



# Silent Hunger

Policy options for effective responses to the impact of HIV and AIDS  
on Agriculture and Food Security in the SADC Region

Compilation based on research conducted in Botswana, Lesotho, Namibia,  
Swaziland, South Africa, Zambia and Zimbabwe

**Food, Agriculture, and Natural Resources Policy Analysis Network (FANRPAN)** was established in 1997. Its mission is to co-ordinate, influence, and facilitate policy research, analysis and dialogue at the national, regional, and global levels. This is done to develop the food, agriculture and natural resources sectors through networking, capacity building, and generation of information for the benefit of all stakeholders in the SADC (Southern African Development Community) region.

# Silent Hunger

Policy options for effective responses to the impact of HIV and AIDS  
on Agriculture and Food Security in the SADC Region

Compilation based on research conducted in Botswana, Lesotho, Namibia,  
Swaziland, South Africa, Zambia and Zimbabwe

“... all people at all times, will have access to sufficient, safe, and nutritious food to meet their dietary needs and food preferences for an active and healthy life, as part of a comprehensive response to HIV/AIDS” — [United Nations General Assembly Special Session \(2006\), Article 28](#)

# Silent Hunger

Policy options for effective responses to the impact of HIV and AIDS  
on Agriculture and Food Security in the SADC Region

Compilation based on research conducted in Botswana, Lesotho, Namibia,  
Swaziland, South Africa, Zambia and Zimbabwe

Compiled by Lindiwe Majele Sibanda (Ph.D.), Fred Kalibwani, and Tendayi Kureya

Edited by Sara Page

Designed by Victor Mabenge

Food, Agriculture, and Natural Resources Policy Analysis Network (FANRPAN)

141 Cresswell Road, Weavind Park 0184

Private Bag X813, Silverton 0127, Pretoria South Africa

Tel: +27(0) 12 845 9100, Fax: +27(0) 12 845 9110

Email: [policy@fanrpan.org](mailto:policy@fanrpan.org), Website: [www.fanrpan.org](http://www.fanrpan.org)

© Copyright 2006 SAfAIDS/FANRPAN

**Silent Hunger**

Policy options for effective responses to the impact of HIV and AIDS on Agriculture  
and Food Security in the SADC Region

All rights reserved. Sections of this material may be reproduced for personal and not-for-profit use without the express written permission but with acknowledgement to FANRPAN. To reproduce the material contained herein for profit or commercial use requires express written permission. To obtain permission, contact FANRPAN.

**FANRPAN**

Food, Agriculture and Natural Resources Policy Analysis Network  
141 Cresswell Road, Weavind Park 0184  
Private Bag X813, Silverton 0127, Pretoria South Africa  
Tel: +27(0) 12 845 9100, Fax: +27(0) 12 845 9110  
Email: [policy@fanrpan.org](mailto:policy@fanrpan.org), Website: [www.fanrpan.org](http://www.fanrpan.org)

**SAfAIDS**

Southern Africa HIV/AIDS Information Dissemination Service  
17 Beveridge Road, Avondale, Harare, Zimbabwe,  
P O Box A509, Avondale, Harare, Zimbabwe  
Tel: (263-4) 336193/4, 307898, 335015, 335005, Fax: (263-4) 336195  
E-mail: [info@safaids.org.zw](mailto:info@safaids.org.zw), Website: [www.safaids.org.zw](http://www.safaids.org.zw)

ISBN: 978-0-7974-3342-7

# CONTENTS

<b>List of Tables</b> .....	vii
<b>List of Figures</b> .....	viii
<b>Acronyms</b> .....	ix
<b>Foreword</b> .....	x
<b>Acknowledgements</b> .....	xiii

<b>Section 1 : <i>Setting the Scene</i></b> .....	1
1. <i>Impact of HIV and AIDS in Southern Africa</i> .....	1
2. <i>Understanding Vulnerability</i> .....	1
3. <i>Impact of HIV and AIDS on the Household</i> .....	2
4. <i>Impact on Household Economics</i> .....	5
5. <i>Impact of HIV and AIDS on Household Food Security</i> .....	7
6. <i>Impact of HIV and AIDS on Agriculture</i> .....	10
7. <i>Impact of HIV and AIDS on Women in Agriculture</i> .....	14
8. <i>The New Variant Famine: Link between agriculture, food security and HIV/AIDS</i> .....	15

<b>Section 2 : <i>Exploring the link between food security, agriculture, HIV and AIDS</i></b> .....	19
1. <i>Conceptualising the impact of HIV and AIDS on agriculture and food security</i> .....	19
2. <i>Research Study Framework</i> .....	25
3. <i>Research Methodology</i> .....	28
4. <i>Data Storage</i> .....	38

Section 3 : <i>Evidence of Impact from rural communities in southern Africa</i> .....	43
1. <i>Human Capital</i> .....	44
2. <i>Education and Employment</i> .....	45
3. <i>Financial and Physical Capital Assets</i> .....	50
Section 4 : <i>Quantifying Vulnerability: The Household Vulnerability Index (HVI)</i> .....	81
<i>Introduction</i> .....	82
Section 5 : <i>Advocating for Policy Change</i> .....	93
1. <i>The major findings from the study</i> .....	93
2. <i>Policy implications</i> .....	94
3. <i>National Policy Recommendations</i> .....	95
4. <i>Regional Policy Recommendations</i> .....	102
5. <i>Future Research Recommendations</i> .....	104
Section 6 : <i>‘Vulnerable yet Viable’:</i>	
<i>Social Protection Policies for Households Affected by HIV and AIDS</i> .....	107
<i>Index</i> .....	119
<i>Bibliography</i> .....	124



# TABLES

Table 2.1	<i>Linking the Database to hypothesis tracked.</i>	39
Table 3.1	<i>Socio-economic comparison of HIV and AIDS affected and non-affected male-headed and female-headed households</i>	50
Table 3.2	<i>Percentage of reported losses due to HIV and AIDS</i>	52
Table 3.3	<i>Results from the Assets Transaction Model (Zimbabwe)</i>	53
Table 3.4	<i>Livestock ownership in various countries</i>	54
Table 3.5	<i>Percentage change in Livestock numbers for Households experiencing HIV and AIDS related illnesses or deaths of adult members (Swaziland)</i>	54
Table 3.6	<i>Average stock herd/flock sizes per household type (Zambia)</i>	55
Table 3.7	<i>Sale of Livestock in 2004, Kavango, Oshana and Oshikoto (Namibia)</i>	55
Table 3.8	<i>Livestock Slaughter for funerals (Zimbabwe)</i>	55
Table 3.9	<i>Ownership of beasts slaughtered for funerals (Zimbabwe)</i>	56
Table 3.10	<i>Percentage of households with agricultural assets (South Africa)</i>	56
Table 3.11	<i>Household land ownership and utilisation</i>	57
Table 3.12	<i>Household coping and mitigation strategies for with HIV/AIDS (Swaziland)</i>	59
Table 3.13	<i>Percentage of households receiving grants</i>	61
Table 3.14	<i>Mean Total Field Size (ha)</i>	65
Table 3.15	<i>Crops grown in different study sample countries in 2003-2004 production season</i>	67
Table 3.16	<i>Input application rates in Zimbabwe and Zambia</i>	68
Table 3.17	<i>Annual Pearl Millet Production Requirements per Household (Namibia)</i>	76
Table 3.18	<i>Annual Pearl Millet Production Requirements per Household (Namibia)</i>	76
Table 3.19	<i>Mean expenditures of household per year (Year 2004)</i>	77
Table 4.1	<i>Households Vulnerability Index for Social Assets</i>	85
Table 4.2	<i>Households' Vulnerability Levels for Natural Capital</i>	86
Table 4.3	<i>Overall Households Vulnerability Index</i>	87
Table 4.4	<i>Household Vulnerability Index (HVI)</i>	91

## FIGURES

Figure 1.1	Flow Chart showing food security and its components .....	9
Figure 2.1	Livelihood Rights Model .....	20
Figure 2.2	Conceptual Framework developed by Mdladla et. al (2003) .....	22
Figure 2.3	Analytical Framework Developed by Mdladla et. al (2003) .....	24
Figure 3.1	Gender of household heads in affected and non-affected households in South Africa .....	44
Figure 3.2	Gender of the household head in the study area .....	48
Figure 3.3	Volume of net transactions across households (Zimbabwe) .....	53
Figure 3.4	Area cultivated in 2003-2004: Comparison of 5 countries .....	65
Figure 3.5	Comparison between affected and non-affected household's use of land .....	66
Figure 3.6	Household consumption and investment activities (Zimbabwe) .....	75
Figure 4.1	Number of households in each vulnerability level, Lesotho .....	83
Figure 4.2	Households Vulnerability Levels for Financial Capital Dimension .....	84
Figure 4.3	Households Vulnerability Index for Physical Capital .....	85
Figure 4.4	Vulnerability Levels for Household Production for Food Capital Dimension .....	86
Figure 4.5	Comparison of Households Vulnerability Levels for Different Dimensions .....	87
Figure 4.6	Household vulnerability levels for the Human Capital Dimension .....	88
Figure 4.7	Household Vulnerability Levels under the Financial Capital Dimension .....	89
Figure 4.8	Household Vulnerability Levels under the Physical Capital Dimension .....	90
Figure 4.9	Household Vulnerability Levels under the Social Capital Dimension .....	90
Figure 4.10	Household Vulnerability Index for Financial Capital .....	90

# ACRONYMS

<i>ACP</i>	<i>Agricultural Commercialisation Programme</i>
<i>AIDS</i>	<i>Acquired Immune Deficiency Syndrome</i>
<i>ALDEP</i>	<i>Arable Land Development Programme</i>
<i>ARV</i>	<i>Anti-retroviral (Drugs)</i>
<i>ARAP</i>	<i>Accelerated Rainfed Arable Programme</i>
<i>ASP</i>	<i>Agricultural Support Programme</i>
<i>BAMB</i>	<i>Botswana Agricultural Marketing Board</i>
<i>CBC</i>	<i>Community-based Caregivers</i>
<i>CEDA</i>	<i>Citizen Empowerment Development Agency</i>
<i>CSO</i>	<i>Civil Society Organisations</i>
<i>FAO</i>	<i>Food and Agriculture Organisation of the United Nations</i>
<i>FAHRPAN</i>	<i>Food, Agriculture and Natural Resources Policy Analysis Network</i>
<i>FAP</i>	<i>Financial Assistance Policy</i>
<i>FED</i>	<i>Farmer Extension Development</i>
<i>FGD</i>	<i>Focus Group Discussion</i>
<i>HH</i>	<i>Household Head</i>
<i>HIV</i>	<i>Human Immunodeficiency Virus</i>
<i>HAS</i>	<i>Health Service Area</i>
<i>HVI</i>	<i>Household Vulnerability Index</i>
<i>M&amp;E</i>	<i>Monitoring and Evaluation</i>
<i>NAC</i>	<i>National AIDS Council</i>
<i>NERCHA</i>	<i>National Emergency Response Committee on HIV/AIDS</i>
<i>NGO</i>	<i>Non-Governmental Organization</i>
<i>NHIES</i>	<i>National Household Income and Expenditure Survey</i>
<i>PAM</i>	<i>Programme Against malnutrition</i>
<i>PMTCT</i>	<i>Prevention of Mother-to-Child Transmission</i>
<i>PTO</i>	<i>Permission to Occupy</i>
<i>OI</i>	<i>Opportunistic Infection</i>
<i>OVC</i>	<i>Orphans and Vulnerable Children</i>
<i>RIIC</i>	<i>Rural Industry Innovation Centre</i>
<i>SADC</i>	<i>Southern Africa Development Community</i>
<i>SaHIVS</i>	<i>Southern Africa HIV and AIDS Information Dissemination Service</i>
<i>SLOCA</i>	<i>Services to Livestock Owners in Commercial Areas</i>
<i>SMME</i>	<i>Small, Medium and Micro Enterprises</i>
<i>STI</i>	<i>Sexually Transmitted Infections</i>
<i>VCT</i>	<i>Voluntary Counselling and Testing</i>
<i>WHO</i>	<i>World Health Organisation</i>
<i>VAC</i>	<i>Vulnerability Assessment Committee</i>
<i>ZIMVAC</i>	<i>Zimbabwe Vulnerability Assessment Committee</i>

## FOREWORD

Arguably, the most critical challenge facing Southern Africa today is how to arrest poverty and food insecurity. There is widespread agreement that agricultural growth is the main strategy for tackling poverty and food insecurity in southern Africa. Yet, agricultural growth requires the development of a more diversified and commercialised structure for income generation among smallholder and subsistence farmers. However, agricultural growth and food security in the region are directly affected by the impact of the HIV epidemic. Any successful agricultural growth and diversification programmes have to adopt comprehensive and holistic approaches that integrate initiatives to address the impact of HIV and AIDS.

Globally, Southern Africa is the region most affected by HIV. The epidemic has significantly affected the health status of the region's population. A wide-ranging debate among scholars and policy makers continues with respect to the nature, extent and magnitude of the epidemic's impact on agriculture and food security systems in the region. Various aspects of this debate have sought to answer such crucial questions as: What are the main circumstances through which the epidemic affects household agriculture and food security systems? How does the epidemic affect household demographics and related agricultural labour supply? How does the

epidemic impact on overall household productivity, consumption and exchange patterns? What is the overall livelihood outcome for affected households? How best can this be quantified to inform effective responses? Are all households affected in the same way? How have governments in the region intervened – specifically in the food and agricultural sector? What about country disparities – why do some countries seem to cope better than others? What new policies can be put in place at both national and regional level to deal with the problem?

The book “Silent Hunger” sheds light for academics, development practitioners and policy makers, on these key questions. It is an outcome of a study commissioned by the Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN), on the impact of HIV and AIDS on agriculture and food security in the seven most affected counties in the region - Botswana, Lesotho, Namibia, South Africa, Swaziland, Zambia and Zimbabwe. The book examines the status of the epidemic in these countries and its related impact on agricultural and food security systems. It discusses “increased vulnerability” at household level and explores the effects of chronic illness, death and orphan support on livelihoods. The book uses the “livelihoods approach” as the basis for examining the impact of the epidemic on agriculture

and food security. It examines the aggregated impact of the epidemic on household agricultural labour supply, economics, food availability, access and utilisation, dependency ratios, overall productivity and consumption patterns, effects on the asset-base, and overall gender dynamics and their implications.

The title “Silent Hunger” was inspired by the overall conclusion of the book that, though invisible in comparison to the impact of traditional droughts and famines, the emerging impact of HIV and AIDS on agriculture and food security is leading to a potential new catastrophe. Hunger and HIV are reinforcing each other. Other scholars have described this as “the new variant famine” – an HIV induced famine – that is radically different from traditional famines. The paradox is that while the traditional drought-related famines kill dependents first (children and the elderly), the HIV related “silent hunger” affects the most “productive” family members first. “Silent Hunger” recognises that while governments react with traditional emergency-type responses to the visible impacts of drought-related famines, their response to this “invisible famine” has been slow and inadequate.

In recognition of the huge challenge facing scholars, to make the impact of the epidemic on agricultural and food systems visible, the book proposes a new statistical tool, the “Household Vulnerability Index” (HVI). The index aims to support regional vulnerability assessments and early warning systems with a yardstick for determining the current levels of vulnerability introduced by the epidemic, as well as projecting future levels. This tool aims to make the “invisible” visible – and allows policy makers to develop more strategic policy responses, which address various degrees of vulnerability.

The proposed index will remove generalisations on vulnerability such as simply describing ‘chronically ill people’ or ‘female-headed households’ or ‘orphans’ as vulnerable groups. Vulnerability should not be used synonymously with need. While the definition of ‘vulnerability’ varies in the literature, it is often described as having two components: ‘external vulnerability’, which refers to exposure to shocks or hazards; and ‘internal vulnerability’, which refers to the capacity to cope with or withstand those shocks. “Silent Hunger” highlights the concept of ‘resilience’, which is increasingly being used in reference to ‘internal vulnerability’, and is determined by the combination of the five types of assets available to the household: human, financial, social, physical and natural capital.

