attain primary education.

The sixth case study, Ssenteza's household, is a typical example of low impact-high adaptive capacity. It also shows the importance of considering the stage of the epidemic, and the changes taking place in society, in particular the introduction of ART, which can lessen the impact of the epidemic as infected household members continued to work and earn a living and caregivers are relieved of their burden. The age and position of the infected member in the household are key to determining the level of vulnerability in the household. The breadwinner kept on struggling to keep the household by using a wide range of resources – financial, social and physical capital – especially land for commercial farming. The time the household head fell ill coincided with the time ARV medicine became available and affordable.

The case studies presented here highlight the importance of understanding the impact of the AIDS epidemic at the different stages of the household domestic cycle, as well as the stage of the epidemic itself and other societal changes. The households that experienced AIDS mortality in the earlier stages of the epidemic suffered the worst impact. These households could not receive a diagnosis and, therefore, associated the symptoms of AIDS with witchcraft and unknown diseases. Because of these associations and the social stigma surrounding AIDS, people were at first afraid to be tested once tests were available (Karuhanga, 2008; Nombo and Niehof, 2008). This in contrast to households that experienced AIDS mortality later on, when the epidemic was well known, ART became available to reduce suffering and prolong life, and the stigma surrounding AIDS faded. The impact of the AIDS epidemic on those households that had members living with AIDS from the mid-2000s onwards, when ARV medicine had already been introduced, was moderated by the availability of the drugs. The case studies also suggest that the stage of the domestic cycle the household finds itself in is important in determining the response and ability to cope. In this respect, the concept of family time is equally important as historical time.

The case studies presented revealed that there are several factors that determine the amount of land under use by households and the production of both cash and food crops. These include unstable prices for cash crops, pests and diseases, a decline in soil fertility, labour diversion to off-farm livelihood activities, and changes in seasons that force farmers to respond by growing seasonal crops. There have been changes in the size of land under cultivation and the types of crops grown in the studied community. Labour shortages due to competing cropping and

household demands (including care) have been one of many factors driving change. Since the country achieved some form of stability, several secondary boarding schools and tertiary institutions have been established, which created a demand for certain foods. The emergence and development of small trading centres and establishment of schools have resulted in increased demand for food, especially maize, sweet potato, beans and bananas. Households responded to labour shortages in several ways, by bringing in other adult members from the extended families or by hiring labour. Moreover, they started intercropping, requested assistance from community members, and substituted the types of crops grown with less labour-intensive ones. In addition, families adjusted to changes by rearranging their resources strategically. Furthermore, households subscribed to traditional and community solidarity mechanisms, which played a role in lessening the impact of AIDS on their resources, including on land utilisation. Households tried to cope, first by seeking help from extended family members, then falling back on resources within the community and as well as on the national policy of universal primary education that helps orphans to attain primary education.

Food shortages in the case study households seemed to be caused by a wide range of factors other than just the AIDS epidemic, such as unreliable rain and hailstorms, pests and diseases, soil fertility loss, unstable prices for agricultural products, and lack of capital to buy inputs. From the above cases it is clear that AIDS added its weight to an already existing fragile situation. In spite of these problems, the area's location on the crest of Lake Victoria allows the growing of perennial crops such as bananas, which help the households to adjust to crop failure. Farming households adopted a number of strategies in order to cope with the problem of food shortage. These included intercropping, where perennial crops replaced cereals, and practising proper farming methods such as planting in the right season. Using the fertile soil in the valley bottom during the periods of unpredictable rainfall (June to September and February to March) was a common practice of some of the farming households that owned land in the valley. Growing of famine reserve crops like yams, cassava, sweet potatoes, and cereals with a short maturation period was another common practice in the case study households. The location also favours the cultivation of both cash and fast-growing crops. This, in turn, provides opportunities to households to use adaptive, ecological techniques. When these adaptive agro-ecological techniques are not enough to provide adequate means for ensuring food security, the households resort to other strategies, including using social capital.

A common household strategy was income diversification, where households participated in both farming and the informal sector in order to reduce the disadvantages of relying on one income source (cf. Niehof, 2004). Mutual assistance from other households in the same community played an important role in helping those that experienced crop failure due to the vagaries of nature. Households received support in the form of food and labour. The latter

served especially for growing famine reserve crops or to care for sick family members. Contrary to the observations in the earlier literature (e.g. Nombo and Niehof, 2008) that AIDS would affect the solidarity embodied by the traditional kinship system and community structures, this could not be observed in our study. In our study area, support came from extended family members, and from traditional support mechanisms, such as the *ekika* (clan) and community support mechanisms such as *munomukabi* and *omukaggo*, as well as other network organisations in the community (e.g. the church and non-governmental organisations).

In summary, the case studies presented here reveal that although AIDS has had an impact on households, not all households suffered the same sharp decline of their livelihood that had been predicted. Some households have continued to pick up the pieces of their lives and livelihood and ‘bounced back’. As I argued earlier, AIDS is a context-dependent phenomenon and when the context changes, the epidemic’s impact on society is bound to change as well.

6.4 Conclusion

Social capital was important in helping the households adjust to the impact of AIDS on their livelihood and food and nutrition security. The households used different forms of social capital in adjusting, including kinship networks, friends and neighbours and membership of associations and groups, which was found to be crucial in reducing the household sensitivity to HIV/AIDS impacts. However, this varied according to the household’s economic status before a member developed AIDS, the ability of the household to interact beyond its social group with wider networks within the community, and the opportunities for more access to information and other resources (bridging social capital). It also appears that, contrary to what is contained in the earlier literature, which indicates that AIDS affects social capital owing to the level of impoverishment it causes, the situation seems to vary from one community to another. Different communities have different mechanisms for assisting each other either with information or with voluntary labour for farming and care for the sick, which might not require money.

The results show a strong sense of belonging and trust within the community, which is important for reducing the households’ sensitivity to AIDS impacts. We found that social norms of reciprocity were crucial to helping households adjust, as were the networks and structures within which households were embedded. The existence of community-based and voluntary organisations (forms of horizontal social capital) as seen in the fourth case study, also helped households to cope and adjust. The existence of formalised structures at the community level (vertical social capital) was essential as well. People adjusted by falling back on resources within their household and extended family first, and then leveraging extended networks and community networks and organisations at the district level, which increased their resilience.

We also found that the strong social ties (bonding social capital) in Buganda culture enabled individuals and households to meet their needs in the face of AIDS adversity. The Baganda people are known as a very social group with a heterogeneous population (bridging social capital), which helps the community to interact beyond the close bonding ties of its members and helps household members to strengthen their ties across the group, which is important for coping. They are also known for easily making friends, including with people in power (linking social capital). This helps them to gain access to resources, ideas and information from informal institutions beyond their own community. In conclusion, the ability of the household to adapt to the challenges of the impacts of AIDS epidemic depended on different forms of the household's social capital and on the broader environment.

Chapter 7: Conclusion and Discussion

The chapter presents a synthesis of the main findings and conclusions from the study. The first part presents the relevance of the context followed by a discussion of the answers to the research questions. The last part discusses the theoretical and policy implications and the way ahead.

7.1 Objective of the study and approach

The objective of the study was to investigate the political, economic, cultural, historical and geographical context in which the AIDS epidemic emerged in Uganda in the early 1980s and became a big livelihood crisis and how this affected the rural households in the study area of Masaka district. The focus was put on the impacts of the epidemic on the demographic characteristics, agricultural production and the food and nutrition security of these households and their responses to the impacts and changes they were exposed to. The theoretical framework for the study was formed by the dynamic ecosystem approach developed by Ford (1971) in his work on the ecology of African trypanosomiasis and the work of Stillwaggon (2006) on AIDS and the ecology of poverty. Based on this theoretical framework four conceptual pillars of the study were formulated that guided the research and analysis: context, diversity, impact and resilience *and* their interrelationships. Context and diversity are the main concepts used in Chapter 2, whereas impact and resilience are applied at the household level and are the pillars applied in Chapters 3 to 6.

In the first part of the thesis, the ecological context is described in which the early 1980s the AIDS epidemic in Uganda emerged and became manifest as a livelihood crisis among rural farming households. In the ecological context, historical, political demographic, socioeconomic, cultural, and environmental factors are linked and together form the dynamic background to the emergence of the epidemic. The issue of political disorder as a driving force for the spread of HIV and AIDS emerged as central to the narrative of AIDS epidemic in Uganda. Often, AIDS has been conceptualised as a problem ensuing from certain patterns of sexual behaviour. While this may be a relevant perspective in specific circumstances, this thesis points to the implications of wider, complex interactions of social, economic, and cultural forces in the emergence and spread of HIV and AIDS. The second part of the thesis focuses on the impacts of the epidemic at the micro-level, and, particularly, on household agricultural production and food security. This analysis yielded findings that were to some extent rather different from what had been the expectation. This is elaborated in the next section, where the research findings are discussed in relation to the research questions.

7.2 Overview of the findings

To achieve the overall aim for the study, five research questions were addressed. This section presents the highlights for each research question.

Research question one:

What was the ecological context that shaped the AIDS epidemic in Uganda in general and Masaka in particular?

In order to explore the ecological context that shaped the AIDS epidemic at country level and in Masaka district, the study started with an emphasis on contextualisation. A case was made for taking a broad-brush approach to the context of the AIDS epidemic in Uganda, in order to better understand how biological, historical, economic, political, social and environmental factors may have combined to shape both the disease and its impact on society. This approach helps flag up both historical and contemporary processes that are important to understanding the AIDS epidemic. Studies on outbreaks of disease in the past have shown that once there is disruption by civil conflict, dormant diseases often re-emerge (Lyons 1994; Berrang-Ford *et al.*, 2006). Such studies also revealed the ways in which societies responded to these other disruptions and people restored their lives. These and other studies informed the analysis of the role of the ecological context in the emergence and spread of HIV and AIDS in this study. This contextual approach was applied to the history of AIDS in Uganda and more specifically to the local case of Masaka.

Uganda's political, economic and social environment has been a major factor in the emergence and spread of HIV and AIDS. The political instability that the country experienced over the period 1966 to 1985 created favourable conditions for a range of catastrophes, including the surge of diseases. The emergence of the AIDS epidemic in the 1970s and 1980s coincided with a period in which the country was engaged in extensive civil and political conflicts. These affected the health and social infrastructures of an already fragile economy. As a result, old diseases, thought to have been controlled, re-emerged. These included trypanosomiasis, tuberculosis and venereal diseases. AIDS did not just come out of the blue; it emerged in the context of the renewed, conflict-induced, advance of these older epidemic diseases. For example, Berrang-Ford *et al.* (2006) found the re-emergence of sleeping sickness in Uganda in late 1970s to be associated with political instability.

The study further reveals that epidemic diseases have a connection to the colonial and post-colonial periods. AIDS is the pre-eminent public health threat of the present time, but the socio-economic factors crucial to the transmission of AIDS and other sexually transmitted diseases (STDs) have deep historical roots. These include the political and civil instability resulting from colonial penetration, such as forced labour, and a migrant labour economy, and are implicated

in increasing the vulnerability of many Ugandans to diseases, including STDs. We show how political instability contributed to disease risk by affecting the transmission potential through economic impacts, the degradation of health systems and services, education and agricultural extension, internal displacement of populations, regional insecurity, and reduced access to humanitarian support. This all affected human resource development and made people vulnerable. Analysis in terms of contextual factors points towards a conclusion that, for effective control and mitigation of diseases, conflict-related variables should be explicitly integrated into mitigation initiatives since conflict creates conditions favourable for the spread of infectious diseases, including AIDS.

Conversely, it is argued that peace and economic stability were conducive to the reduction of the impacts of epidemic diseases, including AIDS. It was in later years, when the political environment had stabilised, the health infrastructure had been restored, the general population mobilised and sensitised, and several interventions put in place by the government and other stakeholders that the AIDS epidemic began to decline.

Research question two:

What has been the impact of HIV/AIDS on household structure, composition and human capital?

The literature suggests that in the last 30 years, over one million people have died from AIDS related illness in Uganda and more than one million are living with HIV and AIDS. The loss of so many people in the early stages of the epidemic raised concerns about the impact on demographic structures which would have implications for agricultural production (cf. Gillespie, 1989; Barnett and Blaikie, 1992, Hunters *et al.*, 1993; Mukiza-Gapere and Ntozi, 1995; Ainsworth and Semali, 1998; Menon *et al.*, 1998; Rugalema, 1999a, 2000; Ainsworth. and Semali, 2000; MAAIF, 2003; Hosegood *et al.*, 2004; Hosegood *et al.*, 2007). The concern about the impact of AIDS on the population structure was based on the established knowledge that in developing countries in the absence of HIV mortality is concentrated among the very young and very old, whereas HIV-related deaths are primarily among adults aged 15-60 years old. Therefore, AIDS-induced shifts in the mortality pattern would alter the population age structure and lower life expectancies. It was further assumed that the death of an adult household member may have short-term household level effects around the time of death, but the long-term impact beyond the household would be manifested much later and would involve structural changes at the population level.

Chapter 3 addressed the second research question on the impacts of HIV and AIDS on household structure, composition and human capital. In order to answer this question, we examined variables such as household age composition, dependency ratio, household headship

by gender, educational level, wealth status, morbidity, and mortality. Moreover, we examined the degree to which households attracted new members or sent away members to live elsewhere (fostering in or fostering out members and migration). For these variables we compared AIDS-confirmed and non-confirmed households. The results do not show demographic differences at the household level between AIDS-confirmed households and non-confirmed households, except for gender of the household head, age structure of the household (dependency ratio), and past mortality. Contrary to expectation the non-confirmed households had a higher dependency ratio than the AIDS-confirmed households, which reflects the higher proportions of children and elderly in non-confirmed households. The higher proportion of children could be related to the significantly higher proportion of female headed households in the group of AIDS-confirmed households (see below), because female household heads (widowed or divorced women) are less likely to have young children than married women. The higher proportion of elderly in non-confirmed households could be related to the fact that they suffered significantly less mortality in the past than AIDS-confirmed households and that relatively more adults in non-confirmed households survived into old age. Hence, the three demographic variables that yielded a significant difference between the two groups of households are interrelated.

Whereas age of the household head did not significantly differ between the two groups, gender of household headship did. This is important, because gender affects power relations and the ability to access and leverage resources which are important for food security. The results show that during the study period the proportion of female headed households was significantly higher among the AIDS-confirmed households, which is also found in the literature. This may be explained by deaths of male household heads in the earlier stages of the AIDS epidemic during the years prior to the study period, also reflected in the higher past mortality of AIDS-confirmed households (see above). Additionally, as revealed in statements of respondents and participants in the focus group discussions, when the female spouse dies widowers are likely to remarry but when the male household head dies most widows do not remarry. There appears to be a strong cultural sentiment against remarriage of widows. This trend of increasing female household headship is also affected by other factors, such as labour migration and unstable relationships that cause separation and divorce and where women often prefer to stay single.

Fostering in and out of children is another demographic factor. It affects the household's size and age structure. Our earlier assumption was that AIDS-confirmed households would more often send away children to stay with relatives and friends than non-confirmed households. The results, however, did not show a significant difference between AIDS-confirmed and non-confirmed households in fostering out children at the time of the survey. The explanation may be that AIDS-confirmed households receive help from various sources, which enables them to look after their children. Additionally, ART has moderated the impact of AIDS since ART

enables infected people to live longer and take care of their children. The pattern that emerges from the analysis on both fostering in and out of children shows a mixed picture regarding possible AIDS impacts on fostering. Contrary to expectation, the results of retrospective questioning showed that AIDS-confirmed households took in significantly more foster children than non-confirmed households during the five to ten years prior to 2007. This could be explained as an attempt by such households to acquire additional household labour, to compensate for AIDS-related labour losses. Fostering is done for several reasons. Children may be sent to live with other family members for some period of time for cultural reasons – i.e. to strengthen family ties and enhance socialisation of children (learn more about their culture), to redistribute household labour, to adjust household size, for schooling purposes and for better childcare. It should also be noted that technological developments have increased rural connectivity. Mobile telephones have made it possible for the extended families to stay in touch. This would decrease the importance of strengthening family ties as a motive for child fostering, for AIDS-confirmed and non-confirmed households alike.

The results on in- and out-migration also show a mixed picture. There are significant associations for the period five to ten years prior to 2007 but not for the time of the survey (2007-2009). During the first period, out- and in-migration are significantly lower among AIDS-confirmed households. This pattern is difficult to explain. Whereas low out-migration among AIDS-confirmed households is understandable, the relatively low in-migration does not indicate the phenomenon of what in the literature is called return migration, which refers to migrants who have AIDS returning to their homestead of origin to be cared for (Du Preez and Niehof, 2010). Perhaps these migrants are not seen as returning household members because they have continuously been regarded as household members, irrespective whether they were physically present or not. The lack of an association in the period 2007-2009 could be explained by development in rural infrastructure and the informal sector, which has made it possible for people to stay in the rural areas and earn a living. This would apply to both categories of households.

About household morbidity, the results seem to indicate a reduction in AIDS-related morbidity because of the use of antiretroviral drugs. Morbidity does not significantly differ between the two categories of households, except in 2009 when there was a shortage of ARV drugs. The results further show a significant relationship between mortality and household status during the period of five to ten years prior to 2007. This could explain the lack of a significant association between AIDS status and morbidity during that period; household members who died of AIDS could have been reported as deaths and not as cases of illness, in spite of the fact that these persons would have been ill before they died. Although the results show that AIDS was not the only cause of mortality, the higher mortality due to malaria (cf. Stillwaggon, 2006)

and, what people called, “AIDS sickness” among AIDS-confirmed households point to the role of HIV/AIDS in household mortality. Furthermore, malaria, respiratory infections, diarrhoea, cancer and related diseases, diabetes and related diseases, maternal complications, injuries and accidents also caused mortality, irrespective of household HIV and AIDS status.