The improved understanding of the impact of the HIV epidemic on agriculture and food security presents a ‘new reality’ to the region. Using the new statistical tool, it is possible to explore the levels of vulnerability introduced into households by the HIV epidemic. The book challenges policy makers in the region to develop more effective policies and strategies for social assistance and insurance, to address the unacceptable levels of deprivation that have been introduced by the HIV epidemic. Vulnerable yet Viable – the final chapter of this book – is a special call to policy makers to design new social protection regimes that will rebuild the resilience of affected households to new levels. It is the careful assessment of these “varying degrees of resilience” that constitutes the missing link in the current design of development programmes.

In the book, social protection has been discussed as having three key elements – vulnerability, unacceptable levels of deprivation, and public action. Social protection

has been defined as the public actions taken in response to levels of vulnerability, risk and deprivation, which are deemed socially unacceptable within a given polity or society. In the book, policy makers are challenged to take a broader view of “social protection” as opposed to the traditional safety net programmes. New concepts of ‘social protection’ are encouraged alongside with renewed state involvement, which emphasises longer-term development.

The book recognises that governments in the region face serious challenges when attempting to deliver even

minimal levels of publicly-funded social protection. Yet the HIV epidemic presents a strong argument for giving higher priority to social protection. We hope that this book, “Silent Hunger” will empower development practitioners, academics and policy makers to develop programmes more effectively and make “vulnerable” households more “viable”.

Lindiwe Majele Sibanda, Fred Kalibwani,  
and Tendayi Kureya  
FANRPAN



Lesley Lawson



## ACKNOWLEDGEMENTS

This book was compiled from the research findings of a seven-country study commissioned by FANRPAN (Food Agriculture and Natural Resources Policy Analysis Network) with support from SADC and the European Union. It presents results and recommendations based on research that explored the impact of HIV and AIDS on agriculture and food security in the southern African region. The studies developed a method of quantifying household vulnerability.

The book was compiled by Dr Lindiwe Majele Sibanda and Fred Kalibwani (FANRPAN Regional Secretariat), and Tendayi Kureya (Zimbabwe FANRPAN Node - Development Data). It was edited by Sara Page of SAfAIDS and designed by Victor Mabenge (SAfAIDS). Photography by Victor Mabenge, Fungai Machirori and Sara Page. The studies were conducted in seven FANRPAN Nodes by the following researchers:

- Botswana:** Professor I. N. Mazonde; Dr. K S. M. Gobotswang; Dr. P. Malope; Dr P. Ntseane and L. Gabaitiri of the University of Botswana
- Lesotho:** Ms Thope A. Matobo; Ms Makhala B. Khoeli and Ms Regina M.Mpemi of University of Lesotho
- Namibia:** Dr. Ben Fuller and Deon van Zyl of Namibian Economic Policy Research Unit
- South Africa:** Ms Petronella Chaminuka; Professor Francis Anim; Dr. Legessa Kassa Debusho of Limpopo University and Dr Simphiwe Nqangweni of University of Pretoria
- Swaziland:** Dr. M. B. Masuku; Dr. M. M. Sithole and Dr. P. M. Dlamini of University of Swaziland
- Zambia:** C. Hamusimbi, M. Mataa and G. Jere of School of Agricultural Sciences, University of Zambia
- Zimbabwe:** Mr Reneth Mano; Dr Innocent Matshe; U. Chipfupa, O. Pimhidzai and P. Marimo of University of Zimbabwe

FANRPAN is grateful to the Southern Africa Development Community (SADC) and the European Union which provided funding through the project, “Regional Support for an Expanded Multisectoral Response to HIV/AIDS in the SADC Region.”



1



## *Setting the scene*

### **1. Impact of HIV and AIDS in Southern Africa**

The HIV and AIDS epidemic is one of the greatest challenges facing the southern African region. With 24.7 million people living with HIV and AIDS, Sub-Saharan Africa (SSA) has 63 % of the world's adults and children living with HIV. A disproportionate number (59%) of all those living with HIV in SSA are women and girls. UNAIDS (2006) estimated that in 2006, 2.8 million Africans became infected, and in spite of increased access to antiretroviral drugs in many countries, it is reported that 2.1 million people have died of AIDS related illnesses.

Early responses to the epidemic were limited due to the stigma, discrimination and denial surrounding HIV. Political and economic leaders failed to recognise and effectively address the epidemic. As a result, development of effective policies and programmes has been slow. At the regional level, the threat posed by HIV has since been acknowledged. In 2003, the SADC Heads of States signed the Maseru Declaration on HIV and AIDS, thereby committing the signatories to address the impact of HIV. The SADC secretariat and HIV and AIDS unit were strengthened and every country within the SADC region established a National AIDS Commission. Despite these recent efforts, the high rates of HIV infection, illness and deaths continue to have a severe impact on the overall social, cultural and economic environment in the southern African region.

HIV and AIDS related adult morbidity and mortality are principal factors undermining socio-economic

development. Decreasing life expectancies, as reported in SADC's Regional Human Development Report (2000), demonstrate the worrying impact of HIV on the most-productive age groups. Rural farming households in the region are becoming poorer and more vulnerable to the consequences of food insecurity and other socio-economic shocks. The most highly affected countries have experienced a slow growth in agricultural productivity and an increase in food insecurity over the last two decades (FAOSTAT, 2004). The impact of HIV on sustainable agriculture and food security needs to be a fundamental concern for governments and their development partners.

### **2. Understanding Vulnerability**

There are two sets of external factors which exert a significant influence on households and their livelihoods. These include the 'Policy Processes and Structures' and

the ‘Vulnerability Context’. Policy Processes and Structures include factors such as the legal environment, culture and institutions within society, which affect the way people use and accumulate their assets. The Vulnerability Context refers to the ways through which internal and external shocks and trends affect asset levels. The definition of vulnerability often contains two components: **external vulnerability**, which refers to exposure to shocks or hazards; and **internal vulnerability**, which refers to the capacity to cope with or withstand those shocks. It is the combination of these factors that influences the livelihood strategies that people pursue, and ultimately their livelihood outcomes (including income levels and food security).

The use of the term ‘vulnerability’ as an absolute status - for example by simply describing chronically ill or female-headed households or orphans as vulnerable groups - should be avoided. Vulnerability is not necessarily synonymous with need. Orphans are vulnerable if their education, food security, or other livelihood status is threatened and not merely by being orphaned.

### 3. Impact of HIV and AIDS on the Household

Across all countries in southern Africa, the HIV epidemic has accelerated rural impoverishment. The epidemic has led to the breakdown of extended family relations, which have been the foundation of traditional safety net mechanisms (Drinkwater, 2003). The HIV epidemic has also altered the structure and composition of households by affecting the most socially and economically productive members. It is increasingly the grandparents, who have retired from active production; and the children, who now head households. Both lack the capacity and resources.

The reduction in productive labour sets into motion several factors that are detrimental to the overall welfare of a household. As healthy adults allocate part of their labour time to nurse and care for those who are ill, the labour shortage compels people to switch to less labour intensive crops, which usually tend to be less nutritious. Morbidity due to HIV and AIDS accelerates with decreased nutrition. Children drop out of school to provide the badly needed household and agricultural labour.

During chronic illness, the main effects are loss of labour due to illness, loss of labour due to increased caring and increased requirements for spending on healthcare. Death leads to an immediate loss of labour, but can lead to other changes in household composition that can affect labour availability - positively or negatively. There can be changes in livelihood patterns as remaining members try to optimise their available assets. This can lead to successful coping, or a period of unsustainable response (e.g. by selling productive assets), which could ultimately result in the dissolution of the household. The economic effects of taking in an orphan depend on the existing composition of the household and then on the age, gender and skills of the incoming orphan, which determine the net contribution of the orphan to the household.

Although the impact of HIV and AIDS has been severe throughout southern Africa, researchers have not fully explored and agreed on the extent and nature of the epidemic’s influence on food security. The observed impact on food security varies between households because HIV is a complex epidemic and because households are diverse – even within one community. De Waal and Tumushabe (2003) highlighted that the overall importance of labour in a household’s livelihood system, increases the extent to which HIV and AIDS impacts on the household. HIV affect the household in three stages -

during chronic illness, at death, and after death. If a member dies of AIDS, a household is likely to experience emotional and physical loss, but if the member is the primary income earner, the household is likely to experience a substantial economic loss.

### Impact of Chronic Illness

The period of chronic illness of an adult can place acute stress on household livelihoods. When one member of the family is chronically ill, other household members tend to divert energy and resources away from agriculture and food production to provide care, support and treatment. This is due to three main problems:

1. **Reduced available income** within the household, as the ill person is often unable to work,
2. **More time allocated to caring** - other household members are required to spend time caring for the ill person as opposed to agriculture and food production. The carer may be a child, typically a girl child, which means the time spent on care can take her away from her education. The potential loss of income at this stage can make households food insecure and seriously compromise children's rights.
3. **Greater spending on healthcare and associated costs** - savings and assets can become depleted when caring for the ill person.

Depending on the existing level of food security in the household, this can mean spending shifts from other household needs to healthcare. In addition, the household may sell assets to raise extra cash. Within already poor households, options may be significantly limited such that the difficult decision to forego such spending on healthcare is made, to maximise the welfare of remaining members.

### Dynamics of HIV and AIDS impact on a household involved in an agriculture-based livelihood

The following is an illustration of possible impacts and responses on an agriculture-dependent household containing an adult who contracts HIV and develop AIDS. Many of these impacts have been shown in studies; some are speculative, albeit plausible. Context is crucial with regard to type and sequencing of impacts and responses at different stages of the epidemic.

- ◆ Adult becomes sick
- ◆ S/he reduces work
- ◆ Replacement labour is “imported”, perhaps from relatives
- ◆ Health care expenses rise (drugs, transport)
- ◆ Household food consumption is reduced
- ◆ There is a switch to labour-extensive crops and farming systems, small livestock
- ◆ Adult stops work
- ◆ Increased care given to sick adult, with less time for child care
- ◆ Debts increase
- ◆ Children drop out of school to help with household labour
- ◆ Adult dies
- ◆ Funeral expenses incurred
- ◆ Household may fragment as other adults migrate for work
- ◆ Cultivation of land is reduced, more land left fallow
- ◆ Inappropriate natural resources management may lead to increased spread of pests and disease
- ◆ Effects of knowledge loss intensify
- ◆ Increased mining of common property resources
- ◆ Access to household land and property may be affected (re: rights of surviving widow and/or children)
- ◆ Solidarity networks strained, possibly to points of exclusion
- ◆ Partner becomes sick
- ◆ Downward spiral accelerates

## Impact of Death

The death of an adult can have a mixed set of effects; for example, the contribution to agricultural production and income from that member is lost. Then, there are immediate costs, in terms of the funeral, and potentially the loss of assets for widows and orphans, where inheritance practices leave them without entitlements. Compared to the pre-illness phase they will certainly be in a more difficult circumstance. Healthcare costs and caring requirements may be reduced. However, in the case of HIV, often other family members (the widow, widower, or young children), may be infected. Hence the costs for care and treatment continue. If the deceased individual owned businesses or employed others, their death can affect the community through reduced employment.

It takes time for the full impact of the loss of a household member to become apparent, as the household undergoes significant transformation at this point. The age, gender, status or position of the deceased individual influences the extent of the impact. In Zambia, the death of a male head of household often leads to household disintegration, as the family moves to maternal relatives. Yamano and Jayne (2004) highlighted the various ways that household composition is affected by adult mortality, and how the effects vary according to the gender and status of the adult who has died. The death of one family member can change the household composition. For example, an older girl child may leave the household to get married, or additional relatives may return to the household to provide support. Remaining productive members may change their livelihood strategies to optimise the opportunities available to them. While the situation for some stabilises at a point where they can more or less provide for their families, other households may descend into a downward spiral of poverty that ultimately results in the dissolution of the household.

In the short term, a household may appear to be accessing sufficient food, but it may be doing so through unsustainable activities, such as selling off livestock and productive assets to buy food. It is necessary to clarify whether a household is ‘coping’ in a successful and sustainable way, or ‘struggling’ (Rugalema, 2000; Baylies, 2002). Therefore, assessments of impact should try to understand where the household is, with respect to responding and adapting to their situation; and in what direction they are heading, as opposed to simply taking a snapshot within a particular time-period.

The research on this subject can often simplify the situation by focusing on changes that occur in a limited range of household activities before and after death, and not considering the overall results for the food security of the household. For example, one may monitor changes in farming and agricultural production. Many studies have highlighted a decline in agricultural production following an adult death, and implied that this is a direct link to a drop in household food security. However, a household determines the activities undertaken based on the total range of assets, skills and opportunities available to them. A household may choose to switch from agricultural production to some other form of income-generation, which could at least partially compensate for the loss of crop production. Petty et. al (2004) described cases in Mozambique where women switched from agricultural production to petty trading activities, while a child-headed household was coping by renting out an unused hut.

## Effect of Supporting Orphans

The third context in which HIV and AIDS impacts on a household, is the care and support for orphans. There has been a tendency to simplify the likely outcome by suggesting that taking in orphans adds to the burden of the household. Often, it is assumed that an already limited income is stretched by having to

support an additional dependent. However, in reality, there can be a wide variety of outcomes depending on both the status of the orphan and the status of the host family.

There is no clear pattern to determine the type of household that hosts orphans. HIV affects all types of households and households across a wide spectrum of wealth ranks take in orphans. However, wealthier host families are more likely to be able to take in additional family members without jeopardising their food security. Yet in reality the majority of orphans are adopted by poorer families.

On their own, the demographic characteristics of the household are not necessarily reliable indicators of food security. There is often concern that elderly-headed households or female-headed households will be 'vulnerable' in the first place, and that adding orphans into the picture will only exacerbate the situation. This is certainly true where the caregiver has limited income or marketable skills and the orphan is too young to help provide for the family. Although empirical research has shown that there are usually proportionately greater numbers of elderly-headed and female-headed households who are food insecure, this does not imply that all such households are food insecure. For example, the rural survey conducted by Zimbabwe's Vulnerability Assessment Committee (VAC) (2003) highlighted the problem of focusing on demographic characteristics. The assessment found that 74% of households headed by elderly females and hosting orphans, were unable to meet their minimum food needs. However it also found that 48% of non-elderly adult male-headed households without orphans were food insecure. While this is a significant difference, it highlights the danger in assuming that certain categories of people are automatically food secure or insecure, a common error in targeting.

The age, gender and skills of the orphans themselves will affect the food security of the host household. Younger children are more likely to place a greater strain on the household, both in terms of the costs of care requirements and material needs. Older children, on the other hand, may add to the household's net economic benefit, if they are working and contributing to household income or food production. However, it is important to assess whether this contribution is not being exploited at the cost of their education. The SADC-FANR VAC, 2003, found that orphan-hood had a much more ambiguous relationship with food security outcomes than other proxies.

## 4. Impact on Household Economics

The impact of HIV on economic outcomes begins with its debilitating effects on the health status of the affected, which in turn, produces direct and indirect impacts on economic performance and income of the affected household. These two effects do not necessarily pull the household in the same direction as they produce a mixture of negative and positive effects, which render the final impact or outcome ambiguous.

HIV and AIDS directly affect household livelihood through their negative effect on labour productivity and on the number of effective workdays of family members. Family members who spend time attending to the sick have less time for leisure or other productive activities. When an ailing family member engages in casual wage employment, a reduction in productivity and increased absenteeism from work, translates into income loss. The impact of declining productivity of family members in the civil service and middle management positions may not necessarily result in fewer earnings, as their employment contracts are not based on output. Agricultural households, which typically combine off-

farm wage employment of some family members with on-farm engagement of the rest of the family members in agriculture, suffer double effects from the impacts of HIV and AIDS on family labour. Spouses in rural households are often exposed to higher risk of contracting HIV if their partners are employed elsewhere and stay long periods away from the household. For these households, the benefits of paid employment come attached with the associated risk of contracting HIV.