All in all, for all variables analysed in this study to determine the impacts of the AID epidemic of the demographic variables at the household level, only past mortality, female headship, migration (only during the period of five to ten years prior to 2007), household age structure and fostering in of children (the latter two in a different direction than expected) yielded significant differences according to AIDS status of the household. These differences can be interpreted as AIDS impacts. The other variables, i.e. education, household economic status, morbidity, fostering out and migration in 2007-2009, did not show a clear effect of the epidemic. It is undeniable that AIDS has caused many deaths in Uganda, including Masaka, before the infected people could access and started to use antiretroviral treatment (ART). The positive effect of the advance of ART can be inferred from several results in this study. For example, only in 2009 when the drugs were temporarily unavailable, there was a significant difference in morbidity. The fact that in 2007-2009 the economic status of households did not significantly differ according to AIDS status is another indication. ART enables infected persons (and their former caregivers) to be economically productive, it saves medical costs, and households do no longer have to sell assets to pay for medication because of reduced morbidity. Hence, having a household member living with HIV and AIDS does no longer have the severe economic impact it had in the pre-ART era. Finally, respondents in the survey, key informants and focus group participants voiced their concerns about population growth, which seems to be occurring not just in the younger age groups but across the spectrum, including in the age groups that used to be mostly affected by HIV and AIDS.

Research question three:

What has been the impact of the AIDS epidemic on land ownership, land utilisation and farming practices?

The literature shows that HV and AIDS were expected to have large impacts on society, especially through its impacts on the household labour force. Gillespie (1989) cautioned that AIDS would significantly reduce the availability of labour because of high morbidity and mortality, not only among adults but also among children. Barnett and Blaikie (1992) described the impacts of AIDS on family structure and labour availability for agriculture, based on their observations in Rakai District in Uganda. They present a case of a couple and their five children. Over a period of ten years, as the adults die and the children left behind struggle to cultivate the land, what once was a prosperous farming household becomes a poverty-stricken household of orphans. A study by MAAIF (2003) concluded that the agricultural sector was threatened by

changes in family structure resulting from increasing mortality of able-bodied persons in the productive age groups due to AIDS and the increase of the already high dependency ratio. More women would have to take over headship of the households because of the death of male household heads and more children would be orphaned, which would increase the incidence of fostering and the burden of childcare on the labour force. Chapter 3 shows that in 2007-2009 except for the higher proportion of female headed households and the higher mortality among AIDS-confirmed households in the past (see above), the predicted effects were not (or no longer) visible. The household dependency ratio was even lower in AIDS-confirmed households. This leaves the question as to whether AIDS impacts on agriculture in Masaka would be along the lines suggested in the literature.

In Chapter 4, the issue of AIDS impacts on the agricultural production and practices of rural households is explored by answering the questions on the impacts of the AIDS epidemic on land ownership, land use and farming practices. As in Chapter 3, impact assessment was done by comparing AIDS-confirmed and non-confirmed households for selected variables. We also analysed variables other than AIDS status for their effect on land utilisation and presented the results of key informant interviews and focus group discussions on issues relating to change and constraints in agriculture in the study area.

Earlier studies had indicated that the epidemic would lead to disposal of household assets such as land and to a reduction in land ownership and in the area used by households for cultivating crops and livestock. The results presented in Chapter 4 show a different picture as the results show no significant differences of land ownership, land utilisation and changes in cropping patterns and livestock rearing according to household AIDS status. Instead, the results indicate that household economic status (which did not significantly differ according to household AIDS status) is an important variable that determines the amount of land owned and utilised. Household labour in the study area was mostly deployed in the cultivation and management of the family farm (*kibanja*), livestock rearing, and (especially for women) in the provision of care, and in some cases in off-farm employment. Based on the results of the qualitative part of the research, it can be concluded that the interplay of several factors affected household labour dynamics. These included the national reconstruction of the economy, once destroyed by war, and economic liberalisation policies that brought significant changes to agrarian communities through private sector development. The changes further included the growth of rural trading centres, the opening of retail shops, better rural transport using motorcycle taxis and bicycles, the opening of new bars and restaurants, the emergence of weekly markets, and the spread of mobile telephone communication, to name a few. New employment opportunities opened up for rural households, which diverted labour to off-farm activities and increased livelihood diversification.

Further, the results of the research presented in Chapter 4 seem to suggest that government policies on education, health and agricultural development discernibly contributed to the changes observed in agrarian households. The policies of constructing health centres from the sub county to district levels, and of locating a primary school in every village to achieve universal (compulsory) primary education and to feed to secondary schools at sub-county level, offered employment opportunities to educated members of the village community. In 2010, the government introduced a policy of supporting primary school pupils to proceed to vocational and technical institutions as well as secondary schools. This will have consequences for household labour. The role of education in reducing household labour for on-farm activities is well documented. Children now spend more time at school and some will join the service sector upon finishing their education. According to data from Uganda Bureau of Statistics, school enrolment has increased across the country from 53% in 1990 to 94 % in 2010 (MoE Report, 2014). If half of the population would continue to secondary and technical school, it would mean a significant diversion of labour from farms to the service sector. This will be good for national development, but may have negative implications for productivity in local agriculture.

The results presented in Chapter 4 suggest that farming in the study area has been undergoing several changes, irrespective of household AIDS status. Key informants, farmers and focus group participants pointed to a wide range of factors of change, including the increase of pests and diseases, population growth and land scarcity, falling prices for commercial crops, climate change, changes in crop growing and consumption preferences, apart from HIV and AIDS. The point the present study makes is that AIDS has not happened in isolation and that, over time, the impact of the AIDS epidemic on the farming enterprises cannot be separated from the changes brought about by other factors, such as climate change which is affecting the onset and offset of rain periods, flooding, drought, declining soil fertility, pests and diseases, and mortality from other causes. As Baylies (2002) argued, AIDS is to some extent a shock like any other. The study shows that regarding cropping patterns, the falling and rising trends in banana, coffee, and maize growing were due to factors like crop prices, pests and diseases, drought and crop preferences, although, HIV and AIDS could have played a part in the changes as well (Hunter *et al.*, 1993; Seeley *et al.*, 2010). Another point that the present study makes is that for the last two decades, households could be recovering from the impact of AIDS. To a certain extent, they could adapt to the situation, and – at the same time – the AIDS context itself changed because of the rollout of antiretroviral therapy.

The findings discussed above have implications for agricultural policy and the extension services to help farmers respond to the specific challenges they experience in crop cultivation and livestock rearing. There is need to invest in agricultural technology to handle these

challenges and produce enough food to feed the growing population. This would include supporting farmers to adapt to climate change by increasing production of crops that can withstand warmer temperatures and erratic rainfall, introduce crops resistant to pests and diseases, and introduce high-yielding crop varieties. There is further need to identify good farming practises for increasing soil fertility.

The major conclusion in answering research question three is the there is no evidence of the impact of AIDS on land ownership and use and farm practices. The results presented in Chapter 3 suggest that in the study area, AIDS is (no longer) having a negative effect on household labour availability, and – different from findings in earlier studies – the same seems to apply to agricultural practice. We did find a significant association between household economic status and land ownership and use. Given that we did not find a significant association between household economic status and household HIV and AIDS status (see Chapter 3), economic status seems to be the key variable that affects land ownership and use, not HIV and AIDS. This corroborates the lack of evidence of AIDS impacts on household land ownership and use and farm practices.

Research question four:

What has been the impact of the AIDS epidemic on rural households' food and nutrition security?

The AID epidemic was expected to have a strong negative influence on rural economies, household agricultural production and household food security. Barnett and Blaikie (1992) suggested that in the 1980s there had been a steady decline in the quantity and quality of agricultural production of affected households. De Waal and Whiteside (2003), suggested that the epidemic led to a 'new variant famine' in southern Africa as the burden of morbidity and mortality reduced the viability of farming households and threatened the households' ability to manage food security stresses at times of drought. Seeley *et al.* (2010b) provide evidence that HIV has slowed development and thrown households into poverty in southern Uganda and northwestern Tanzania, which Bachmann and Booysen (2003) showed for South Africa. During the mid-1980s and early 1990s, AIDS-related illness and death were predicted to eventually cause households to be food insecure. Food insecurity would occur through labour losses and the costs of health care that would reduce the household's capacity to hire labour, which would result in reduction of cropped area, a decline in food production and give rise to reduced food availability and food and nutrition insecurity. In order to cope with food insecurity, households were expected to alter their cropping and livestock rearing patterns. A shift to less intensive crops and livestock was predicted. The AIDS epidemic was seen as the primary causal factor leading to food insecurity. This view has influenced practice and policy response for decades.

Chapter 5 explored the above assumptions by addressing the question on the impacts of HIV and AIDS on household food and nutrition security.

In order to answer the above research question we used two measurements of food and nutrition security status: dietary diversity and households' (i.e. respondents') subjective perception of their household food security status (see Chapter 5). Furthermore, we asked the respondents about their opinion on the causes of food shortages and about the coping strategies they used in times of food shortage. As in Chapters 3 and 4, impact assessment was done by comparing AIDS-confirmed and non-confirmed households for selected variables. We also analysed variables other than AIDS status for their effect on household food security and we presented the results of key informant interviews and focus group discussions on issues relating to household food security and nutrition.

As discussed above, the results presented in Chapter 3 showed a higher dependency ratio for non-confirmed households than for AIDS-confirmed households, which would put the latter group even in a relatively better position in terms of the balance between food consumers and food producers (labour availability) in the household. The study found a significant positive relationship between household size and household food security. Regarding household food security, of all food groups only with regard to the availability and consumption of milk, oil/fats and sugar, there were significant differences according to household AIDS status. In spite of the general idea expressed in the focus group discussions and by key informants (and in the literature) that women would be more conscious of the need for good food and nutrition for their families, we found no significant association between household headship by gender and household consumption of selected foods. The study did find a significant association with household economic status for consumption of cereals, meat, eggs, fish and milk, which was found to be not significantly associated with household AIDS status. So, also in this case, as with household land ownership and farm practices, the crucial variable seems to be household economic status, not household HIV and AIDS status.

Regarding other variables than household AIDS status, the study found no straightforward relationship of household food security with household morbidity and mortality, although these were to some extent related to household AIDS status (see discussion on research question two). The significant relationship with household economic status could suggest that economically better-placed households will often use off-farm income to safeguard food security. As was shown in Chapter 4, in rural areas, including Masaka, there appears to be a declining importance of agriculture-based livelihoods due to the development of rural infrastructure and a vigorous rural off-farm informal economic sector, which has led to rural income diversification. Therefore, the assumption that all rural livelihoods are agricultural livelihoods and households

achieve their food security through their own farm production does not reflect a reality that provides other means and opportunities for meeting household food needs.

Overall, the results presented in Chapter 5 do not support the picture of a clear-cut impact of HIV and AIDS on household food security, just as we found no difference in changes in land ownership and land use according to household AIDS status in Chapter 4. It is possible that the literature regarding HIV and AIDS impacts on household labour did not take sufficiently into account the capacity of the households and families to respond to the effects of AIDS morbidity and mortality by drawing on wider social resources. Additionally, at the time of the earlier studies ARV drugs were not yet made widely available and accessible, and infected persons only rarely were on antiretroviral treatment. It has to be noted as well that almost all respondents in the survey mentioned climate changes (heavy rainfall and drought), pests, and crop diseases as causes of food shortage and did not attribute food shortage to impacts of AIDS.

Research question five:

How have households attempted to cope with the impact of the AIDS epidemic over time?

In order to understand household strategies to recover their livelihoods in the face of the AIDS epidemic, it is necessary to analyse the impact of the epidemic along the household life course. It is also necessary to assess the stage of the epidemic, as well as the developments taking place in society. Moreover, the household's social capital, which determines its ability to cope, has to be taken into account. Chapter 6 attempted to explore the household's strategies and mechanisms to recover their livelihoods in the face of the AIDS epidemic in the different phases in the household life course. Each case presented in Chapter 6 covers subsequent phases of the household life course and considers the different stages of the AIDS epidemic, as well a wide range of welfare indicators pertinent to subsistence in an agrarian environment. The case studies in Chapter 6 represent a qualitative in-depth study of how the emergence of AIDS in the households caused morbidity and mortality, leading to stress and impoverishment. They also describe how households have coped with these calamities and how resilient they have been. In this way, we explored the micro-level impacts of AIDS on agrarian households. The case studies were analysed using the framework of Rugalema *et al.* (2010) in which the degree of resilience at case level is explained by the combination of the degree of severity of impact and the level of adaptive capacity.

The results presented in Chapter 6 shows that it matters which household member is the person living with HIV and AIDS, because this is an important indicator of severity of impact. Along other variables such as sex and age of the ill person, the position of the person in the household is important, i.e. household head or not. For adaptive capacity, household economic status, household composition and dependency ratio, household linkages to the extended family and

the community, as well as the time lapse between the on-set of AIDS morbidity and death, are important variables. To a large extent, these factors shape the household's attempt to respond to the impacts of the epidemic and, in the end, determine its resilience to these impacts.

The results presented in Chapter 6 show the importance of the dimension of time in two ways. Those households that were affected by AIDS morbidity and mortality in early stages of the epidemic experienced the worst impacts, while households that experienced AIDS morbidity in the later stages of the epidemic (2000s onwards) experienced a lesser impact because of reduced stigma and ART, which moderated AIDS impacts by reducing suffering and prolonging life. The case studies further suggest that the stage at which a household is found to be at in the domestic cycle matters in determining the response. This dimension of time is equally important.

The results presented in Chapter 6 (and those presented in Chapter 4) further show there are several factors that determine the amount of land under use by households and the production of food and cash crops. These include unstable prices for cash crops, pests and diseases, declining soil fertility, labour diversion to off-farm livelihood activities, and climate change that forces farmers to respond by growing seasonal crops. There have been changes in the size of land under cultivation and the types of crops grown in the study area that have affected many households. Labour shortages due to competing cropping demands and household tasks (including care) have been one of many factors driving change. Households responded to labour shortages by bringing in other adult members from the extended family or by hiring labour. Moreover, they started intercropping, requested assistance from community members, and substituted the types of crops grown with less labour-intensive ones. In addition, families adjusted to changes by rearranging their resources strategically. Furthermore, households subscribed to traditional and community solidarity mechanisms, which played a role in lessening the impact of AIDS on their resources and on land utilisation. They tried to cope, first, by seeking help from extended family members, and then by falling back on community support mechanisms and using the broad national framework (the universal primary education policy that helps orphans to attain primary education). These trends are reflected in the case studies, but are not unique to households with members living with HIV and AIDS.

Chapter 5 showed that food shortages in the case study households seemed to be caused by a wide range of factors other than just the AIDS epidemic and AIDS-related illness, such as unreliable rain and hailstorms, pests and diseases, soil fertility loss, unstable prices for agricultural products, and lack of capital to buy inputs. From the results presented in Chapter 6, it is clear that households with members living with HIV and AIDS struggled with these factors as well, but that AIDS added its weight to an already existing fragile situation.

Households adopted a range of agro-ecological adaptive strategies to cope with food shortages. When these strategies were not enough to provide adequate means for ensuring food security, the households resorted to other strategies, and, as the case studies show, in the case of households with members living with HIV and AIDS in particular, by using social capital.

Mutual assistance between households in the same community played an important role in helping farmers who experienced crop failure due to the vagaries of nature. Households received support in the form of food and labour. Labour support served especially for growing famine reserve crops but also to help care for sick family members. Other than the observations in Kilombero, Tanzania, where AIDS in combination with the migrant labour and poverty context had disrupted family networks and undermined the solidarity embodied by the kinship system and community structures (Nombo and Niehof, 2008), the case households in this study reveal the importance of traditional support mechanisms. The case studies show that support came from extended family members, and from traditional support mechanisms, such as the *ekika* (clan) and traditional community support structures such as *munomukabi* and *omukaggo*, as well as other organisations in the community (e.g. the church, church-based organisations and non-governmental organisations).

In this study, especially the extended family networks emerge as important in enhancing the resilience of households to the impacts of AIDS. In particular, fostering of orphans may influence the survival of a household. In this case, orphans are fostered in the extended family system and cared for until they are able to lead independent lives. Fostering orphans is not the only form of support provided by the extended family. The cases provide examples of the extended family safeguarding the land of the household of kin of which the adults have died or are not capable of cultivating, until the young generation can take over. The case studies show that some extended families also help in providing education to the orphans. Seeley *et al.* (2010a) emphasised that households are not static units, arguing that AIDS-related death may negatively impact on households but that other family members may move in to take the place of those who have died. This is reflected in the case studies presented. Also Du Preez and Niehof (2010) show how in KwaZulu-Natal, South Africa, the extended family is important in taking care of the orphans and for adjusting living arrangements to cope with AIDS-related illness and death.

The case studies presented in Chapter 6 show that households resorted to different forms of social capital at individual and community level to cope with AIDS morbidity and mortality. As Ferlander (2007) argued, for safeguarding health and coping with illness, the strong ties of bonding social capital (family ties), the weaker ties of (horizontal) bridging social capital (as in community associations) and the vertical ties of linking social capital are all important.

Households depended on these various forms of social capital, which have different effects on individuals, households and communities, and entail different kinds of resources, support, influence, obligations and other differences that are relevant in helping households to adapt. In summary, the results presented in Chapter 6 show that AIDS has had a notable impact on households, but not all households suffered the same sharp decline of their livelihood as pictured by some of the earlier studies. Some households picked up the pieces of their lives and livelihood and ‘bounced back’.

7.3 Theoretical and policy implications

In this section, we shall discuss the theoretical and policy implications of the study. The present study presented and discussed several theoretical approaches that have been used to understand the interactions between epidemics and society. A critique of some of the theoretical approaches was presented. The framework developed by Ford (1971) with respect to the African sleeping sickness epidemic and that of Stillwaggon (2006) on the health and poverty context of HIV/AIDS informed the theoretical discussion. As Ford argued, in order to understand the problem of African trypanosomiasis, it was necessary to use a broader framework encompassing the biology of the disease and the cultural, historical and political context. Using the ideas developed by Ford and more recent scholars who brought his work into current prominence, and the work of Stillwaggon (2006) on the ecology of poverty, the present study discussed the AIDS epidemic in broader terms. This has meant paying attention to a number of epidemiological, social and political factors that characterised Uganda on the eve of the outbreak of the AIDS epidemic, as well as studying how these have changed up to the present time. This was done in Chapter 2.