### **Effect on Paid Employment**

Economic theory of labour suggests that earnings from formal employment depend on the average productivity of the workers. In reality, institutions are rigid and wages are negotiated by workers' unions. Only casual and unskilled labourers are paid according to individual productivity and the number of days worked. For firms with a fixed labour force, morbidity and absenteeism as a result of HIV and AIDS lead to reduced productivity, although this does not translate to a reduced wage bill in the short term as workers are protected by their unions from loss of income.

### **Effect on Family Labour**

For purely subsistence grass-root households, the impact of the HIV epidemic may be felt more directly. The decreased productivity of a family member and/or absenteeism from on-farm and off-farm income earning activities is felt especially when the household has a pressing labour bottleneck. However, the literature is divided on the extent to which a grass-roots household is affected.

There are some suggestions that the grass-roots sector may not be as sensitive to an HIV induced decline in supply and productivity of family labour as is often assumed. The effects of HIV on agricultural production labour in rural communities is insignificant, where the household has surplus labour. This is not the case for households that experience seasonal labour shortages.

Even in cases where household enterprises are sensitive to labour supply, the effect on the overall income depends on the extent to which the household is able to adapt its farming system. For example, substitution of capital or land for labour can result in dramatic changes to the farming system, thereby minimising the impact of the initial shock. Thus, the extent to which households are able to undertake economic adjustment of technology and enterprise mix is a key determinant of the overall impact of HIV on household income performance.

The indirect effects on labour include the increased home care demand for family members time, and reduced productivity possibilities when family members are ultimately retrenched from wage employment due to ill health. The first indirect effect demonstrates the geometric rather than linear effect of the disease on family labour supply. Caring for the ailing further reduces effective family labour available for productive occupation, as the most productive among the healthy family members is often assigned as caregiver to the ailing member, leaving younger children to undertake productive activities with little adult supervision, culminating in a decline in productivity.

Like any other ailment, HIV takes a financial toll on the family budget, thus, limiting the ability of the household to acquire agricultural technologies such as hybrid seed and fertiliser. Sometimes families are forced to sell capital assets (bicycle, ploughs, oxen, and cows), without which the household is left operating from a much lower productivity base.

Evidence from empirical surveys such as Mutangadura et. al (1999), indicate increased incidence of sales of productive agricultural assets among families caring for male heads of households. This implies that rural women often experience deepened productivity losses



and chronic poverty following the death of a partner. This is mainly due to excessive sacrifices for the high cost of care and funeral expenses, leading to the disposal of family assets. Further, loss of assets associated with customary inheritance practices leaves the surviving family poor and unable to sustain its pre-death food security status.

In addition, the increased frequency of burials impacts on agriculture as culturally, agricultural activities come to a halt to observe the mourning period.

### **Effects on income and expenditure**

Booyesen et. al (2001) demonstrated that the income burden is generally more severe in semi-rural areas than in urban areas. Rural location and lower income aggravated the disease burden. The likelihood of death in semi-rural areas was twice as high as in the urban, while probability of recent illness was marginally higher. Other predictors of morbidity included household income, age, education levels and employment status. The greater likelihood of deaths among households with a higher proportion of female members, indirectly suggests that female household members were more likely to die.

Among households affected by deaths, funeral costs were substantially higher than health care costs. Relatively few households reported lost income due to illness or death. However, this may reflect chronically ill or dying people having been unemployed for some time.

Most households indicated that they responded to financial crises by borrowing, followed by using savings and sale of assets. Coping financially in these ways was also more likely in rural than in urban areas. Very few households experiencing a recent

death had received a lump-sum payment or inheritance following death.

## **5. Impact of HIV and AIDS on Household Food Security**

Food security is the availability of and access to food, as well as the absence of risk related to either availability or access. According to Barnett and Rugamela (2001), households are said to be food secure if four factors are in balance: food availability, equal access to food, stability of food supplies and quality of food. The impact of HIV affects all these factors individually and has therefore been identified as having a key role in the reduction of household food security throughout southern Africa.

Food security became a prominent developmental issue in the 1970s. Maxwell and Frankenberger (1992) identified thirty definitions of food security. Originally, there was a tendency to understand the issue of food security only from a supply point of view. In 1979, the World Food Programme Report conceptualised food security, equating it with an “assurance of supplies and a balanced supply-demand situation of stable foods in the international market”. The report also emphasised that increasing food production in developing countries would be the basis on which to build their food security. This would mean that the monitoring by early-warning systems for famine and food insecurity should focus on the availability of food in the world market, and on the food production systems of developing countries. However, global food availability does not ensure food security to any particular country. Thus, there are countries, regions within countries, villages within regions, households within villages and individuals within households, that are not able to meet their food needs. The paradox

is that global food security exists alongside individual food insecurity (Odenya, 2003).

Odenya (2003) further argued that an increase in national food production does not guarantee food security. Availability of food at the national level is but one factor of food security. Supporters of this view try to work out a food balance sheet for a given country and if food availability is equal to the food needs of the country's population in general, they conclude that the country is food-secure. Given this perspective of food security, the basis for famine early warning would then be monitoring of food production at the national level and may not take into consideration other relevant social, political and cultural factors, which may limit access to food.

In this perspective, the underlying assumption is that whatever food is produced in the country will be evenly distributed to each region and to each household. In reality, this is not the case. Many people do not have enough money to buy food on the market and national governments often lack financial resources to provide food for the poor. Hence, food availability at the national level does not necessarily provide food entitlement to households and individuals.

At the household level, Eide quoted in Maxwell and Frankenberger (1992) has defined food security as access to adequate food by households over time. This implies that each member of the household is secure if the household in general has access to food. However, in reality food may not be easily accessible to all members of the household. Maxwell and Frankenberger argued that it was misleading to assume that household members shared common preferences with regard to (a) the allocation of resources for income generation and food acquisition, or (b) the distribution of income and food within the household. The head of the household may have more power in determining

the use of food resources and may misappropriate it. Moreover, household members' nutritional requirements may vary, as in cases where they exert more energy through their work. Cultural factors can also deprive members of the household like women and children from getting an equitable share. Hence, the concept of household level food availability in general, does not fit into the accepted definition of food security.

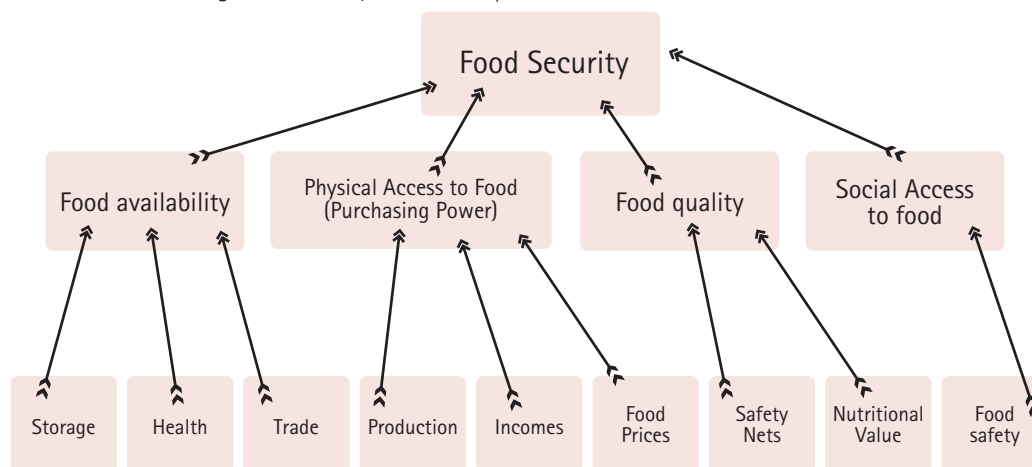
Staatz (1990) defined food security as the ability of the food system to guarantee that the whole population has access to a timely, reliable and nutritionally adequate supply of food on a long-term basis. According to the World Food Summit (1996), food security exists when all people, at all times have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. Food security has been interpreted broadly to include availability, access and utilisation of food (see figure 1.1).

Drinkwater (2003) maintained that, *'Food security has conventionally focused on households' access to food and income they require for survival on an inter- and intra-seasonal basis. If nutritional security is entertained additionally as a concept, then food security relates to the pathway of food into the household, and nutritional security to the nutritional outcomes, once the internal factors related to storage, preparation, distribution, health and mother care, have been taken into account'.*

Food can be produced or purchased. By affecting the most economically productive member, HIV and AIDS reduce the available income and labour required to produce and purchase food. They also deplete the household's overall assets, income and skills (Barnett & Rugalema, 2001). Mutangadura et. al (1999) emphasise that the major impact of the disease on agriculture includes serious depletion of human resources, diversion



Figure 1.1: Flow Chart showing food security and its components



Source: Rugube, 2003

of capital from agriculture, loss of farm and non-farm income and other psychosocial impacts that affect productivity. The loss of adult on- and off-farm labour is one of the most widely discussed effects of the HIV epidemic (Topouzis & du Guerny, 1999). HIV result in the loss of experienced agricultural workers which affects both individual households and communities, resulting in labour shortages and declines in productivity both on and off the farm.

According to Odenya (2003), labour shortages, the need for cash for medical expenses to cover funeral costs, the slaughter of animals for funeral rites, and the loss of knowledge and management skills, may result in livestock loss. Without ample financial resources, HIV affected households have less money available to pay for livestock care (for example, veterinary drugs, feeds etc) and lose more livestock due to illness. A decline in productivity leads to declines in household income, through decreases in the household's own production and declines in off-farm income and

remittances, which can result in the household being less food secure.

### Dependency Ratio and Food Security

AIDS-related morbidity and mortality usually result in a rise in the number of dependants within a household who rely on a smaller number of productive family members (Topouzis, 1998). The death of young adults affects food access by increasing the number of orphans, thus raising the dependency ratio within a household. This undermines household food security and requires changes in roles, and responsibilities, as well as relations among household members. For example, because of HIV, elderly women are resuming the role of custodians of food security, in addition to parenting their grandchildren, instead of receiving support from their children. The other extreme is that there is an increase in child-headed households, where young boys and girls find themselves having to provide and care for their younger siblings. Thus, HIV further threaten food security by eroding social security networks, an important asset.

<sup>1</sup> These include Botswana, Lesotho, Namibia, South Africa, Swaziland, Zambia and Zimbabwe (where prevalence exceeds 20 percent), and Malawi and Mozambique (where prevalence exceeds 10 percent).

## 6. Impact of HIV and AIDS on Agriculture

As in other business sectors, it is expected that HIV would also have a severe impact on the agricultural sector. However, to date, the extent of the impact is not clear. Based on demographic projections in eastern and southern African countries where HIV prevalence is highest<sup>1</sup> (exceeding 10 percent) US Census Bureau, 2003, cited by Jayne, Villarreal, Pingali & Hemrich, 2004, predicts that HIV and AIDS are likely to have the following effects on the agricultural sector:

- 1) Increased rural inequality as a result of the disproportionately severe effects of AIDS on relatively poor households;
- 2) A reduction in household assets and wealth, leading to less capital-intensive cropping systems for severely affected communities and households; and
- 3) Problems in transferring knowledge of crop husbandry and marketing to the succeeding generation of farmers.

Jayne, et. al (2004), grouped the effects of HIV on agriculture in the rural household (and, by implication, on household food security), according to three categories namely, (1) effects on agricultural production and productivity, (2) effects on crop cultivation and production systems, and (3) effects on land distribution. The following section explores these three categories as well as the effects on livestock and household assets and the effect on agricultural extension services.

### Effects on agricultural production and productivity

Studies conducted in Africa in the late 1990s found that rural households experiencing adult mortality showed a decline in agricultural production, in comparison to non-affected households. Statistically,

this result was significant in the cases where the head of the household was male (Yamano & Jayne, 2004). Other studies conducted in East Africa show that affected households were able to compensate in part for the death of a household member, by recalling another member residing off the farm. This would partially stabilise the supply of agricultural labour to the household, although this happened at the expense of off-farm remittances and therefore put pressure on household capital endowments (Ainsworth, Ghosh & Semali, 1995). As expected, the effects of the epidemic on households that were initially poor were most severe (Drimie, 2002; Yamano & Jayne, 2004).

A serious implication of agricultural decline is reduced food security, for families involved directly in agriculture as well as for urban populations reliant on purchasing food. Thomson and Metz, (1997), rightly noted that the main causes of food insecurity are low productivity in agriculture combined with fluctuations in food supply, low incomes, insecure livelihoods and shocks from asset loss (for example the death of livestock), war, theft and civil conflict, and more recently, HIV. This analysis also applies to the impact of HIV on household food availability and access to food. AIDS-related morbidity and mortality have a detrimental impact on the productive capacity of rural households. This is typically felt on at least three parameters, namely, labour quality and quantity, income and expenditures and the dependency ratio.

### Effects on crop cultivation and production systems

Some studies reviewed by Jayne, et. al (2004), have documented a trend whereby a change in production systems (from commercial to subsistence crops) has occurred, possibly due to HIV. The explanation of this

phenomenon is based on observations that suggest that capital constraints would become more severe as HIV affects households, forcing many households to adopt less capital-intensive technologies and crops. The results have, however, been mixed as to how the epidemic is affecting household agricultural systems.

According to Booysen (2001), most households with ill members carry a burden of caring. Of the ill people, 75% required someone to care for them at home, while 68% required someone to accompany them during health care visits. Relatively few carers indicated that they lost income as a result. Few carers came from outside the household (7% among cases of illness and 5% among fatal cases).

Affected households were more dependent on non-employment sources of income than non-affected households (primarily government grants). Affected households allocated more of their resources to food, health care and rent, and less to education, clothing, personal items and durables. Affected households also spent less on food - between 70% and 80% of the expenditure in non-affected households.

### **Effects on Livestock and Household Assets**

The interest in HIV's impact on livestock is prompted by the recognition that livestock provides draught power for agricultural production. In addition, it provides food security to households in the form of milk, meat and meat products. In some areas cow dung is used for energy and as building material. With the exception of China, it is estimated that animal draught power is used to cultivate 52 per cent of arable land in developing countries.

A Food and Agricultural Organisation (FAO) sponsored study investigated the impact of HIV on the livestock sector in Namibia (Engh and du Guerny, 2000). In that

study, semi-structured informal interviews were used to collect data from representatives of Farmer Extension Development (FED), and members of households that were identified as affected by HIV-related sickness or death. The survey covered 24 FEDs and 22 affected households. The findings showed that HIV affected agricultural labour both quantitatively (because of the deaths of productive members of households) and qualitatively (as agricultural production shifts to the elderly and children). Mourning and attending funerals were found to be both time and energy consuming. In Tanzania, as is the case in other African countries such as Botswana, every member of the community is obliged to attend a funeral lest they are ostracised (Tibaijuka, 1997).

In the Namibian study, households were further classified into i) household where husband died, ii) household where wife died and, iii) household where both husband and wife died. The typology of a household was found to be associated with the impact of HIV on livestock ownership. In some patriarchal cultures, the study found that a household lost inheritance to the husband's relatives upon his death. When it comes to household assets, the study indicated that HIV depletes the asset base of mainly female headed households. These may be forced to sell their animals to generate income for treatment, or they may sell because livestock husbandry is considered to be a "male" activity. A study in Rakai district of Uganda reported that within four years, the cattle population in the district had reduced by 32% (Haslwimmer, 1999).

### **Effects on Land Distribution**

According to Jayne et. al (2004), as affected households lose members in their prime, including those possessing rights to their household land, conflicts over inheritance may occur (citing Barnett & Blakie, 1992). Poor, disadvantaged and vulnerable households (consisting of orphans and widows) are more susceptible to losing access or ownership rights after the husband or father

passes away. In such a scenario, land ownership will tend to become more concentrated in wealthier households (those who are able to maintain their land rights after experiencing a prime-age death) in the long term (see also Drimie, 2003).