A good blanket term for this integrative approach would be “political ecology”. This approach provides a multiple analytical framework for tracing how disease is embedded in social networks and is produced, and reproduced, over time. As this study has tried to demonstrate, political ecology research entails a focus on the conditions that shape disease vulnerability and transmission patterns and their impacts on social and environmental systems. In line with the above argument, it can be argued that political ecology will continue to contribute to future research by examining the kind of political economy in which epidemic diseases occur, by analysing health challenges produced by actors and institutions, and by demonstrating how health is shaped through the relationships between social and environmental systems. In sum, to understand the outbreak of the AIDS epidemic and the course it took in Uganda, its impact and societal responses over time, a long-term and integrative perspective is necessary. Furthermore, conditions are not everywhere the same and can work out differently in different

locations, which is why Gillespie *et al.* (2010) emphasised the diversity of AIDS epidemics in Africa. For this reason, the study looked not only at the emergence and spread of HIV/AIDS at country level (Uganda) but also more specifically at how the epidemic took shape in Masaka district (the study area) and what specific factors played a role there. The approach as developed in this study focuses on the conditions germane to the emergence of the AIDS epidemic and helps to illuminate how an epidemic persists, declines or disappears by putting it in a broader and multifaceted ecological context.

This thesis argues that the time aspect is especially important to the analysis of epidemics. Time influences the ecological contexts in which an epidemic emerges and takes its course. In other words, an epidemic is a time- as well as context-dependent phenomenon. The time dimension can help explain why different communities within a locality or a country are often affected differently by an epidemic, and thus can reveal the ways in which responses may differ from one community to another and from one period to another. Any analysis of an epidemic such as AIDS should closely consider the time-dependent dynamic aspects. It is for this reason that the study included retrospective questioning in the survey, case studies covering a longer period of time, and discussions of past developments and events with key informants and focus group participants, given that a longitudinal study design was not feasible for lack of the necessary baseline data. Although retrospection can only be partial – especially in the case of an epidemic such as AIDS, where a significant proportion of social memory is deleted by the disease – the study has been able to unravel some of the dynamic impacts of the epidemic on household livelihoods at various points over the time scale of the epidemic.

The findings of this study regarding AIDS, household demographic structures, and land utilisation for various crops and livestock enterprises, have policy implications. The results suggest that development policy premised on the presumed impacts of HIV and AIDS on demographic structures need to be reconsidered. Since the epidemic has not happened in isolation, developing HIV/AIDS-focused policies may not be the best strategy. Broader approaches to social development policy are needed that recognise that interventions in one sector might positively affect another and that there are benefits to be derived from approaches that embrace a wider portfolio of support and promote synergies across policies. There is also a need for social protection policies that address social inequalities, particularly gender inequalities, to provide support to the most vulnerable households, such as female-headed households.

The results presented in Chapter 5 show that several drivers and factors affect agriculture in the study area, including population growth, which is leading to a decrease in farm size and reduced time for fallowing land, which affects soil fertility, as well as rural-urban migration. Education

also increases aspirations and may encourage people to look at other options rather than make a living in agriculture. Rising commodity and fuel prices may make farming more expensive, even though labour costs remain relatively cheap. Climate change, poverty that makes it difficult for farmers to buy fertilizers, pests and diseases and unstable prices for crops also affect farmers' options and investment choices. As already argued above, the results of the key informants showed that there is need to invest in agricultural technology and strengthen the extension services to handle some of the challenges affecting agricultural production, such as pests and diseases, poor soils, climate change which affects the on-set of rains, and poor harvest and post-harvest handling, so that enough food can be produced to feed the growing population.

This study emphasises that AIDS is one factor among many in the wider context that influence farming and household livelihoods. This implies that the perceived impacts of HIV and AIDS cannot be addressed in isolation from the other factors that affect rural livelihoods. Policy-makers should be hesitant in persisting with HIV/AIDS interventions based on linear models of causation of AIDS impacts on household labour, agriculture and food security. Although it has been documented that once a household member contracts HIV, the household can be driven to destitution (cf. Niehof and Price, 2008; Nombo, 2010), the case studies presented here have shown that this is not always the case. This study has pointed to forms of resilience of households and their social networks to respond to the negative effects of AIDS. Policymakers need to pay close attention to these mechanisms for amelioration and should design their interventions to support resilience.

Policies that strengthen rural livelihoods are of great importance in mitigating the effects of AIDS on rural communities. AIDS exacerbates poverty, and the factors that condition people's vulnerability to HIV infection and the impacts of AIDS add urgency to the "AIDS plus" agenda. Chapter 4 discussed the trends of declining agricultural livelihood and increased migration, which together tend to increase vulnerability to HIV infection. Policies might discourage migration by providing incentives for local livelihoods, such as improved agricultural extension, product diversification, agro-processing and value addition, and the creation of new market linkages. Furthermore, policies should help to protect the land tenure and inheritance rights of single women, widows and orphaned children. As Bair (1997) suggested, there is a need for multi-sectoral interventions in addressing the problems caused by HIV and AIDS and other disasters like climate change. There should be multi-sectoral policies and programmes for interventions that strengthen household income and food and nutrition security and that increase production and consumption of nutrient rich foods throughout the year. Such interventions could include facilitating micro-finance for women enterprises, as was done in Côte d'Ivoire (Binaté Fofana, 2010). At the same time, such policies should continue to emphasise the importance of good food, health and care.

Policies should also address the institutional strengthening of government and civil society organisations. Such policies should aim at ensuring democratic and participatory decision-making and pave the way for practical and appropriate responses to the issues of poverty, inequality and HIV/AIDS. Strengthening education concerning the prevention of HIV is another important issue. The population seems to be relaxing and thinking that HIV is almost eradicated (MoH, 2010). Epidemics are a context-dependent phenomenon, and complacency is a danger when the context has become less pressing. Thus, there is need for the government and communities to remain alert, and to keep providing organisational staff, communities, schools, religious and farmers' groups and other stakeholders with HIV/AIDS education. This education should particularly focus on prevention, anti-discrimination, de-stigmatisation and care. Key components would be educational materials, training regimes and the delivery of advice.

7.4 Looking ahead and concluding remarks

AIDS was originally viewed as a medical problem. Later it became to be perceived as a disease of the undesirables and a disease of deprivation affecting people on the margins of society, including sex workers. It is only recently that AIDS has begun to be perceived as a disease of the population in general, but more concentrated among the poor. Thus, the significance of the interaction between the pathogen and the ecological and social context was perceived only later. This study has aimed at situating a concrete household and community-level analysis in this wider contextual framework, but there is scope and need for a much more in-depth ecological study along these lines. In the contemporary context, the advance and wider accessibility of antiretroviral treatment (ART) plays an ever-increasing role.

The findings of this study suggest that antiretroviral drugs have greatly moderated the impact of AIDS on household labour and other resources. The drugs prolong the lives of infected individuals and enable them to work and earn a living. Screening and medication of pregnant women have made it possible for infected women to give birth to healthy children. This has provided an enabling social environment to actively adopt a lifestyle that fosters health. A study by Masquillier *et al.* (2015) emphasises the need to consider the immediate social environment in increasing AIDS competence in the household by increasing HIV/AIDS knowledge, reduce stigma, stimulate HIV testing, improve health care seeking behaviour, and encourage safe sexual behaviour. As Masquillier *et al.* point out, and in accordance with socio-ecological theory, one cannot restrict the research focus to communities; AIDS competence studies should incorporate the intermediate household level. The results presented in Chapter 6 show that

households had a supportive attitude to disclosure of HIV-positive status, which marks the start of the road towards HIV and AIDS competence in the household and enables infected people in the household to receive the care and support they need. In that way, positive living becomes a norm for people living with AIDS. In Uganda, there now is an open HIV and AIDS policy. People are encouraged to be tested and those who test positive are put on ART immediately. This is of crucial importance to achieve a sustained response to HIV and AIDS related challenges. There is a need to design more interventions at the household level since the household has the potential for being a health-enabling environment for people living with HIV and AIDS.

In an interesting paper, Whiteside and Strauss (2014) discuss the policy implications of the contemporary epidemiological context of HIV and AIDS and future trends given the availability of ART. They distinguish three transition points along which in their view AIDS policies and programs should be aligned: the economic, epidemiological and programmatic transition points. Their argument runs as follows. The economic transition point highlights HIV and AIDS incidence and mortality of infected people. Until the number of newly infected people falls below the number of deaths of people living with HIV, the demand for treatment costs will increase. This should remain the concern of the health sector, finance and all sectors working on HIV and AIDS. Once an economic transition occurs, the treatment future is predictable and the number of people living with HIV and AIDS decreases. Then there is a need to reinvigorate the prevention agenda and ensure that it receives the necessary resources. There is a wide range of prevention options that work, all of which should continue to be scaled up for maximum coverage and impact, and combined prevention strategies should be based on context-specific evidence for efficacy and cost-effectiveness. The second and the third transition points support the importance of prevention. The second level, the epidemiological transition point, is sometimes referred to as ‘the tipping point’. It occurs when the number of people newly initiated on treatment exceeds the number of new infections. It marks the turning point for treatment programmes, where the number of people living with HIV and AIDS but not receiving treatment is decreasing. However, this is essentially a numbers game since the new infected people are most often not the same people as those newly initiated on treatment. This highlights the need for continued efforts to target prevention strategies as well as expand access to testing, treatment and care. The programmatic transition occurs when the number of people newly initiated on treatment exceeds the number of people needing treatment. This happens sooner than either of the above transitions and it should be noted as a win for the same reason as the epidemiological transition, i.e. the proportion of people living with HIV and AIDS but not receiving treatment is declining. The tipping point can only be reached with sustained commitment to prevention and treatment programmes. Whiteside and Strauss (2014) conclude

that even in areas where prevalence and incidence rates are low, long-term commitments must be maintained to ensure that transmission rates stay close to zero.