Concentration of land among wealthier households due to HIV is a phenomenon that is predicted to occur economy-wide in many countries (citing Lehutso-Phooko & Naidoo, 2002). The negative implication is that already disadvantaged households are becoming more disadvantaged. However, a positive outcome is that the concentration of land in wealthy hands or co-operative agrarian endeavours, might protect land from being fragmented and allow knowledge management and sustainability of both subsistence and productive agriculture.

### **Effect on Agricultural workers**

FAO (2001) has estimated that since 1985, some 7 million agricultural workers have died from AIDS-related diseases in 27 severely affected African countries. An estimated 16 million more deaths, are reported likely in the next two decades. The anticipated labour loss in SADC is estimated between 12.7 and 26.0%. The impact of HIV on agricultural extension workers has also made these services less able to respond and support farmer needs.

In a Namibian study, Engh and du Guerny (2000) showed that the extension staff was affected since 10 per cent of their time was spent attending funerals. Haslwimmer (cited in Gillepsie and Kadiyala, 2005) observed a 25 – 50 percent reduction in agricultural time. In addition, 67 percent of extension staff interviewed had lost a co-worker in Zambia; 50 percent of extension staff were lost to HIV in Uganda; and 16 percent of Ministry of Agriculture and Irrigation staff were living with HIV in Malawi in 1998 (Alleyne et.

al.; Haslwimmer; Bota et. al.; cited in Gillepsie and Kadiyala, 2005).

### **Agricultural Labour Quality and Quantity**

Smallholder and subsistence agriculture are the main source of livelihood for millions of African families (Jackson, 2002). The impact of AIDS can be extreme, since most households lack safety nets to cope with greatly reduced labour availability. As labour availability declines, families resort to less labour intensive cropping and reduced areas of cultivation. Livestock management tends to become less competent, resulting in greater losses and sometimes, a switch to goats, chickens, and fewer cattle. The passing on of traditional farming methods and skills has declined along with competence in farming, which is similar to the loss of institutional memory and experience in a formal enterprise.

The sugar industry in Swaziland has a high HIV prevalence. A study on the impact of HIV was commissioned on the largest sugar estate, with 3,295 employees. The sugar industry offers comprehensive benefits, including free health care, housing, water, gas and electricity and subsidised education and social services. In addition, employment benefits include death benefits, group life insurance, disability insurance and a pension scheme. Thus, HIV could be extremely costly, particularly as the majority of those dying of AIDS are not retired on the grounds of ill health but are still classed as employees.

The study found that AIDS had contributed significantly to deaths between 1995 and 1999. Overall, AIDS accounted for just over half of all deaths, but the proportion was increasing significantly with time and could be presumed to continue to rise. In addition, the costs to the company associated with an AIDS death as opposed to a non-AIDS death were higher.

A SFAIDS publication (Mutangadura et. al [eds.], 1999) brings together a range of research looking at the impact of AIDS on farming in Southern Africa, and in particular, the implications for technological change. Mutangadura et. al (1999) noted that agricultural extension services would be hard hit by AIDS – related ill health and death, making them less able to respond effectively to the changing composition and needs of their target farmers. Further, in particularly impoverished rural areas, most families have limited safety margins for problems such as crop failure or chronic ill health. The savings and assets they have are most likely to be spent on the immediate needs of dying family members. Women and children are particularly vulnerable, having to take over traditional male roles when men die, as well as fulfilling their traditional roles.

Households' on-and off-farm labour quality and quantity may be reduced, first in terms of productivity, when HIV-infected persons fall sick, and later, when the supply of household labour declines because of patient care and death. Case studies in Tanzania have estimated that households lose around two years of labour by the time of death (Rugalema, 1998). Odenya (2003) argued that this burden falls mainly on women, who are also the main food producers in sub-Saharan Africa, accounting for 70% of the agricultural labour force and 80% of food production in Africa. The impact of HIV and AIDS morbidity and mortality affects labour inputs and productivity affects women (Topouzis, 1994). Labour shortages and labour loss on subsistence farms contribute to food insecurity.

**Effects on area planted** - Effects on area planted can be examined in two ways: 1). for a given household, differences in area planted from one year to the next and 2). differences between households in area planted for a specified year. The general effect is a reduction in land area

under cultivation. Fields may be under-utilised or left fallow because a young adult is physically unable to work on the farm or a grandparent is chronically ill or too frail to make up for the labour loss. According to one estimate, approximately two people-years of labour are lost by the time one person dies of AIDS, due to their weakening and the time others spend giving care (Committee on World Food Security, 2001). In Tanzania, researchers found that women spent 60% less time on agricultural activities, taking care of their ill husbands (Committee on World Food Security, 2001). Brown, et. al (1994), argued that subsistence farm households that are heavily reliant on labour as their sole resource, (such as female-headed households) are particularly affected by HIV and AIDS. This is because factors that diminish labour also diminish food security and increase poverty.

#### **A reduction in ability to control pests -**

Weeding and other inter-cultivation measures may be neglected because of labour/input shortages.

**Loss of soil fertility** - Some families may abandon traditional practices, such as mulching, which replenish the soil, or else sell animals, which provide manure, thus reducing soil fertility in their fields.

#### **A decline in the range of crops grown per household -**

Labour shortages and the loss of agricultural knowledge (resulting from skilled and experienced employees) may force AIDS-affected families to reduce the number of crops under cultivation. As a result, food supplies are less varied causing a negative impact on the nutritional quality of the diet. For example, these staple crops may be high in carbohydrates but low in protein and thus, nutritionally inadequate (Odenya, 2003).

**Effect on cropping patterns** - HIV and AIDS result in changes in cropping patterns and a shift from cash crops to subsistence food production or crops that have shorter growing seasons. Some families may shift to less labour-intensive crops or to crops that require less capital inputs due to lack of cash to buy seeds, tools and other inputs.

Jackson (2002) argued that on large-scale commercial farms and estates, unskilled labour is readily replaceable and therefore poses little threat to the industry regarding recruitment, but increased morbidity and death can mean increased benefits paid out to employees. Studies of the sugar industry in Swaziland and South Africa (AIDS Analysis Africa, 2000/01; Morris and Cheevers, 2000) and by Barnett (1994) in Zambia, Uganda and Tanzania, suggest that the increased costs and loss of productivity are manageable. Indeed, the South African study indicates that the cost of inaction is greater than the cost of HIV prevention and care efforts. The recommendation is therefore that the farm and estate owners and managers mount effective HIV prevention and support programmes for reasons of enlightened self-interest, as well as out of humanitarian concerns.

## **7. Impact of HIV and AIDS on Women in Agriculture**

Women are highly vulnerable to the HIV epidemic and the disease is affecting women and girls in increasing numbers. According to Marita Eibl and Valerie Foster (2002), women are fast becoming the predominant group infected and affected by HIV and in Sub Saharan Africa. Women have a higher number of new HIV & AIDS cases than men. In Zimbabwe, 53% of all the people in the smallholder agricultural sector are women and children (Census, 1992 Zimbabwe National Report, CSO).

HIV compounds the existing gender discrimination (De Bruyn, 1992). They concluded that women are especially vulnerable to HIV because they have more vulnerable employment status dependent on labour intensive activities, lower incomes, least access to formal social security and least entitlements to, or ownership of, assets and savings.

Traditionally, rural women have always had a triple role to play in society. These roles are differentiated as reproductive, productive and community roles. Women usually also assume care-giving roles in their families and through community home-based care (CHBC). CHBC is generally holistic care that offers treatment and psychosocial support to patients, as well as support to careers and relatives, including orphaned children. A study done in Kagabiro village in Tanzania revealed that when a household included someone with AIDS, 29% of the household labour was spent on AIDS-related matters. In two thirds of the cases, women were devoted to nursing duties and on average, the total labour that was lost to households was 43%. This affects yields since labour and time that would otherwise have been used productively in the fields or doing agricultural work is transferred to caring for the sick. The advent of HIV has further expanded this role, as women are required or expected to take care of those who are sick with AIDS-related illnesses. Women play this role both in the households, and in the community. Usually women volunteer to provide care, which includes basic nursing care, palliative care and care for orphans. Women perform these care giving roles as individuals or as groups, often working without pay. They work as volunteers through churches, local CBOs, NGOs as well as government initiatives (UNAIDS, 2003).



## 8. The New Variant Famine: Link between agriculture, food security and HIV/AIDS

Do HIV and AIDS cause famine? De Wall and Whiteside have proposed a “New Variant Famine” hypothesis in which hunger and HIV and AIDS reinforce each other with catastrophic consequences (De Wall & Whiteside, 2003). They argue that unlike the “traditional or pre-AIDS famines” – the “AIDS-induced famine” or what they refer to as the “New Variant Famine” is likely to radically alter household dependency ratios. Traditional famines affect the weakest first – the children and the elderly – who are usually dependents. Households and communities are much better adapted for survival when the dependency ratio does not increase substantially. In such cases, coping is possible.

The 2001-03 Southern Africa food crises generated two key questions;

- 1) How do HIV and AIDS contribute to food crises?
- 2) What does this imply to the type of responses that are required?

The physical environment and climate were considered the immediate triggers of this crisis. Flooding and poorly distributed rainfall in the first half of 2001 led to a reduction in food production across the five most severely affected countries. Multiple overlapping factors exacerbated these impacts: deep and widespread poverty, civil strife and insecurity about land, removal of price controls, erosion of agricultural diversity, poor governance, and repression of the press and civil society (Loevinson & Gillespie, 2003). One factor that was more significant in this crisis than in past crises was HIV and AIDS. The Southern Africa region, which was affected by the 2001-03 food crises has also

experienced the highest rates of HIV and AIDS in the world. The region is also home to the highest rates of poverty and malnutrition.

The HIV and AIDS induced famine is predicted to be different because it affects the strongest, able-bodied and most productive members of the household. People who were infected before a food crisis will die more quickly as drought exacerbates their already worsening nutritional status. As a result, the dependency ratio may rise significantly. If the sick and dying parents are also counted as dependants (and appropriately so), the effective dependency ratio will become even higher. This increase will have particularly severe consequences for women, who already have greater total work burdens (domestic and external) and yet are more vulnerable than men to HIV infection.

Dependency is further worsened by the trend for HIV-positive adults who return to die in their villages, thereby placing a “double burden of care” on rural households. By Sen’s (1981) reasoning, such heightened dependency ratios, alone, will increase the risk of collapse of a household’s entitlement set – both endowments and exchange entitlement. A high prevalence of HIV and AIDS is likely, therefore, to increase both the ‘upstream susceptibility’ and the ‘downstream vulnerability’ to the famine.

Resilience – the ability to bounce back or recover – is likely to be seriously affected. A common early coping strategy is to fall back on the family network, but in high HIV prevalence areas, this may already be under extreme pressure. The next fall back is on labour power – again not a viable option for AIDS afflicted households. Even the gathering of wild foods requires knowledge gained over the years and passed down from parents to children – life saving knowledge that will now die with the parents.

Reducing food consumption is not likely to be a survival strategy for many AIDS-afflicted households – this would most certainly hasten death. One of the last resorts, often irreversible, is to sell major assets, such as land and livestock, a step that seriously increases the risk of destitution and starvation. In addition, one of the most insidious aspects of the HIV epidemic is that the last option left for a woman may be to trade sex for cash to feed her children. In the last option – “severe vulnerability” has led to extreme susceptibility.

Hence, if the “new variant famines” are hypothesised as being qualitatively and quantitatively different from the “traditional” famines – then they demand qualitatively and quantitatively different responses. Here it is worth looking at the disaster theory. Wisner et. al (2004), convincingly argue that disasters should not be regarded as separate from everyday living – because the risks involved in disasters are connected with “normal” vulnerabilities. They are as much a product of social, political and economic environments as of nature.

According to the “pressure-and-release” model, a disaster occurs at the intersection of two opposing forces: “processes generating vulnerability” on one side and “natural hazards” on the other. The level of risk is, thus, a compound function of the severity of the natural hazard and the number of people vulnerable,

in varying degrees, to that specific hazard i.e. **[Risk = Hazard x Vulnerability]**.

Pressure is thus exerted from both sides. “Release” may come through a reduction of vulnerabilities, which reduces the “pressure”. As Wisner et. al (2004), pointed out, the “New Variant Famine” hypothesis is compatible with the “pressure-and release” model. What is distinctive about HIV and AIDS in this context is that the epidemic can exert influence on “both” sides. With increasing prevalence, the impact of HIV grows, and vulnerabilities increase. The HIV epidemic has been described as a slower-onset disaster (Wisner et. al, 2004). Unlike a flood, the HIV hazard will be around for a long while to come.

Although it is not yet certain “when” or “where” the “New Variant Famine” scenarios will play out, they remain entirely plausible (Gillespie & Kadiyala, 2005). However, these food crises do not develop “out of the blue”. They are derived from the impact of the epidemic on food security and other processes that compound the vulnerabilities of households and communities. The dichotomy between “development programmes” and “humanitarian programmes” is a false one in the context of HIV and AIDS. The United Nations is now speaking the language of “emergency development” or “development relief”.

## The FANRPAN Regional Study

To explore the impact of HIV and AIDS on agriculture and food security in the SADC region, the Food, Agriculture, Natural Resources Policy Analysis Network (FANRPAN) conducted a study in seven southern African countries: Botswana, Lesotho, Namibia, Swaziland, South Africa, Zambia and Zimbabwe. From 2003 to 2005, FANRPAN worked with in-country research teams to examine the demographic characteristics of households affected by HIV and AIDS. Data was collected on food and agricultural production, employment, savings and investment. Throughout the research, FANRPAN sought to identify and account for the complex social, cultural, political and economic environment in which individuals construct their livelihood.









2

## *Exploring the link between food security, agriculture, HIV and AIDS*

This section presents the conceptual framework and research methodology used by FANRPAN to explore the impact of HIV and AIDS on agriculture and food security in the SADC region. It is important to note that the study is based on the understanding that agriculture is only one part of a complex and inter-related sectoral relationship. Any successful attempt to address the impact of HIV and AIDS on agriculture and food security needs to explore the factors upon which an individual's livelihood is based. The results of the study are presented in Section 3.

As part of the same study, FANRPAN developed a tool for quantifying the vulnerability of affected families – the Household Vulnerability Index (HVI). The HVI was computed for South Africa, Swaziland and Lesotho using 17 impact dimensions (developed during the study) through which HIV and AIDS can affect a household. A comprehensive discussion of the HVI methodology and results are presented in Section 4.

### **1. Conceptualising the impact of HIV and AIDS on agriculture and food security**

Agriculture and rural development are not merely the total of various isolated sub-sectors (infrastructure, employment, education, health, etc.) Rather, they are dynamic, integrated and interdependent systems of production and other components operating through a network of interrelated sub-sectors, institutions and rural households with links at every level of activity.

The efficiency and effectiveness of each sub-sector, institution and household depends, to a large extent, on the capacity of other parts of the system. When this capacity is eroded, partially or entirely due to a crisis, the system's overall ability to function is diminished.