Considerable work has been done on AIDS impacts on rural livelihoods and food and nutrition security, especially in East and Southern Africa. Such studies have presented evidence of declining agricultural production owing to the loss of labour and other critical inputs, fragmentation and dissolution of affected households, changing wealth and asset structures due to people selling assets to pay for medical care and food, declining social capital and increased care burdens for the elderly. In this thesis, we have referred to many of such studies. The general picture was that HIV and AIDS had and would have severe impacts on the social and economic lives of individuals, household welfare and community structures. The findings of this study do not confirm this picture. Early research predicted the breakdown of communities, and even nations, due to the demographic, institutional, and economic and food security impacts of AIDS. Thirty years on, these predictions have to be reconsidered, and a more nuanced picture of the AIDS reality is emerging. Even though AIDS remains a serious problem, the predicted social disintegration has not widely occurred. This study suggests the need to broaden research frameworks in order to help explain the unexpected social resilience, so that household and community responses can be effectively supported.

Studies have at times tended to analyse the impacts of HIV and AIDS as if the epidemic and the affected society were locked in a linear, downward trend. However, in fact, the path is more undulating and twisting, and it has many branches and braids. There is a need to better appreciate that the disease and its impacts on society are dynamic elements of social change. As Berry (1993) wrote, “no condition is permanent”. Hence, when all other factors are held constant, probably AIDS, like other epidemics, will one day be part of the history of past epidemics.

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Appendix I

Household Survey Questionnaire

HIV/AIDS, Food and Nutrition security in Masaka Districts in Uganda

Please read the following consent statement to the respondent before starting the interview:

My name is [-----]. I am student studying the impact of AIDS epidemic on household's food and nutrition security in Masaka district.

Your household has been selected to participate in the information gathering exercise, through a one-to-one interview. The discussion will take about **one and half hours**. Please answer all the questions truthfully. You will not be judged on your responses and we ask you to be sincere in your responses.

There is no direct benefit, money or compensation to you in participating in this study. Your participation is voluntary. However, the information you provide during this interview will help to understand the needs of people in [**Masaka district**], and inform your district and the Government of the Republic of Uganda on the impact of HIV/AIDS on households food security.

Do you have any questions for me? Please feel free to ask questions about this study at any time.

Date of interview Date: ____Month: ____ Year: ____

Household ID: _____

Interviewed by _____

District: _____

Code: _____

County: _____

Date checked: Date: ____ Month: ____ Year: ____

Code: _____

Checked by: _____

Sub-County: _____

Code: _____

Parish: _____

Date entered: Date: ____Month: ____
Year: ____

Code: _____

Data entered by: _____

LC1: _____

Code: _____

Household Head Name _____

Ethnicity of HH Head _____ Code: _____

Respondent's Name _____ ID: _____

Ethnicity:

1.0 HUMAN CAPITAL

1.1 Demographic information

Ask the following questions about all household members. *Start with the household head followed by the spouse and children.*

	Variable Lab	Year of study. Use the space provided in this Colum for notes
Household Human Capital		
Household status 0=confirmed; 1-non confirmed	HH Status -----	
Age of the household head, enter actual age	-----	
Sex of the household head 1=Male; 2=female	-----	

Total number of other household members between age group below 14	Total= Male= Female= Reasons for change if any	
Total number of other household members between age group 15-59 years	Total= Male= Female= Reasons for change if any	
Total number of other household members above 60 years	Total= Male= Female= Reasons for change if any	
Household size	Total= Male= Female= Reasons for change if any	
Sex of the household head	1=Male; 2=Female	
Education level of the household head	Actual= Reasons for change if any	
Education level of the spouse	1=primary 2=secondary 3=vocational 4=tertiary	
Number of other household members in primary	Total= Male= Female= Reasons for change if any	
Number of other household members in secondary	Total= Male= Female= Reasons for change if any	
Number of other household members in vocational education	Total= Male= Female= Reasons for change if any	
Number of other household member in tertiary education	Total= Male= Female= Reasons for change if any	
What is the occupation of the household 1=farming 2=Informal sector 3=salary/wage 4=Both farming and informal sector 5=Fishing 6=Both fishing and farming	OCCUPHH	
	Reasons for the response given	
Has this household fostered in orphans in the last 5-10 years to 2007? 1=Yes; 2=No	FOST	
Has this household fostered in orphans this year? 1=Yes; 2=No	FOSTCURR	
Has this household fostered out orphans in the last 5-10 years to 2007? 1=Yes; 2=No	FOSTOUT10	
Has this household fostered out orphans this year? 1=Yes; 2=No	FOSTOUT	
Has any member) in this household fallen sick in the last 5-10 years to 2007 years? 1= Yes; 2=No	HHMORB	
	Causes of sickness	
Hase any member in this household fallen sick in this year? 1= Yes; 2=No	HHMORB Causes for sickness	
	HHMORT	

Has this household lost a member in the last 5-10 years to 2007s 1= Yes; 2=No	Causes of mortality	
Has this household lost a member this year? 1= Yes; 2=No	Causes of mortality	
Are there members of this household who left in the last 5-10 years? 1=Yes; 2= No	HHNEWM	
	Reasons for moving out	
Are there members of this households who have moved out this year? 1=Yes; 2= No	HHLEAVE	
	Reasons for moving out	
Are there members who have moved into this household in the last 5-10 years to 2007 1=Yes; 2= No	Reasons for moving in	
Household Natural Capital		
How would you rate your household socio-economic status?	Use the check list	
How much land does your household own in acres?	Actual	
Were there changes in amount of land owned by the household? 1=yes; 2=no	HHLASIZE	
	If yes, what were the changes	
What caused the changes in amount of land owned?	List---	
How much (amount of land in acres) did this household utilize this year?	HHLANDUT	
	Enter actual	
Were there changes in amount of land under utilization by this household? 1= Yes; 2=No	CHALANDUS	
	If yes, what were the changes-list	
What caused the changes in land utilization?	List	
Crops and livestock changes		
Coffee	COFFEE	
Were there changes in coffee growing? 1=Yes; 2=No	If yes, what were the changes	
What caused the changes in coffee growing?	List	
Banana	BANANA	
Were there changes in banana growing? 1=Yes; 2=No	If yes, what were the changes?	
What caused the changes?	If yes, what caused the changes? List	
Tubers (list type(s) grown)	TUBERS	
	Reasons for change	
Were there changes in tubers growing? 1=Yes; 2=No	If yes, what were the changes?	
What caused the changes in tubers growing?	Causes of change? List	
Cereals List types grown	CERAEAL	
Were there changes in cereals growing? 1=Yes; 2=No	If yes, what were the changes? List...	
What caused the changes in cereals growing	Causes of the changes? List	
Vegetables List Vegetables grown	VEGET	
Were there changes in vegetables growing? 1=Yes; 2=No	If yes, what were the changes in growing of vegetables? List	
What caused the changes in vegetable growing?	List	
Fruit List fruits grown	FRUIT	
Where there changes in fruits growing in this household? 1=Yes; 2=No	If yes, what were the changes?	

What caused changes in fruit growing in the household?	List	
Livestock List livestock kept	LIVESTOCK	
Where there changes in the Livestock rearing in the household? 1=Yes; 2=No	If yes, what were the changes	
What caused the changes in livestock rearing in the household?	List the causes of change in livestock rearing	
Did your household experience agriculture production constraints? 1=Yes; 2=No	AGRICON	
If yes, what are the constraints?	List Constraints	
HH Food and Nutrition security		
Food types available in the households List food types available in the household in the last one week		
Cereals (list type(s) available)	CEREALS	
Where there changes in availability of cereals in the household? 1=Yes; 2=No	If yes, what were the changes in cereal availability	
What caused the changes in availability	List the causes of changes	
Roots and Tubers (list type(s) available)	ROOTUB	
Where there changes in availability of roots and tubers in the household? 1=Yes; 2=No	If yes, what were the changes in roots and tubers availability	
What caused changes in roots and tubers availability in the household?	List	
Vegetables (list type(s) available)	VEGET	
Where there changes in the availability of vegetable in the households 1=Yes; 2=No	VEGET If yes, what were the changes?	
What caused the changes	List	
Fruits (list type(s) grown)	FRUITS	
Where there changes in Fruits availability in the household? 1=Yes; 2=No	If yes, what were changes the changes in availability	
What caused the changes in availability of fruits in the household?	List	
Meat (list meat types available)	MEAT	
Where there changes in meat availability in the household? 1=Yes; 2=No	If yes, what were the changes in meat availability in the household	
What caused the changes in meat availability?	List	
Eggs	EGGS	
Where there changes in eggs availability in the household? 1=Yes; 2=No	If yes, what were the changes in eggs availability in the household	
What caused the change in availability of eggs	List	
Fish	FISH	
Where there changes in fish Availability in the household? 1=Yes; 2=No	If yes, what were the changes in fish availability in the household	
What caused changes in availability of fish in the household	List	
Pulses and legumes (list types available)	PULSES and LEGUMES	
Where there changes in pulses and legumes availability in the household? 1=Yes; 2=No	If yes, what were the changes in pulses and legumes availability in the household	