Recently, a variety of factors have influenced agriculture and food insecurity in Southern Africa. The nature, extent and rate of this shift differ between countries. In Zimbabwe, the deterioration of the country's economy has exacerbated suffering among

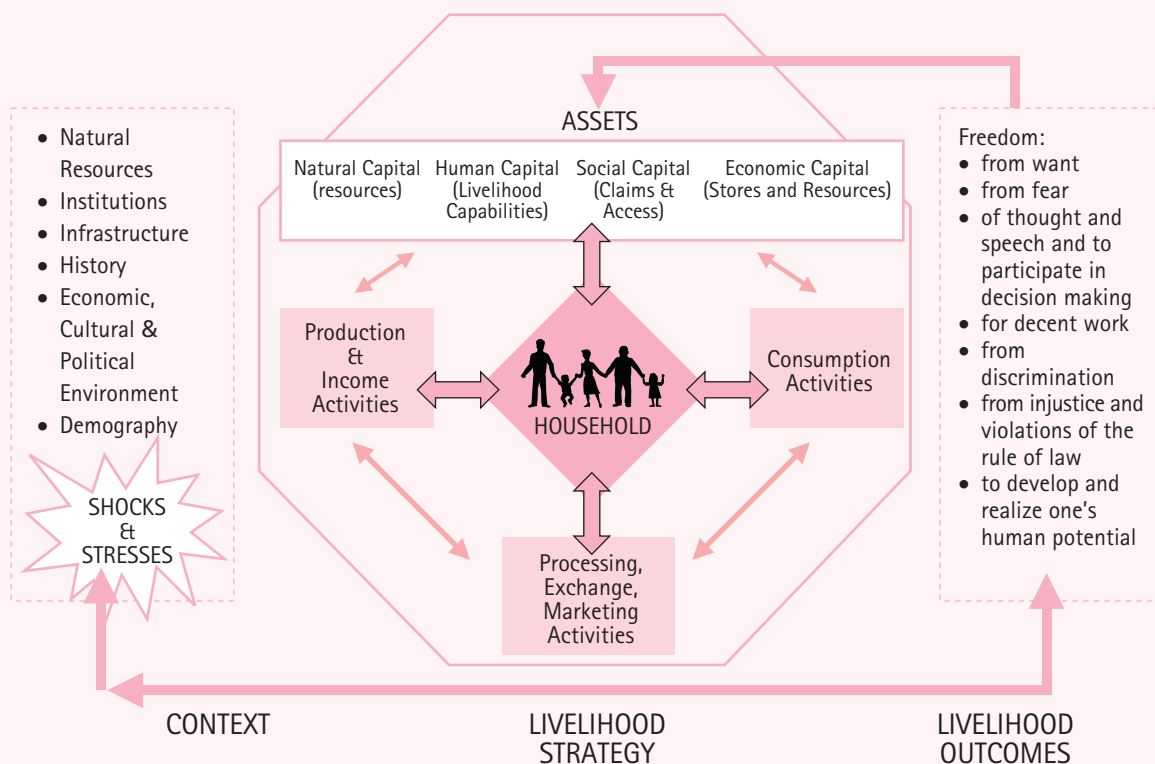


rural and urban populations. In Malawi, which is a high density and largely agrarian society, food security remains a challenge because there are few generators of economic growth. Hence, the capacity of the agricultural sector to support the population continues to deteriorate.

While the physical, political, economic and social factors contribute to changes in the agricultural sector and the countries' food security, the advent of HIV and AIDS has compounded the issue. International attention on

HIV and AIDS has cast a spotlight on the links between the epidemic and the region's food insecurity. However, Harvey (2003) emphasised there is a risk with the "New Variant Famine" hypothesis that the impact of HIV and AIDS is transformed into an explanation of the current food crisis in southern Africa. Given the complex web of factors influencing agriculture and food security, it is important to understand the HIV epidemic as a co-factor of the food crisis and not an exclusive cause. It is important to take other contributing factors into cognisance (Harvey, 2003).

### CARE'S LIVELIHOOD RIGHTS MODEL



After Swift, 1989; Drinkwater, 1994; Carney, 1998; Frankenberger and Drinkwater, 1999, UNDP 2000

Figure 2.1: Livelihood Rights Model

## Livelihood strategy

The conceptual framework for livelihood strategy has been developed to analyse the multi-sectoral composition of the contemporary African in a rural setting, whether he or she is classified as a farmer or not. In addition, it shows how the dynamics of many sectors are used to demonstrate people's capabilities, the building or creation of assets and carrying out activities that make up the sum total of the lives of individuals, households and communities. CARE's livelihood rights model. Figure 2.1, is premised on this phenomenon.

CARE's livelihood model emphasises the need to consider the context in which an individual decides on their livelihood strategy. The context is composed of a combination of factors including natural resources, institution, as well as the economic, cultural and political environment and the demographics of the populations concerned.

The livelihood of the household is shown to revolve around different but interlinked activities such as production, consumption, processing and exchange. The various types of resources are reflected at the top of the model. These are natural capital, human capital, social capital and economic capital. On the right hand side of the model are the non-measurable, yet essential variables such as the different aspects of freedom. It is the dynamics of all these different sections of the model, that combine to give the livelihood strategy of the individual, whether they are farmers or non-farmers. For analytical purposes, the interconnectedness of all these variables in the model is critical.

A crucial variable that does not come out clearly in the model, although implied, is that of remittances. Earlier studies tended to emphasise the dichotomy between rural and urban areas. However, more recent studies have shown that resources flow across the rural-urban

divide to create interdependence between them, as members of the same household are often on both sides of the divide. In Zimbabwe, urban remittances were considered of greater importance to rural livelihoods. Typically, these remittances funded items such as agricultural inputs and school fees, and were critical in the maintenance of production and consumption levels across an extended family (Drinkwater 2003).

## Models for Analysing the Impact of HIV and AIDS on Livelihoods

The sustainable livelihoods framework has been used to understand the mechanisms by which households are affected by HIV and AIDS. To understand the impact of HIV, there is need to know what happens to a household once a member is affected, and the extent to which this relates to other factors. Ideally, there is need to compare the situation of the household before and after a member is diagnosed HIV-positive or dies of AIDS.

With the understanding that HIV and AIDS is a contributing factor to a reduction in the productivity of the southern African agricultural sector and food security, Mdladla et. al (2003), have developed two tools; one to conceptualise and the other to analyse the impact of HIV and AIDS in agriculture. Their conceptual framework, (Figure 2.1) is similar to that developed by Mano and Matshe (Figure 2.2). For this research, FANRPAN considered both models, which are discussed below.

The analytical framework developed by Mdladla et. al (2003) can be used for both quantitative and qualitative analyses. It was used successfully in a vulnerability assessment committee (VAC) in some southern African countries. The SADC FANR VAC study, (2003), clearly

## HIV/AIDS IMPACT.....ON HOUSEHOLD FOOD SECURITY

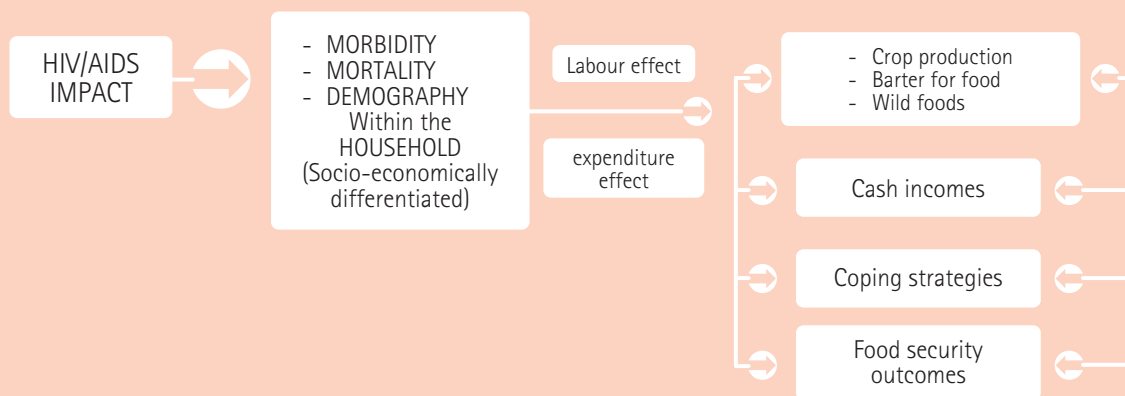


Figure 2.2: Conceptual Framework developed by Mdladla et. al (2003)

indicated that households affected by adult morbidity, mortality and with a high demographic load are significantly more vulnerable to food security shocks than other households. This analysis strongly implied that HIV and AIDS had significantly increased the vulnerability of households and exposed them to acute food insecurity.

The analysis showed that households suffer from marked reductions in agricultural production and income generation, leading to earlier engagement in distress coping strategies, and, ultimately, to a decline in food security. The cumulative impacts of HIV and AIDS on food availability, food access, and coping capacity are compounded, resulting in amplified negative impacts on overall household food security.

The analysis further demonstrated that different morbidity, mortality and demographic profiles have different effects on food security processes and outcomes. Key differences were seen according to whether or not the household had an active adult present, or a chronically ill person, whether the head of household was chronically ill, whether there was a high dependency ratio, or whether the household had taken in orphaned children. Each of these characteristics had further nuances that were affected by age and gender. The study suggested that the impacts of HIV on food security in the context of the 2002 food emergency were strong and negative (Mdladla et. al, 2003).

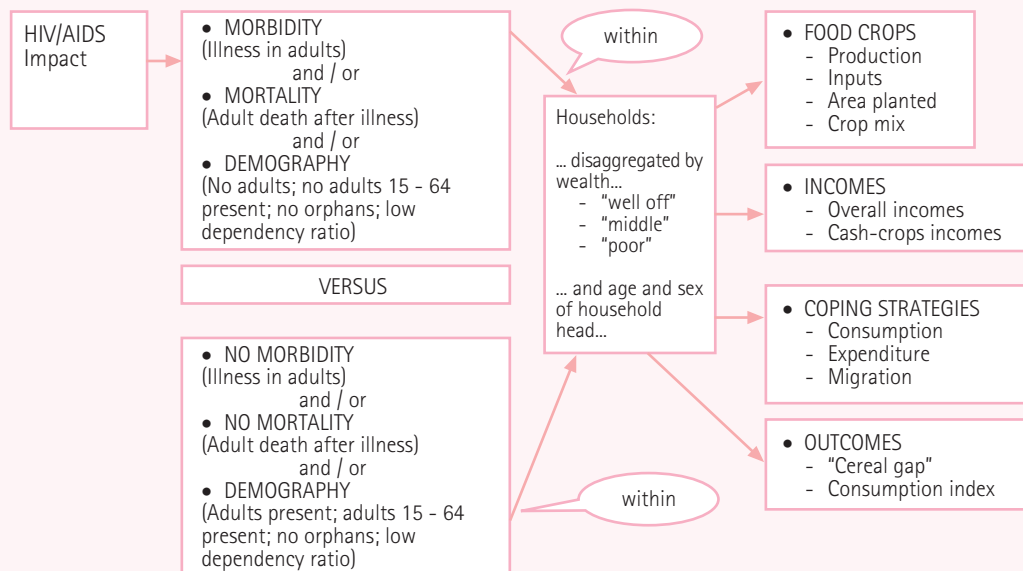
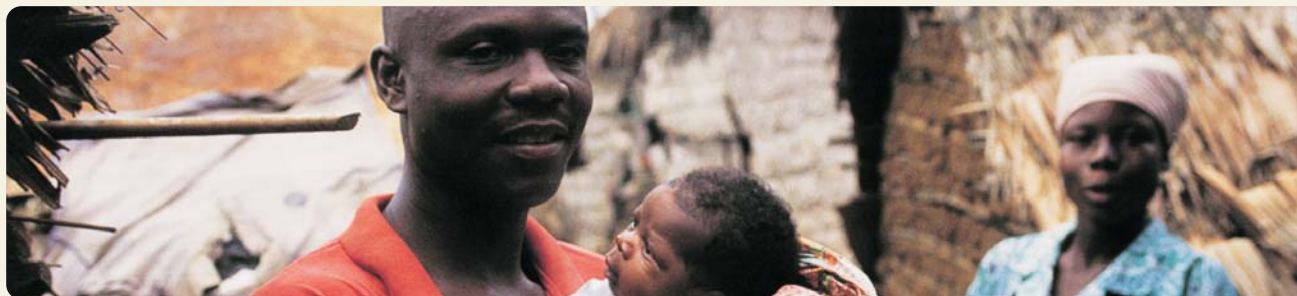


Figure 2.3 Analytical Framework Developed by Mdladla et. al (2003).

Due to the comprehensive nature of the model by Mano and Matshe (2003), FANRPAN used this model as a starting point for selecting key variables for its research. The variables included farm-household production decisions, consumption expenditure, family size and composition, investment expenditure and capital stocks.

The scope and interacting nature of the above factors is illustrated in a conceptual framework - the "Conceptual Framework for the study on the impact of HIV and AIDS on Agriculture and Food Security in Rural Households" (Figure 2.3) - describing the "pathway" and conceptualisation for the study.



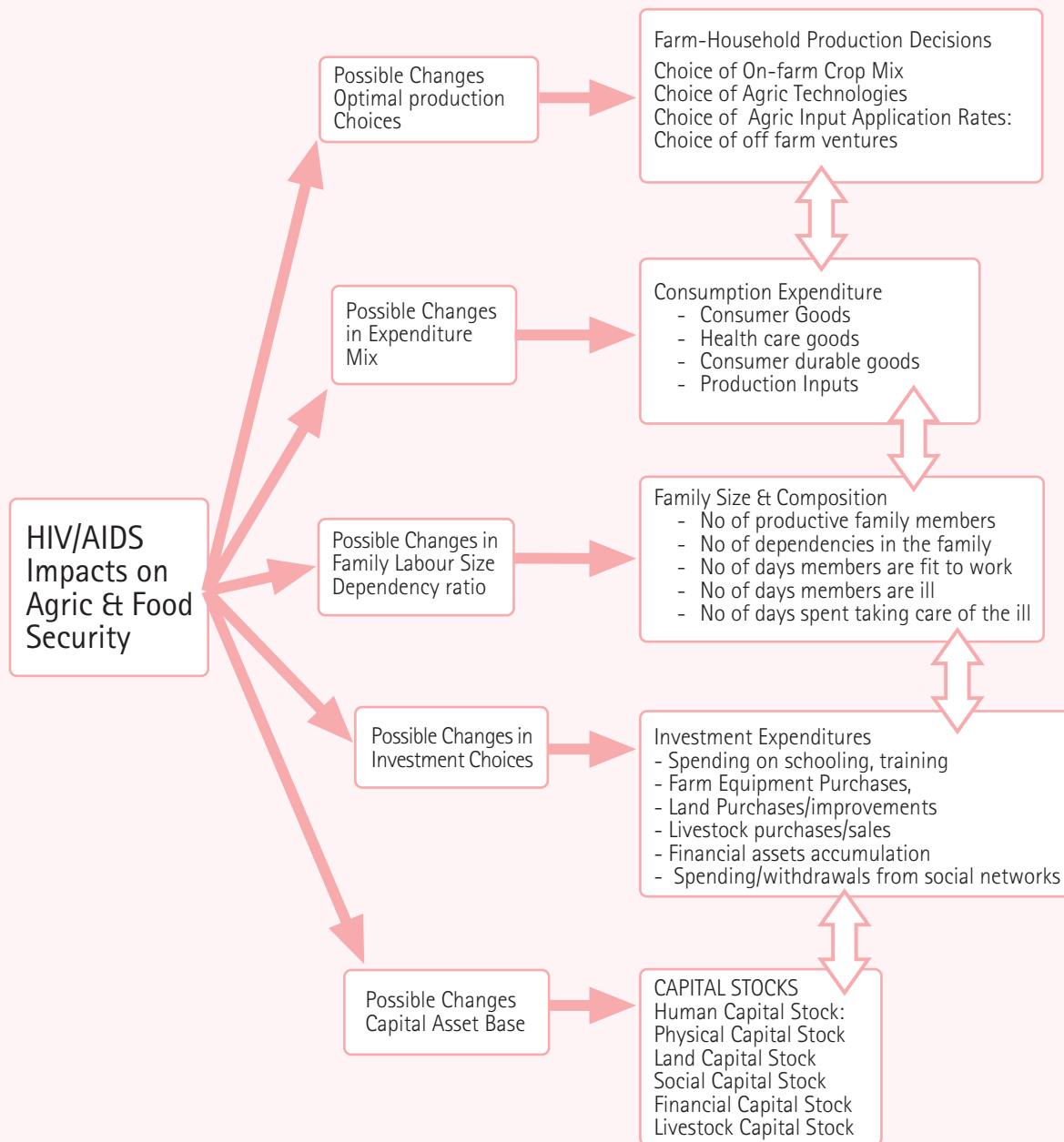


Figure 2.4: HIV/AIDS Analytical Framework Developed by Mano & Matshe (2003).



## 2. Research Study Framework

To explore the links between HIV and AIDS, agriculture and food security at a household level, there is need for a composite methodological framework, combining quantitative and qualitative approaches. Qualitative demographic, anthropological, and economic studies can provide important insights in the formulation of research questions. The use of survey questionnaires can expedite answers to the question of how HIV is impacting on the livelihoods of rural households. Drinkwater (2003) highlights that too often questionnaires are weak in their analysis, as they focus too much on the individuals. Drinkwater supports 'the concept of cluster analysis which aims to provide a more complete analysis of inter- and intra-household relations. A good livelihoods analysis should generate an understanding of context, social differentiation, and social desegregation (gender, generational and other diversity differences), and the technique of cluster analysis assists this (Drinkwater 2003). The data should be complimented by concrete case studies documenting how AIDS affected households are coping, and should also relate the livelihood strategies in detail (Mdladla et. al, 2003). Adding a rights-based lens to the analysis helps understand the rights and abuses occurring within communities, families and households.

In measuring the impact of HIV on agriculture and food security, it was essential to define agriculture and isolate the components that would be measurable in the context of food security and HIV. Agriculture is a chain that includes production, processing and marketing. At the household level, the main focus was on production and marketing. In this study, the unit of focus was the household. The study did not probe the impact at individual level. This is particularly critical in the case of food security because food is not always easily accessible to all members of the household

(Maxwell and Frankenberger, 1992). Household members do not share common preferences regarding allocation of resources for income generation and food acquisition. Therefore, in selecting the household as the unit of study, the assumption is that if the household has access to food, then each member of the household is food secure.

The critical elements of food security were isolated. The general tendency is to assume that food security is synonymous with food availability or production. However, in most regions of the world, this is no longer the case; access and utilisation have become key priorities. Currently the main components of food security are: availability, accessibility and utilisation. In this study, each of these was tracked in the context of agriculture and HIV using Reutlinger's 1986 hypotheses, below, as key guidelines:

- i. Food insecurity is basically the lack of purchasing power of a nation and its people
- ii. Food security does not necessarily derive from food self-sufficiency nor directly from a rapid increase in production
- iii. Long term food security is a matter of achieving economic growth with equitable distribution of benefits
- iv. Food security in the short run is about re-distributing purchasing power and resources
- v. Transitory food insecurity – due to fluctuations in domestic harvests, international prices, and foreign exchange earnings – can best be addressed through measures that facilitate trade and provide income relief to afflicted populations.

FANRPAN is a policy analysis network. Therefore the methodological framework focuses on the adaptations that need to be made on the policies of SADC countries, given the impact of HIV on agriculture and food security.

## Impact Dimensions and Hypotheses

A total of 17 impact dimensions were established. From the Mano and Matshe (2003) analytical framework presented earlier, five critical dimensions through which HIV and AIDS impact on agriculture and food security at household level were selected.

The Mano and Matshe framework was proposed at the start of the study, but its dimensions did not adequately cover the yield aspects of production (e.g. yield per food crop, land under cultivation etc). The framework also did not cover crop and livestock management services, such as extension, household income aspects, food availability, accessibility and utilisation. A total of 10 dimensions were added to the Mano and Matshe framework.

From literature review; five dimensions were added to the 10 from Mano and Matshe. These five covered aspects of mobility due to sickness; environmental impacts; demographic structure, as well as gender and social support networks.

In discussion with key stakeholders and researchers in the region, two additional dimensions (impact areas) were added. These included accessibility to food and utilisation of food.

In total, 17 dimensions were used in the study. The sum total of all these impacts is that - **HIV and AIDS increase the household aggregate vulnerability** to shocks and stress and increase household poverty (sum total of all declines at household level; school drop outs, orphans, child-headed homes, increased debt, sale of assets, etc.).

### ***i). Changes in optimal farm-household production decisions:***

**Hypothesis:** HIV and AIDS affects on-farm crop mix, agricultural technologies used, input application rates and off-farm ventures in households. Key variables to track are: choice of farm mix; choice of agricultural technologies; choice of agricultural input application rates; and choice of off-farm ventures.

### ***ii). Changes in household expenditure mix (consumption expenditure):***

**Hypothesis:** HIV and AIDS affect household consumption expenditure (i.e. consumer goods, health care goods, consumer durable goods, production inputs) – the variables tracked were: consumer goods; health care goods; consumer durables; and production inputs.

### ***iii). Changes in household labour, size and composition:***

**Hypothesis:** HIV and AIDS cause changes in the household demographic structure, reduce the number of productive members and number of workdays, whilst increasing the number of days spent taking care of the ill and the number of dependants in the household: – The key variables to track are: number of productive family members; number of dependants in the family; number of days members are fit to work; number of days members are ill; and number of days spent taking care of the ill.

### ***iv). Changes in investment choices (investment expenditure):***

**Hypothesis:** HIV and AIDS cause changes in household investment priorities: – and the variables tracked were; farm equipment purchases; land purchases/improvements; livestock purchases/sales; financial asset accumulation/depletion; and spending and withdrawals from social networks.

***v). Changes in the capital asset base (capital stocks):***

**Hypothesis:** HIV and AIDS erode the household's capital asset base: – the key variables were; human capital; physical capital stocks (livestock etc); social capital; financial capital; and natural capital stocks.

***vi). Decline in household agricultural production:***

**Hypothesis:** HIV and AIDS have led to a decline in agricultural productivity; – variables included; yield, overall output, agricultural inputs (type and quantity); number of productive households infected; number of households affected, education level; demographic variables, type and quality of equipment; gender of infected or affected; changes in household structure; extension and support services; area cultivated and gender implications.

***vii). Impact on household productive assets (covering the pentagon of assets):***

**Hypothesis:** HIV and AIDS erode the household productive asset base; – variables included reduction in number and quality of livestock; size of herd; price per head; expenditure on inputs; availability of labour; household's resource allocation; household's sources of income and household's expenditure patterns.

***viii). Impact on household food and nutrition security (food consumption):***

**Hypothesis:** HIV and AIDS cause a decline in household food consumption; – variables included types of food consumed; expenditure and income patterns; household income levels; size of household and dietary composition.

***ix). Impact on household market access, income and expenditure patterns:***

**Hypothesis:** HIV and AIDS reduce participation in markets; – variables included; sales (number of animals, number of bags); number of strayed animals; price per heard; number of animals sold to butcherries; crop sales; poultry sales; distance from nearest market place; who does the marketing and who is responsible for resource allocation.

***x). Impact on agricultural extension services:***

**Hypothesis:** HIV and AIDS result in erosion of extension and research services; variables included; absenteeism due to illness, farmer to extensionist ratios; number of deaths in the community; health status of extension workers and gender implications.

***xi). Mobility of household members:***

**Hypothesis:** HIV and AIDS increases mobility of household members; – variables included; travel expenditure; household size; changing household structure; number of patients at health care centres.

***xii). Environmental degradation:***

**Hypothesis:** HIV and AIDS cause increased environment degradation at household level; – variables included; accumulation of disposable litter; number of animals with measles; educational level; and gender issues.

***xiii). Household demographic structure:***

**Hypothesis:** HIV and AIDS increase household dependency ratios; – variables included number of children under 15 years; number of adults above 65

years; sex composition of household members; education levels of household members; employment status.

***xiv). Gender implications:***

**Hypothesis:** HIV and AIDS cause changes in gender roles; – variables included; property inheritance; land ownership and rights; resource allocation; female-headed households; child-headed households and decision making.

***xv). Support networks:***

**Hypothesis:** Support networks reduce the impact of HIV and AIDS on households; – variables included; number of government and non-governmental institutions providing support; number community associations providing support; number of social networks; traditional safety nets; remittances from relatives; existing sources of coping information.

***xvi). Accessibility to food:***

**Hypothesis:** HIV and AIDS cause transitory food insecurity in households; – variables included; sources (and amounts) of household income; existing food safety nets; household dependency ratio; and household expenditure (as compared to income).

***xvii). Utilisation of food:***

**Hypothesis and variables:** HIV and AIDS cause loss of productive labour in households, which leads to low-labour intensive cropping and poor crop management, which in turn lead to a decline in crop and nutritional variety and value, and subsequently a decline in food safety and quality.

### 3. Research Methodology

All the seven study countries used the concepts and framework agreed at the regional level. Each of the countries then adapted their research design to suit their specific context.

Site selection was designed to increase validity, rather than to ensure that the sample was representative of the given population. The study used purposive sampling, which was appropriate because certain important segments of the target population had to be represented in the sample. Households were selected on the basis of having been affected by HIV and AIDS.

Quantitative and qualitative methods and tools were used. These included an administered structured questionnaire, focus group discussions, observations and key informant interviews.

The interview questionnaire was based on the 17 dimensions detailed in the previous section. The researchers also adapted the tool to incorporate differences in each country, in particular, ethical issues as they relate to HIV. All countries relied on Central Statistical Offices, administrative boundaries, and other existing structures to purposively select a relevant sample. The researchers targeted support groups of people living with HIV and AIDS for focus group discussions; and used public health workers, traditional leaders, agricultural extensionists and programme implementers as key informants.

#### Botswana

A cross-sectional research design with a comparable group was used in Botswana. It involved comparing two groups; a selection of households affected by HIV and AIDS, and a similar group of households that is not

affected by HIV and AIDS. The groups were compared in terms of agricultural production and other selected outcome variables. Identifying affected households as well as finding a comparable group of households posed a significant challenge to the researchers.

A proxy variable for HIV and AIDS affected households was used. A household that had experienced a prolonged illness of one of its members was classified as “affected household.” The use of proxy variables in HIV and AIDS studies is common.

Although a triangulation of data sources was used for qualitative analysis, the primary sources of data for Botswana were in-depth informal interviews with key informants such as the chiefs, district officers, senior health personnel, etc. in the three villages of Mmathethe, Mookane and Lentsweletau. Face-to-face informal interviews with farmers, extension workers, the business community, educators, local authority representatives and other workers resident in the villages, were also essential. Data were also collected using focus group discussions with representatives of different sections of the communities (e.g. out-of-school youth, extension workers, football clubs, etc.). Additional data came from observations, for example, the disposal of HIV support materials such as condoms and nappies for adult AIDS patients. Observation data was crucial for validating interview responses and identifying enabling or constraining factors likely to impact on the effective family labour for agricultural activities.

The descriptive qualitative survey approach was relevant for an impact assessment of this nature because it allows key informants (i.e. relevant government departments or agencies, local leadership, the community and of course farmers) to articulate their views and opinions regarding agricultural production activities in the era of HIV. The approach also enabled the different

categories of farmers, families and agricultural extension workers, to share their experiences and ideas necessary to improve their work conditions. It is believed that an inclusive and participatory approach was the most appropriate, as HIV is considered a sensitive topic.

Three farming villages, representing three districts were purposively selected in Botswana. Originally the respondents were to be randomly selected from a roster of farmers maintained by the agricultural extension officers. However, this was not possible because of lack of updated records. Another option was to use census enumeration areas that are maintained by the Central Statistics Office (CSO). CSO usually has a list of households in each enumeration area used as a sampling frame. In this case, the first household in each of the enumeration areas was selected at random using the random number table. The remaining farming households were selected using the snowballing approach. That is, the first selected household will be asked if they knew a household that had experienced long illness or death in their neighbourhood during the last three years. The adjacent household was then included to constitute a comparable group of non-affected if they did not have a long illness or death in the last three years.

The unit of analysis was the household. The study targeted roughly between 5-10% of each of the three villages' population (proportionally stratified sampling). Since enumeration areas (EAs) have roughly the same population, the disproportionate sampling approach was used in the EAs. Data were collected using an interview schedule administered by research assistants employed and trained for that purpose.

The following villages were selected:

- i) Mmathethe, a village from the Southern part of the country.

- ii) Mookane, a village from the Central District
- iii) Lentsweletau, a village from Kweneng District.

Sampling was purposeful in order to address issues of location, categories of farmers, community population diversity, gender and unique experiences. Detailed discussions with the different players in the field of agriculture were very instrumental in the sample frame. An average total of 5 focus groups per village were held, comprising of at least 6 and up to 10 people per focus group discussion. In addition to the focus group discussions, informal individual interviews with key informants were also conducted per village. These included owners of agriculture-related businesses, such as dairy, horticulture, sorghum milling and butchery as well as multi-purpose co-operatives. A total of 400 people participated in the focus groups and 10 individuals gave informal interviews. Altogether, the qualitative part of this impact study's sample was 410.

Qualitative data analysis occurred concurrently with quantitative data collection in Botswana, to facilitate further probing and clarification of issues. At the end of data collection, a comprehensive analysis that included coding, categorising and classification of the themes emerging from the data, was employed.

### **Lesotho**

Lesotho is a very mountainous country with a population estimated at 2.3 million in 2005. Accessibility to most parts of the country is made difficult by the topography despite the size of the country [30,000 square kilometres].

The generic regional questionnaire was adapted to Lesotho and used to collect data. A stakeholder methodology workshop was held in order to make stakeholders aware of the study and to solicit their input in the data collection procedures. They made contributions to the questionnaire and the overall methodology. The questionnaire was

pre-tested and modified accordingly. Research assistants were recruited among the National University of Lesotho students who had completed their degrees and were trained by the research team. They administered questionnaires to the household heads or their representatives, who provided most of the responses. For control purposes, respondents were asked to recall what used to happen before there was HIV and AIDS. There were also questions that investigated the situation during illness and where relevant, after death.

Another set of interviews was conducted with the orphans in the three areas of Queen II, Maluti and Mokhotlong. The two techniques complemented each other. The qualitative techniques captured in-depth information and allowed researchers to obtain information from orphans. Secondary sources of data were used to fill in specific gaps. Trained clerical assistants coded and entered the data in SPSS. Descriptive and comparative analysis - cross-tabulations, frequencies and means were then performed on the data. Focus group discussions and other qualitative responses were summarised for each region.

Of the ten districts in Lesotho, four that were representative of the zones were selected. Five Health Service Areas (HSA) in each district were selected from the government-run hospitals and those run by the churches. With the help of the HSA, the researchers identified the households that either had a patient, had lost a member of the family through chronic illness or families with orphans. Some of the patients had tested positive to HIV and were closely supported by community-based support groups. There were 210 households that were interviewed and quantitatively analysed. The largest sample was selected from Maseru district.

Selection of respondents for the study was done purposively with the assistance of the hospital management and the HIV



and AIDS support groups that worked within the selected areas. In most cases the support groups directed the data collection team to those families with which they had close contact, in the form of help of ill members who were either still alive or had died of AIDS-related diseases. Thirty-two orphans and six caregivers were also selected and interviewed using an interview guide.

### **Namibia**

The research focused on three of Namibia's previously disadvantaged regions: Kavango, Oshana and Oshikoto. They are characterised by high rates of HIV infection and large numbers of people involved in agricultural production. The farmers studied in this survey all lived on communal lands and are considered as subsistence farmers. Together with the Ohangwena and Omusati Regions, they are home to almost 70% of Namibia's population.

These administrative units are located in the Northern and most populous parts of Namibia. This is also the area of the country with the highest overall rate of HIV infection.

### **South Africa**

The Limpopo Province was selected because it is among the poorest provinces in South Africa, with more than 40% of the households experiencing transitory or chronic food insecurity. In addition, about 89% of Limpopo province can be classified as rural, and agriculture plays a major role in economic development. The unemployment rate in the province is about 42 percent (Nesamvuni et. al., 2003).

Capricorn, one of six district municipalities in the Limpopo Province, was selected for the case study. It was chosen due to established networks between the University of Limpopo, the Limpopo Department of Agriculture, and surrounding communities, which

played a role in facilitating access to the sample. The Capricorn District has five local municipalities, namely Aganang, Blouberg, Lepelle, Molemolle and Polokwane, with a total of 106 wards.