What caused the change	List	
Milk	MILK	
Where there changes in milk availability in the household? 1=Yes; 2=No	If yes, what were the changes in milk availability in the household	
What caused the changes in milk availability	List	
Oils and fats (list types available)	OILFAT	
What caused the changes in oils and fats availability 1=Yes; 2=No	If yes, what were the changes in oils and fats availability in the household	
What caused the changes in oils and fats availability?	List	
Sugar	SUGAR	
What caused the changes in sugar availability 1=Yes; 2=No	If yes, what were the changes in sugar availability in the household	
What caused the changes in sugar availability in the household?	List	
Food types consumed in the household in the last one week		
Did your household consume Cereals in the last one week? 1=Yes; 2=No (list types consumed)	CONSCEREAL	
	If yes, what was the source?	
Did your household consume roots and tubers in the last one week? 1=Yes; 2=No (list type(s) consumed)	CONSMRT	
	If yes, what was the source?	
Did your household consume vegetables in the last one week? 1=Yes; 2=No (list type(s) consumed)	CONSVEG	
	If yes, what was the source?	
Did your household consume fruits in the last one week? 1=Yes; 2=No (list type(s) consumed)	CONSFRTS	
	If yes, what was the source?	
Did your household consume meat in the last one week? 1=Yes; 2=No List meat types consumed	CONSMEAT	
	If yes, what was the source?	
Did your household consumed eggs in the last one week? 1=Yes; 2=No	CONSEGGs	
	If yes, what was the source	
Did your household consume fish in the last one week 1=Yes; 2=No	CONSFISH	
	If yes, what was the source?	
Did your household consume pulses and legumes in the last one week? 1=Yes; 2=No	CONSPULEG	
	If yes, what was the source?	
Did your household consume milk in the last one week? 1=Yes; 2=No	CONSMILK	
	If yes, what was the source?	
Did your household consume Oil/fats in the last one week? 1=Yes; 2=No	CONSOIL	
	If yes, what was the source?	
Did your household consume Sugar in the last one week? 1=Yes; 2=No	CONSSUG	
	If yes, what was the source?	
Are there periods in the past 12 months in which household members could not afford to eat what they normally eat? 1=Yes; 2=No	FOODSHORT	
	If yes which periods would the household lack food List	
What was the major cause (s) of food shortage in the household?	CAUSFOODSH List	
What was the major coping strategy for the household regarding food shortage	COPEST List	

How would you rate your household food security status	Check the list	
--	----------------	--

Appendix II

Additional tables land use (Chapter 4)

Table AII.1a Household members with primary education and land use

		Amount of land use			Total
		1	2	3	
Avehhprimary	1	63(66.3%)	130(50.0%)	13(44.8%)	206
	2	32(33.7%)	127(48.8%)	16(55.2%)	175
	3	0(0.0%)	3(1.2%)	0(0.0%)	3
Total		95(100%)	260(100%)	29(100%)	384

Table AII.1b Chi-square test of household members with primary education and land use (N valid cases 384)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	9.482 ^a	4	.050
Likelihood Ratio	10.475	4	.033
Linear-by-Linear Association	7.633	1	.006

Table AII.2a Household members with tertiary education and land use

		Amount of land use			Total
		1	2	3	
Avehhtertiary	0	85(89.5)	216(83.1%)	17(58.6%)	318
	1	10(10.5%)	39(15.0%)	12(41.4%)	61
	2	0(0.0%)	59(1.9%)	0(0.0%)	5
Total		95(100%)	260(100%)	29(100%)	384

Table AII.2b Chi-square test of household members with tertiary education and land use (N valid cases 384)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	18.656 ^a	4	.001
Likelihood Ratio	16.955	4	.002
Linear-by-Linear Association	10.105	1	.001

Table AII.3a Occupation of the household head and land use

		Amount of land use			Total
		1	2	3	
Occupation	Farming	50(52.6%)	170(65.4%)	10(34.6%)	200
	Informal sector	14(14.7%)	46(17.7%)	15(51.7%)	75
	Salary/wage economy	16(16.8%)	33(12.7%)	0(0.0%)	49
	Both farming and informal sector	5(5.4%)	3(1.2%)	3(10.3%)	41
	Fishing	6(6.3%)	5(1.8%)	0(0.0%)	11
	Both fishing and farming	4(4.2%)	3(1.2%)	1(3.4%)	8
Total		95(100%)	260(100%)	29(100%)	384

Table AII.3b Chi-square test Occupation of the household head and land use (N valid cases 384)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	36.370	10	.000
Likelihood Ratio	35.622	10	.000
Linear-by-Linear Association	.607	1	.436

Table AII.4a Household socio-economic status and land use

		Amount of land under use			Total
		1	2	3	
Ave HH econ status	Better off	0(0.0%)	32(12.3%)	29(100.0%)	61
	Less Poor	15(15.8%)	188(72.3%)	0	203
	Poor	80(84.2%)	40(15.4%)	0	120
Total		95(100%)	260(100%)	29(100%)	384

Table AII.4b Chi-square test of household socio-economic status and amount of land under use (N valid cases 384)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.202E2 ^a	4	.000
Likelihood Ratio	273.802	4	.000
Linear-by-Linear Association	193.248	1	.000

Appendix III

Additional tables on household rating of their food security (Chapter 5)

Table AIII.1a Household members with primary education and household rating of food security

		Household rating of food security status			Total
		Food secure	Moderately secure	Food insecure	
Avehhprimary	1	30(45.5%)	113(52.1%)	63	206
	2	33(50.0%)	104(47.9%)	38	175
	3	3(4.5%)	0(0.0%)	0	3
Total		66(100%)	217(100%)	101(100%)	384

Table AIII.1b Chi-square test of household members with primary education and household rating of food security (N valid cases 384)

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	18.763 ^a	4	.001
Likelihood Ratio	14.925	4	.005
Linear-by-Linear Association	7.040	1	.008

Table AIII.2a Household members with tertiary education and household rating of food security

		Household rating of food security status			Total
		Food secure	Moderately secure	Food insecure	
Avehhtertiary	0	45(68.2%)	186(85.7%)	87(86.1%)	318
	1	19(28.8%)	29(13.4%)	13(12.9%)	61
	2	2(3.0)	2(0.9%)	1(1.0%)	5
Total		66(100%)	217(100%)	101(100%)	384

Table AIII.2b Chi-square test of household members with tertiary education and household rating of food security (N valid cases 384)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	12.255 ^a	4	.016
Likelihood Ratio	10.715	4	.030
Linear-by-Linear Association	7.214	1	.007

Table AIII.3a Occupation of the household head and household rating of food security

		Household rating of food security status			Total
		Food secure	Moderately secure	Food insecure	
Occupation	Farming	22(33.3%)	118(54.4%)	60(59.4%)	200
	informal sector	22(33.3%)	35(16.1%)	18(17.8%)	75
	salary/wage economy	11(16.7%)	30(13.8)	8(7.8%)	49
	both farming and informal sector	9(13.7)	27(12.4%)	5(5.0%)	41
	fishing	1(1.5%)	5(2.4%)	5(5.0%)	11
	both fishing and farming	1(1.5%)	2(0.9%)	5(5.0%)	8
Total		66(100%)	217(100%)	101(100%)	384

Table AIII.3b Chi-square test of occupation of the household head and household rating of food security (N valid cases 384)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	28.386	10	.002
Likelihood Ratio	27.957	10	.002
Linear-by-Linear Association	1.556	1	.212

Table AIII.4a Household economic status and household rating of food security

		Household rating of food security status			Total
		Food secure	Moderately secure	Food insecure	
Ave HH econ status	Better off	61(92.4%)	0(0.0%)	0(0.0%)	61
	Less Poor	1(1.5%)	202(93.1%)	0(0.0%)	203
	Poor	4(6.1%)	15(6.9%)	101(100%)	120
Total		66(100%)	217(100%)	101(100%)	384

Table AIII.4b Chi-square test of household economic status and household rating of food security (N valid cases 384)

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.539	4	.000
Likelihood Ratio	612.896	4	.000
Linear-by-Linear Association	316.761	1	.000

Thesis summary

This thesis aims to contribute to current debates on the impact of the AIDS epidemic on the livelihoods and food and nutrition security of rural households in sub-Saharan Africa. Over the last 20 years, numerous studies have been conducted on this subject. Although these studies have generated a relevant line of inquiry that has provided valuable insights into the social and economic impacts of the epidemic, they have tended to extract AIDS from its social, economic, and political context. This has resulted in underexposure of the long-term and diverse patterns and trajectories of the impacts of HIV and AIDS on rural households. This thesis argues that in order to understand the impacts of an epidemic on society, it is necessary to analyse the contextual factors in which an epidemic emerges, spreads, affects society, and either persists, or declines and disappears, as well as the society's and households' responses to the epidemic.

The objective of the study was to investigate the contexts (political, economic, cultural, historical and geographical) in which the AIDS epidemic emerged in Uganda in the early 1980s and became a livelihood crisis that caused food and nutrition insecurity. It also sought to understand the ways in which communities and households were affected by the crisis and how they responded to the impacts of the AIDS epidemic over time. The latter was investigated more specifically at the local level of Masaka district. The study utilised the dynamic ecosystem approach developed by Ford (1971) in his work on the ecology of African trypanosomiasis and the work of Stillwaggon (2006) on AIDS and the ecology of poverty. Based on their approaches, four conceptual pillars were formulated that guided the research and analysis: context, diversity, impact, resilience, *and* their interrelationships.

The study was structured according to the following research questions: (1) What was the ecological context that shaped the AIDS epidemic in Uganda in general and Masaka in particular? (2) What has been the impact of HIV/AIDS on household structure, composition and human capital? (3) What has been the impact of the AIDS epidemic on land ownership, land utilisation and farming practices? (4) What has been the impact of the AIDS epidemic on household food and nutrition security? (5) How have households attempted to cope with the impact of the AIDS epidemic over time? These questions were addressed during the period 2007-2009 in three separate but interrelated stages of data collection. Data was collected using a mixed methods approach. A literature review was done on relevant topics and secondary data were collected. Primary data was gathered through a combination of methods: participant observation, interviews with key informants, a household survey, focus group discussions, and in-depth case studies of selected households. Acknowledging the methodological complexities of determining impacts in a basically cross-sectional study, in the household the survey impact measurement was done by comparing households having members living with HIV and AIDS (AIDS-confirmed households) and households for which this was not the case (non-confirmed

households). Additionally, retrospective questioning and documenting historical narratives at the household level were done to capture the historical perspective.

The results show that prior to 1986 Uganda faced a governance crisis and experienced civil and armed conflict. Exacerbated by institutional dysfunctions and environmental deterioration, this crisis caused a decline in the economy, social investments and agricultural production, and an increase of population mobility that led to the expansion of sexual networks. Moreover, it led to the loss of trust in health care institutions and loss of cohesion in the household. The results of this study suggest that the above were accompanied by an ecological crisis resulting in intensification of poverty and migration that increased people's vulnerability and susceptibility to HIV and AIDS. The results further show that after the country gained relative political stability in the mid-1990s, the context changed; the government restored political stability, and health and other essential infrastructures were put in place. These made it possible to detect HIV/AIDS, provide counselling and treatment of opportunistic infections. Later on antiretroviral (ARV) drugs became available and comprehensive programs for prevention, treatment and care of AIDS could gradually be implemented.

The study yields a mixed picture regarding the demographic impacts of AIDS on the rural households in Masaka. Whereas it is indisputable that AIDS has taken its toll on the households in the study area, the results of this study point to a rather diverse picture. The results show that for all variables analysed in this study to determine the demographic impacts of HIV and AIDS, only household mortality, female headship, in-migration and fostering in of children differed significantly between AIDS-confirmed and non-confirmed households, indicating impacts of the epidemic. The other variables, including household economic status, household dependency ratio and household size, did not show a clear effect of the AIDS epidemic. These results show no evidence of a negative effect of the epidemic on household labour availability. Although it is undeniable that AIDS had caused many deaths before the infected people could start accessing and using antiretroviral treatment (ART), as indicated by significantly higher past household mortality in AIDS-confirmed households, at the time of the study no major demographic impacts of the epidemic were visible at the household level.

Whereas previous studies on HIV and AIDS impacts had predicted and documented that the epidemic would affect household labour, which would result in reduced utilisation of land and affect the farming practices., the results of this study do not show significant differences in agricultural production and the amount of land owned and utilised between AIDS-confirmed and non-confirmed households. The results show that agriculture in the study area has been undergoing several changes, irrespective of household HIV and AIDS status. As the study shows, these changes have been due to a wide range of factors, including pests and diseases, declining soil fertility, falling prices for commercial crops, changes in crop growing and

consumption preferences, apart from HIV and AIDS. Another factor that people pointed to in interviews and discussions is climate change, which is affecting the onset and offset of rain periods and causes flooding and drought.

Regarding household food consumption and household food security, this study found no straightforward relationship with household HIV and AIDS status. Also variables such as household mortality, changes in the area under cultivation, changes in crops and livestock enterprises, and gender of household headship proved to be not significantly related with (self-reported) household food security status. At the same time, the results indicate that household economic status is significantly associated with household food security, which suggests that economically better-off households, apart from owning more land, will often use off-farm income to safeguard their household's food security. The results from interviews and discussion further show the declining importance of livelihoods solely based on agriculture in rural areas like Masaka, due to the emergence of a vigorous rural off-farm informal economic sector and improved rural infrastructures. These developments enable rural income diversification, in which people living with HIV and AIDS but benefiting from ART can participate as well, and are changing the rural agriculture-based livelihoods. Thus, the results suggest that a wide range of factors other than AIDS influence people's food and nutrition security. This implies that the impacts of HIV and AIDS on food and nutrition security cannot be addressed in isolation from other factors and drivers affecting the rural livelihoods and household food security.

The nuanced picture of the impacts of the AIDS epidemic on households in Masaka that this study presents is also evidence of the coping, mitigation and adaptive practices of the affected households, which allowed many of such households to recover from the onslaught of the epidemic. The results from the in-depth household case studies provide a longitudinal picture and highlight the importance of understanding the impacts of the epidemic in the light of the different stages of the household domestic life course, as well as the stage of the epidemic itself and other societal developments like restored political stability and availability of antiretroviral treatment. The results also reveal the importance of the households' access to and use of different forms of social capital and traditional social support mechanisms for their resilience to AIDS impacts.

The main conclusions about the contextuality of the emergence and course of the AIDS epidemic, the impact of general and location-specific factors other than HIV and AIDS on people's lives and livelihoods, and the changes in the context that have occurred during the last two decades, indicate the need to move beyond HIV/AIDS-specific policies to broad development approaches, including policies aiming at social protection and addressing social inequalities in society. The need for an integrative approach also applies to agricultural policy and the need to address the challenges that this sector is facing. In doing so, contextual diversity

has to be taken into account and local narratives should inform policy and practice. The kind of integrative approach used in this study, which could be referred to as political ecology, has yielded results that underscore the wider implications of the interrelations between HIV and AIDS impacts, rural livelihood, food and nutrition security, societal change and the advance of antiretroviral therapy, in Uganda and elsewhere. It is observed here that to understand and respond effectively to the negative impacts of AIDS and the problem of food and nutrition insecurity, it is necessary to pay attention to the diverse and interconnected causalities and drivers responsible for social change.

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About the author

Jackson Tumwine (1974, Kanungu District, Uganda) holds a Master's degree in Sociology from Makerere University in Kampala, Uganda, and a Bachelor's degree in Social Sciences from the same university. He has been working as a Strategic Capacity Coordinator for the African Nutrition Security Partnership (ANSP), an EU-funded program implemented by Cornell University and the UNICEF Regional Offices for Eastern and Southern Africa (ESARO) and West and Central Africa (WACRO). Jackson Tumwine also worked at International Center for Tropical Agriculture (CIAT Africa) hosted by the Kawanda Agriculture Research Institute Kampala, Uganda, as a Research Associate Fellow for over seven years. His research interests and areas of specialisation include the topics of health (HIV/AIDS), food and nutrition security, and policy issues. Jackson Tumwine can be reached at the following email address: jbtumwine@gmail.com.

WASS Training and Supervision Plan

Jackson Tumwine
Wageningen School of Social Sciences (WASS)
Completed Training and Supervision Plan



Wageningen School
of Social Sciences

Name of the learning activity	Department/Institute	Year	ECTS*
A) Project related competences			
CERES Orientation programme	CERES, Utrecht	2009	3.5
Seminar Tutorials	CERES, Utrecht	2009	5.5
Research Methodology courses	TAD, WUR	2010	4
Scientific writing course	IFS	2012	2.5
Data analysis using SPSS	Institute of statistics	2012	3
B) General research related competences			
Technography, Researching Technology and Development	TAD 30806, WUR	2010	6
Experiment ! A workshop on experimental methods in social science and inter-disciplinary research	WGS	2009	4
TAD Seminars	TAD, WUR	2009-2010	2
<i>'The dynamics of the long term impact of HIV/AIDS on agrarian households' food and nutrition security in Uganda'</i>	Dissertation Day WTM	2010	1
<i>'Putting multisectoral nutrition into practice: an insider/outsider perspective'</i>	ANSP Annual Review meeting in Entebbe- Uganda	2013	1
<i>'The Policy Scientist as cross-boundary observer, clarifier, facilitator and knowledge-broker: experiences with multisectoral nutrition in four African countries'</i>	Policy Sciences Institute, Providence, RI, USA	2014	1
<i>'Building Strategic Capacities to Strengthen the Enabling Environment for Nutrition Policies and Programs in Four African Countries'</i>	Micronutrient Forum, Addis Ababa, Ethiopia	2014	1
<i>'Strategic capacities for multi-level, multi-sectoral and multi-stakeholder coordination and decentralization of nutrition governance'</i>	Scaling up Nutrition Global Gathering, Rome, Italy	2014	1
C) Career related competences/personal development			
Teaching and supervising of students	TAD/Agriculture Extension	2009-2013	4
Agriculture nutrition linkages	Agriculture/food security	2012	2
Global food security and climate change	Agriculture/food security	2013	2
Food security and social protection	Agriculture/food security	2013	2
Food and nutrition policy	Agriculture/food security	2013	2
Project planning and management	Agriculture/food security	2013	2

Total	49.5
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*One credit according to ECTS is on average equivalent to 28 hours of study load