The study was conducted in Molepo village Capricorn District, Limpopo Province and this site was selected purposively. It is amongst the poorest areas in the district with a large share of the population involved in subsistence agriculture and it has one of the highest prevalence rates of HIV and AIDS in the province. Ga-Molepo is a rural community situated South West of Polokwane, about 30km away from the University of Limpopo. The area has a small clinic situated close to Tshebela village. The clinic refers people needing anti-retroviral treatment to Mankweng Clinic and Pietersburg Clinic. The area has a few grocery stores, which are under stocked, and several primary and high schools.

The data for the survey were collected using a questionnaire at the household level as well as community seminars and focus group discussions. The focus group discussions were guided by a list of questions addressing the main issues of the survey. Fifteen enumerators, eleven from the School of Agriculture postgraduate programme, University of Limpopo and four local home-based-care workers, with reasonable competence in both English and Sepedi (Northern Sotho), were recruited for the fieldwork. The enumerators were trained and supervised by the researchers on the sampling procedure, interview techniques, interpretation and comprehension of questions, recording of responses, the participatory tools used for the group discussions and other logistics.

Prior to conducting the actual fieldwork, the draft questionnaire was pre-tested in ten households (five in the affected and five in the non-affected) to check on clarity, validity, correct understanding and translation

of the questions. The questionnaires were in English and the enumerators were required to translate the individual questions into Sepedi for the interviewee. The quantitative part of the survey was administrated over a period of one and a half weeks followed by qualitative data collection from the focus group discussions and community seminars.

Seven villages were covered in the survey and three villages participated in the focus group discussions and the community seminars. The key contact person in the community was the head nurse at Ga-Molepo clinic who played a pivotal role in all phases of the study. She introduced the research team to the members of the Molepo Home Based Care and Counselling Centre (MHBGC&CC). The home-based care group assisted by introducing the team to the local traditional authorities at the onset of the study and also arranged meetings for the focus group discussions. During the survey they assisted the team with information regarding households that were suffering from illness and deaths of household members resulting from AIDS-related illnesses.

Households from the seven villages of Molepo (i.e. sampling units in the sample frame) were stratified according to 'affected' and 'non-affected' and then randomly selected from the different strata. The definition of affected households used by the survey includes households in which at least one family member is chronically ill due to or related to HIV/AIDS, or in which at least one family member has died due to AIDS-related illnesses (such as TB and pneumonia) in the last three years. Non-affected households were defined as households in which no member had died of AIDS, or was living with HIV or HIV-related ailments. A higher probability of selection (0.6) was given to the affected households (both death- and illness-affected) and a lower probability (0.4) to the non-affected ones in order to give more relevance to impact. A total of 300 households were

interviewed. However, finally data on 218 households were used for analyses. More questionnaires from the affected group were rejected at the analysis stage because of poor responses. This is a common problem in HIV related research since people in many societies stigmatise the disease and are reluctant to talk.

### **Swaziland**

In Swaziland, two sets of tools were developed for the study. The first consisted of a survey questionnaire, which was used to collect data from households. The second was a list of focus group discussion questions, meant to compliment information obtained from the survey. The group discussions were guided by a list of questions addressing the main issues of the survey. The composition of the focus group discussions was the same for all the regions. At least three group discussions were held in each region surveyed and these included men, women and children respectively.

After developing the questionnaire, the study team pre-tested the instrument. Debriefing sessions with enumerators were held before the interviews as well as after the pre-testing. The questionnaires were in English and the enumerators were required to translate the individual questions into Siswati for the interviewee.

Eight enumerators with competence in both English and Siswati were recruited and assigned to the eleven Regional Development Areas (RDAs). The enumerators were trained and supervised by the researchers on the sampling procedure, community entry process, interview techniques, interpretation and comprehension of questions, recording of responses, group discussions and other logistics. The survey was carried out between May and September 2004.

In choosing study sites, the objective was to obtain a sample that was representative of the Swaziland rural

agricultural sector and to describe how HIV and AIDS has affected agriculture and food security. A stratified method of sampling was adopted in this study, where the four regions (Manzini, Lubombo, Shiselweni and Hhohho) were selected. RDAs from each of the regions were purposely selected, followed by a systematic sampling of households.

The selected RDAs representing the four regions were: Motsahne, Ntfojjeni, Mayiwane (Hhohho region); Ngwempisi, Ludzeludze and Luve (Manzini region); Tikhuba, Siphofaneni (Lubombo region) and Mahamba/Zombodze, Mahlalini/Madulini, Southern (Shiselweni region).

According to the CSO report (1997), Swaziland has 172,416 households, of which 113,797 are rural households. The sample size was 240 households from each region, making a total of 960. However, due to problems with enumerators, only 161 and 206 questionnaires were collected from the Lubombo and Hhohho regions respectively, whilst in the other two regions, all 240 questionnaires were collected as targeted. Therefore, the final sample used in the study was 847 households.

### **Zambia**

In Zambia, data was collected using a questionnaire which was administered to randomly selected farming households in three selected districts. The survey elicited data from respondents, most of whom were household heads.

Owing to the respondents' unwillingness to report cases of AIDS-related deaths and chronic illness, a proxy indicator was used. The proxy for affected households was those caring for orphans (children up to 18 years old who have lost one or both parents through death). The survey was administered in August of 2004, the period immediately after the completion of the

2003/2004 agricultural harvesting period. The study followed a step-by-step approach involving two major components, a literature review, and a quantitative survey. The literature review made up the first phase of the whole study and it resulted in a report, which crystallized the major findings of past research studies on the impact of HIV and AIDS on agriculture, food security and natural resources, at national and regional levels. The review exercise also exposed knowledge gaps on the impact of HIV and AIDS on agriculture-based livelihoods.

The study was conducted in three districts of Southern Province of Zambia (Choma, Monze and Sinazongwe), a predominantly agricultural province in the country. The three districts were selected based on their high HIV prevalence rates, high level of agricultural dependency and their geographical location. The sample for this study was randomly selected from small-scale farmers within the selected districts, with a target sample size of 250 households.

The study used a sampling frame that was developed by FAO and the Farming Systems Association of Zambia (FASAZ) baseline study. Thirty two rural Standard Enumeration Areas (SEAs), were selected on the basis of chronic illnesses and deaths. Following this stratification, this study purposively selected SEAs that recorded the highest number of chronic illnesses and deaths in 2002. A total of 13 SEAs (4 in Choma, 3 in Monze and 6 in Sinazongwe) were selected. Without district level population-based HIV prevalence rates, this study had to purposively select SEAs with evidence of a high incidence of chronic illnesses and adult deaths.

Households were then randomly selected from the list of male- and female-headed households in the selected SEAs. The final sample of 230 rural households was representative of the rural population in those areas,

given the uniformity of livelihood systems within districts. The sample provided a basis from which to estimate parameters for the rural areas of the study districts.

### **Zimbabwe**

The study team collected two types of data - secondary data and empirical survey data. A survey was carried out in two provinces in Zimbabwe. A total of 320 households was interviewed in Mashonaland East and Manicaland provinces, in the districts of Goromonzi and Makoni respectively. The sampling frame used in the survey was stratified to include both 'affected' and 'non affected' rural populations of the two communities. The study adopted the classification system of local community based care-givers (CBC) of households deemed to be affected by HIV and AIDS and those non-affected by the virus. In the study, a household was defined as 'affected' based on relative ability of the household to cope in the presence of HIV and AIDS. Affected households were thus taken to be those that CBCs had identified and were working with, in their respective community programmes. Households were identified from the records of CBCs.

Local partners provided key logistical support in the field. These included community based care-givers (from different programmes such as Homed based Care, Village Health Workers, etc), local political and traditional leadership, Agricultural Research and Extension agents and community based Organisations (CBO) or Non Governmental Organisations (NGO) operating in the study areas, such as the Girl Child Network.

Working in collaboration with the District Community-based Care, the team followed a stratified sampling frame targeting to interview at least 150 to 175 farm households among the affected households, and a similar number among the less affected households. For ethical reasons, the team had to ask permission from interviewed

households to be part of the study and also if they wanted to put any form of restrictions on how the information will be used. It was surprising how open most individuals were about their conditions. This made the survey relatively easy to execute. The local caregivers validated the list of selected households. A total of 350 questionnaires were completed and after cleaning, 329 were complete, of which 57% were for affected households.

### **Data Analysis**

Data were analysed using the Statistical Package for Social Scientists (SPSS). For continuous variables, measures of central tendencies and student t-tests were used to summarise the data for meaningful interpretation. Proportions and chi-square tests were used to process categorical variables. To determine the strength of association between independent and key outcome variables, univariate and multivariate statistical modeling techniques were used.

Descriptive and comparative analysis i.e. cross-tabulations, frequencies and means were performed on the data. Focus group discussions and other qualitative responses were summarised for each country.

### **Descriptive Techniques and Comparative Analysis**

For every impact dimension, affected and non-affected households were compared using means and indices. Comparisons were further aided by graphing techniques. This method of comparison is easy but limited in its interpretation, and often requires further analysis to verify the importance of factors.

Econometric analysis was done to find out if HIV and AIDS status and intensity of affliction is important to explain observed variations in important impact

variables such as productivity, food security and food self sufficiency. Two analytical tools, multivariate regression and logistic regression were used in this econometric analysis.

## Linear and Multiple Regression Analysis

Multivariate regression models are used to estimate the impact of one or more explanatory variables on a dependant variable. The dependant variable is assumed to be a linear function of more than one independent variable and an error term. The error term measures the effect of other excluded variables and other sources of error. The model used in the study is the ordinary least squares (OLS) and can be represented as follows:

$$Y_i = \beta_0 + \sum_{j=1}^k \beta_j X_{ij} + \varepsilon_i, \quad i = 1, \dots, N \quad (3.1)$$

where:

$Y_i$  is the value of the response variable for the  $i^{\text{th}}$  household,

$\beta_0, \beta_1, \dots, \beta_k$  are parameters,

$X_{i1}, X_{i2}, \dots, X_{ik}$  are known constants, namely, the values of the predictor variables, and

$\varepsilon_i$  is a random error term with mean

$E(\varepsilon_i) = 0$  and variance  $Var(\varepsilon_i) = \sigma^2$ ;

$\varepsilon_i$  and  $\varepsilon_{i'}$  are uncorrelated so that their covariance is zero, for all  $i \neq i'$ .

The above model can be extended to a general linear regression that includes both quantitative and qualitative variables such as gender (male, female). In such cases, indicator variables that take values of 0 and 1 (called dummy variables) are used to identify classes of the qualitative variable. For example, gender of the household head is defined as

$$X_{i1} = \begin{cases} 1, & \text{if the household head is male} \\ 0, & \text{if the household head is female.} \end{cases}$$

where, for the tracked variable  $X_{i1} = 1$  refers to a positive attribute

In general, the  $p$  classes of qualitative variables are represented by means of  $(p - 1)$  indicator variables.

## Logistical Regression Analysis

Logistical Regression uses the logit model to predict the likelihood that a given household with certain socio-economic characteristics and production choices falls within a certain group e.g. households can either be food secure or otherwise. The model can only be used when the dependent variable is binary i.e. can take on only two values, 1 and 0. The general model could be represented as follows;

$$\log \frac{P_i}{1 - P_i} = \alpha + \beta X_i$$

where  $P_i$  = the probability that a given household will fall within a certain group given  $X_i$ .

$X_i$  = independent variable  $i$

## Principal Component Analysis: Wealth Index

South Africa utilised the Principal Component Analysis. Principal components were used to determine the weights for an index of the asset variables, i.e. to calculate the wealth index. Principal components analysis is a technique for extracting from a set of variables those few orthogonal linear combinations of the variables that capture the common information most successfully. Intuitively the first principal component of a set of variables is the linear index of

all the variables that captures the largest amount of information that is common to all of the variables.

Assuming a set of  $k$  variables,  $y_{1j}$  to  $y_{kj}$ , representing the ownership of  $k$  assets by each household  $j$ , principal components analysis starts by specifying each variable normalised by its mean and standard deviation: for example,

$$z_{1j} = \frac{y_{1j} - \bar{y}_1}{s_1}$$

where  $\bar{y}_1$  is the mean of  $y_{1j}$  across households and  $s_1$  is its standard deviation. These selected variables are expressed as linear combinations of a set of underlying components for each household  $j$ :

$$\begin{aligned} y_{1j} &= a_{11}P_{1j} + a_{12}P_{2j} + \dots + a_{1k}P_{kj} \\ &\vdots \\ z_{kj} &= a_{k1}P_{1j} + a_{k2}P_{2j} + \dots + a_{kk}P_{kj} \end{aligned} \quad (3.2)$$

where the  $P_{ij}$ 's,  $j = 1, \dots, m$ , are the components and the  $a_{ij}$  are the coefficients on each component for each variable and do not vary across households. The first principal component  $P_{1j}$  is computed as the linear combination of the original variables with maximum variance and the second one is also a linear combination of the variables, orthogonal to the first, with maximal remaining variance, and so on (Johnson, 1998).

The principal components are recovered by inverting the system implied by (3.2) and yield a set of estimates for each of the  $k$  principal components. The first principal component, expressed in terms of the original variables, is therefore an index for each household based on the expression

$$P_{1j} = l_{1j} \left( \frac{y_{1j} - \bar{y}_1}{s_1} \right) + \dots + l_{1k} \left( \frac{y_{kj} - \bar{y}_k}{s_k} \right)$$

where  $l_{1j}$  is the loading of the  $j^{\text{th}}$  variable for the first principal component and obtained by using

$l_{1j} = a_{1j} \sqrt{\lambda_1}$ ,  $\lambda_1$  is the variance of the first principal component. The crucial assumption for this analysis was that household long-run wealth explains the maximum variance and/or covariance in the asset variables.

## The Household Vulnerability Index (HVI)

After carrying out the descriptive and comparative statistical analysis – Lesotho and South Africa used the data to compute the Household Vulnerability Index (HVI) to establish the aggregate vulnerability (the overall household outcome) of the impact of the epidemic on individual households and on the whole study sample.

The theory used for the construction of the HVI begins from the work originally proposed by Costa<sup>1</sup>. The quest is similar to that of Costa, i.e. to quantify the multidimensional impacts of a health problem on a household. The specific quest of HVI is to assess at the household level, the impact of the HIV epidemic on agriculture and food security. A Fussy Set approach was used to analyse the data.

The HVI is calculated using a model developed in a spreadsheet application. The model computes the sum of the weighted vulnerabilities across all the 17 impact dimensions to give the particular household's total vulnerability  $V_{hh}$  to HIV and AIDS. In this model, the weighted vulnerabilities relate to the contribution of the respective dimension to the households overall vulnerability. Because the unit of measure is the household, the HVI is calculated for each household in a given sample.

The theory for the construction of the Household Vulnerability Index (HVI) uses “the Fuzzy Set approach” to analyse data. The following definitions

<sup>1</sup> Costa, M. (2002). A Multidimensional Approach to the Measurement of Poverty: An Integrated Research Infrastructure in the Socio-Economic Sciences IRISS Working Paper Series No. 2002-05; and Costa, M. (2003). A Comparison Between One-dimensional and Multidimensional Approaches to the Measurement of Poverty An Integrated Research Infrastructure in the Socio-Economic Sciences IRISS Working Paper Series No. 2003-02.



help clarify how the approach is used:

- One can state that for the population  $N$  made up of  $n$  households i.e. ( $N = \{hh_1, hh_2, hh_3 \dots hh_n\}$ ,  $V$  is a subset of  $v$  households that have some degree of vulnerability to HIV and AIDS and care hence impacted by the epidemic. Thus  $v \leq n$  and  $v=0$  implies that there are no vulnerable households, and  $v=n$  implies that all households are vulnerable.
- One can also break down the vulnerability  $X$  into  $m$  specific dimensions of impact, and give a corresponding weight ( $w_i, \dots, i=1, \dots, m$ ) to each dimension. The weights can be predetermined, or developed using an appropriate function.
- The vulnerability of any given household  $hh_i, i=1 \dots n$  to the  $j$ th,  $j=1, \dots, m$  dimension of impact can be expressed as  $X_{ij}$ , and set to take values between 0 and 1 such that 0 = no impact and 1 = full impact. A specific formula for calculating  $X_{ij}$  is discussed later. Thus each  $X_{ij}$  denotes the degree of vulnerability of household  $i$  to the  $j$ th dimension of impact, and  $X_{ij}w_i$  will be the corresponding weighted vulnerability.
- The sum of the weighted vulnerabilities across all dimensions will give the particular household's total vulnerability  $V_{hh_i}$  to HIV and AIDS, that is:

$$\sum_{j=1}^m X_{wj} / \sum_{j=1}^m w_j = V_{hh_i}$$

- It is also possible to sum down the dimensions and calculate the particular dimension's contribution to vulnerability to HIV and AIDS.
- For the study, the sum of the weights has been conveniently set to:

$$\sum_{j=1}^m w_j = 100$$

- The weights are preset using secondary data and previous analysis. The Vulnerability scores per dimension are based on nature (short, medium or long term), extent (ripple effects) and severity (depth of morbidity) of the impact of the different variables tracked within a given dimension.

From the HVI indices established it was then possible to categorize the households according to 3 different degrees of vulnerability:

**1) Vulnerability level 1 = Coping level**

**Households (CLH)** – a household in a vulnerable situation but still able to cope;

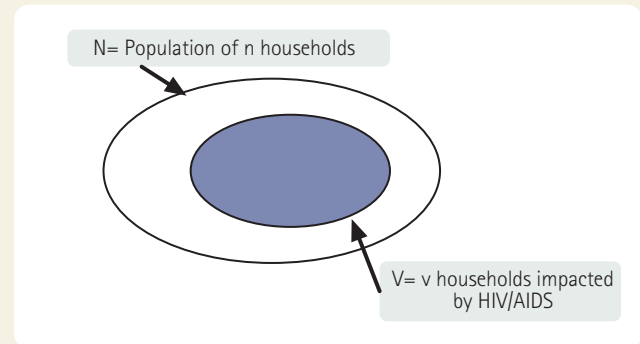
**2) Vulnerability level 2 = Acute level households**

**(ALH)** – a household that has been hit so hard that it badly needs assistance to the degree of an acute health care unit in a hospital. With some rapid-response type of assistance the family may be resuscitated;

**3) Vulnerability level 3 = Emergency level**

**Households (ELH)** – the equivalent of an intensive care situation – almost a point of no return – but could be resuscitated only with the best possible expertise.

The three vulnerability levels are set on the basis of a predetermined **coping** household based on the 17 impact areas and a specified socio-economic context.



The Household Vulnerability Index is calculated by applying the theory discussed above to the data collected

by the household questionnaires, observing a number of steps:

1. Selecting appropriate dimensions of impact.
2. Selecting appropriate variables from collected data to describe these dimensions.
3. Setting the goal posts for each variable: maximum and minimum values.
4. Developing a matrix of weights for the dimensions. Each variable is given an appropriate weight within its cluster using the predetermined weights.
5. Next we calculate the individual variable indices as a number between 0 and 100 by using:

$$\frac{\text{Actual value} - \text{minimum value}}{\text{Maximum value} - \text{minimum value}} \times 100$$

6. The Household Vulnerability Index (HVI) is then computed for the total mark using the formula:

Household Vulnerability Index (HVI) = average value of individual indices.

## 4. Data Storage

One of the key objectives of the study was to design a database for storing data collected. The database would be a source of baseline information to be used for subsequent analysis and longitudinal studies. In developing the database, hypotheses that the database sought to test were defined. This was deemed an important part of the database, as it would not only group and justify the variables that were included, but also form a basis for current and future analysis. The following hypotheses were proposed: (Table 2.1)

Developing the regional database was a regional process that involved input from the various stakeholders. First, a structure was proposed for the regional database and appropriate software selected; then a regional workshop was called, followed by a participatory database population initiative.

The structural design of the database, was based on the generic unified questionnaire. Samples of completed questionnaires used in the seven countries were analysed and an agreed set of variables identified for purposes of defining each of the 17 dimensions.



Table 2.1: Linking the Database to hypothesis tracked.

<b>Indicator Area</b>	<b>Variables tracked by the study</b>
<p>1. Changes in demographic characteristics of Households. Hypothesis: HIV and AIDS negatively impacts on household compositions, with increases in child-headed households that are less equipped to contribute to food production.</p>	<p>1.1 Who is the head of the household? 1.2 What is the highest level of education for the head of the household? 1.3 What is the highest level of education for most learned member of household? 1.4 Number of married people in the household 1.5 Average age of household members 1.6 Range of ages for households</p>
<p>2. Changes in family health history. Hypothesis: HIV and AIDS results in increased morbidity and reduced well-being.</p>	<p>2.1 Which diseases have occurred among family members recently 2.2 How many members of the household have suffered from AIDS-related diseases in the last three years? 2.3 How many members of this household died from AIDS-related illnesses in the last three years? 2.4 How does illness affect the family? 2.5 What percentage of family income is spent on health?</p>
<p>3. Changes in death patterns at household level. Hypothesis: HIV and AIDS results in increased mortality of productive members of the households.</p>	<p>3.1 How many deaths have you experienced in your household in the last three years 3.2 What was the cause of death? 3.3 Who generally provides financial support at a funeral in your household 3.4 Are deaths increasing or decreasing? 3.5 What is the monetary cost of funerals?</p>
<p>4. Assessment of changes in household wealth. Hypothesis: Death of adult family members increases impoverishment and food insecurity.</p>	<p>4.1 What property was left behind at the last adult death in the household? 4.2 How was each asset disposed of? 4.3 What is the asset composition for the household? (both for domestic and field use) 4.4 Which live-stock does the household own, and in what numbers? 4.5 How many animals were sold in the last year? 4.6 How much money was accrued from the sale of livestock? 4.7 How much money was accrued from the sale of livestock by-products (eggs, milk, and meat).</p>

	<p>4.8 How much money does the household receive from sale of crops and animals, employment, government and family members? (What is the household's total income?)</p> <p>4.9 How much is spent by the household per month on different aspects (school fees, farming inputs, savings etc)?</p> <p>4.10 Which periods of the year does the household face food insecurity and shortages?</p>
<p>5. Changes in land cultivation. Hypothesis: HIV and AIDS impacts land cultivation patterns</p>	<p>5.1 What is the total size of fields?</p> <p>5.2 What percentage of total household land is cultivable?</p> <p>5.3 What are the prevailing soil types for cultivated fields?</p> <p>5.4 What is the distance to the fields?</p> <p>5.5 What is the annual seed and fertilizer input? Kgs and cost.</p> <p>5.6 What changes in cultivable land due to illnesses?</p> <p>5.7 What is the main source of inputs?</p> <p>5.8 Who provides labour for cultivation?</p> <p>5.9 What has changed as a result of illness in the family?</p> <p>5.10 What is the total cultivable land that is available for the Household?</p> <p>5.11 What percentage of cultivable land was cultivated in the last year?</p> <p>5.13 What are the predominant crops grown?</p> <p>5.14 What revenue is realized from the sale of crops?</p> <p>5.15 What costs are associated with ploughing? Weeding? Harvesting?</p>
<p>6. Coping strategies. Hypothesis: Households and communities are developing coping strategies that need to be supported.</p>	<p>6.1 What are the main challenges with securing finances?</p> <p>6.2 How are these overcome?</p> <p>6.3 How does the community assist bereaved families or those with sick members?</p> <p>6.4 What support is obtained from government and NGOs?</p> <p>6.5 What is the main source of information on HIV and AIDS?</p> <p>6.6 What safety-nets exist?</p> <p>6.7 Labour saving?</p>



## Selecting Software Platforms

The researchers considered a number of issues when selecting the software mix. Of primary importance was what the database would be used for, by whom, and how the database would be stored. It was also important to consider the other platforms already used at the country level. For software, SPSS, Microsoft Excel, Microsoft Access and Epi Info were proposed and used:

- SPSS was chosen as the software for basic and advanced analysis. Six of the seven countries analysed their data using this software. A number of the FANRPAN nodes employed the services of qualified statisticians, and SPSS was their choice of software.

- Microsoft Excel was included because of its wide usage, and that it would serve as a platform for moving between different applications.
- Microsoft Access was included as the main database application.
- After analysing the country level data, it was noted that some additional data entry was going to be necessary. Epi Info is generally preferred when entering survey data into the computer. Epi Info also enters data into Microsoft Access database formats. Thus the data entry platform was developed in Epi Info.

The country-level databases were developed in SPSS, while the regional database was constructed in Microsoft Access. A data entry platform for the Access database was designed in both Epi info and Access.



3





## *Evidence of Impact from rural communities in southern Africa*

Between 2003 and 2005, national research teams used a standardised questionnaire to collect data from seven SADC countries: Botswana, Lesotho, Namibia, South Africa, Swaziland, Zambia and Zimbabwe. Using preliminary and advanced analysis techniques, researchers explored the effects of the epidemic on assets in the human, financial, physical, social and natural dimensions, and how these affect agriculture, food security and nutrition security.

Results from this research demonstrate that HIV and AIDS increase the vulnerability of households to food insecurity because they affect the core factors of production such as labour, financial resources and investments. Once a household member falls sick, this entails a reduction in the labour supply to agriculture as well as to the household's participation in markets. Resources are diverted from agriculture to paying for medical and funeral costs. As the situation deteriorates further, households are forced to sell livestock, household assets and other livelihood assets. Female-headed and child-headed households also risk losing their land after the death of a male household head. Agricultural production declines and nutrition is compromised, as households resort to eating the same diet for all three meals, and at times the number of meals per day is reduced from three to one.

**Human capital** data was collected to explore: demographic characteristics of households, mobility of household members, changes in labour patterns and gender dynamics.

With respect to **financial and physical capital**, researchers explored changes in household expenditure, income sources, liquidation of investments. In addition, data were collected on the impact of financial changes on household food and nutritional security.

To examine the effects on **social capital**, data were collected on a variety of social support networks, including those provided by the community, governments, non-governmental organisations as well as traditional safety nets.

With regards to **agriculture**, researchers explored the changes in production decisions - cultivated area, crop diversity, level of inputs use, productivity, as well as the impact of HIV and AIDS on the agricultural extension services.

In the **food security** dimension, data were collected on the household's ability to access food by exploring the stability of supplies and purchasing power.

In the dimension of **nutritional security**, researchers explored changes in the types of food consumed, changes in dietary composition, nutritional value, food safety, food quality and child nutrition. In addition, data were collected on the utilisation of food.

The following section presents and discusses the summarised findings of the study.

## 1. Human Capital

Human capital represents the skills, knowledge, ability to work and good health that enable people to pursue different livelihood strategies and achieve their livelihood objectives. The health of household members is a key variable within the human capital dimension. It relates to the number of days that family members are able to work. Within this dimension, data was collected on the demographic characteristics of households, mobility of household members, changes in labour patterns and gender dynamics.

### Household Demographics

HIV and AIDS have affected adults between the age of 15 and 49 years - the prime productive and reproductive years. Over the past 20 years, countries in southern Africa have witnessed significant changes in life expectancy and demographic patterns. Many countries have witnessed a growing number of grandparents, single parents and children who are heading households. The impact of the HIV epidemic on households varies, depending on the sex of the household head. Typically, female-headed and child headed households are more vulnerable.

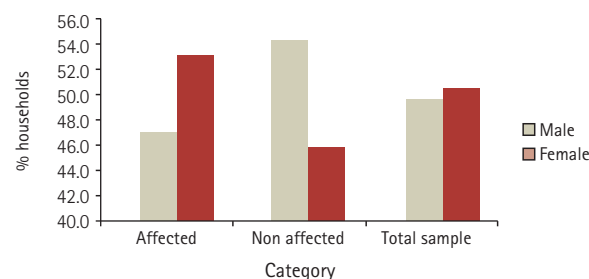


Figure 3.1: Gender of household heads in affected and non-affected households in South Africa

In all the seven study sites a large number of households in the rural areas are headed by a female. This has significant implications for agriculture as well as for total income for the household. Traditionally, men have been able to get employment off the farm and tend to have better access to job opportunities. In South Africa, women were found to head a greater proportion of the affected households (53%) in comparison to non-affected households (46%) (see Figure 3.1).

In Zimbabwe, researchers reported higher than normal mortality rates among young parents, which resulted in the transformation of rural families into single to zero parent households. Over 50% of the rural families surveyed in Zimbabwe have lost one or both parents. Most of the parents died between the age of 26 and 38 years, leaving the burden of farming, educating and raising very young children, to close relatives. In the surveyed areas, widowed female-headed (single parent) households appeared as the dominant family type followed by the traditional two-parent household, where both parents live in the village.

Throughout all countries, widows headed 12% of the households participating in the study. In Lesotho, the results confirmed a significant number of orphans were

living with elderly grandparents. Among the participating households, children (40%) and grandchildren (18%) formed a significant proportion of household members.

In South Africa, dual parent households were prominent in the study area. However, it was noted that fewer HIV-affected households were headed by both parents (46%) compared to the non-affected with 40%. The affected households have more households headed by either widows or widowers in comparison with non-affected households. Orphans headed approximately 2.4% of the households. In most cases, it was observed that after the death of a breadwinner, the affected households are integrated into households of grandparents.

## 2. Education and Employment

In all the seven countries, the education level of household heads was low. In South Africa, Zambia, Botswana, Lesotho, and Zimbabwe, approximately 50% of respondents had completed primary education. The exceptions were in Namibia, where the majority of respondents were not formally educated and in contrast, Swaziland, where the majority of respondents had completed secondary education. Three percent of respondents had completed tertiary level education.

The majority of all household heads participating in the study were not formally employed. Between HIV-affected and non-affected households in South Africa, it was found that fewer of the HIV-affected households have a head that is in wage/formal employment. The head of affected households tended to be more often involved in self-employment and other activities. It is possible that members from affected households who are self-employed, have a more flexible schedule, which allows them to care for sick relatives. However, in this study, fewer affected household heads spent time in childcare and housework than in non-affected households.

**Mobility of household members: Urban to rural migration** The frequent illness experienced by people suffering from HIV related illnesses can result in job losses. In the case where a family member is resident in the city, they frequently return to the rural areas to receive care from the family. This migration increases the dependency ratio of the rural household.

In Botswana, there was a clear unidirectional movement of sick persons from towns to villages. The most frequent reason for residing in town before illness was to find work. While the proportion of persons who lived in villages before illness was 37.4 %, the percentage increased to 92 % after illness. A significant proportion (31.7%) of the affected individuals lived in towns before illness, declining to 6.9 percent after illness. This has implications for rural households' food security.

**Changes in Labour Patterns** During this research, it was hypothesised that the productivity of household members and the number of available working days would decrease due to the impact of HIV and AIDS. It was anticipated that with greater HIV infection, household members would have to dedicate more time to caring and less time to agriculture or other income producing activities. In addition, it was hypothesised that, the dependency ratio- that is the number of dependants versus the number of economically-active individuals in the household - would increase.

**Household labour allocation** In South Africa, the household head made the decisions regarding planting, ploughing and marketing of agricultural crops. Where the head was not present, then the spouse, if available made such decisions. A variation between the HIV-affected and the non-affected households was noted in terms of labour allocation for specific chores. In affected households, women spent less time in summer field cropping compared to their counterparts in non-affected

households. Herding livestock is a chore frequently done by men and children. Yet in affected households, fewer children were involved in herding than in non-affected households. In affected households, fewer women (31%) were responsible for gardening activities whilst in non-affected households this figure is higher (47%). Children in affected households were responsible for gardening activities compared to children in non-affected households. With the exception of herding duties, children in affected households were increasingly called upon to assist with household chores and agricultural activities.

In Zambia, the majority (50%) of the households affected by HIV modified their agricultural and household labour activities. In the field, minimum tillage practices (mostly pot-holing) tended to be adopted. In the household, approximately (35%) households faced with labour constraints relied on children under the age of 15 years for agricultural labour.

In Botswana, activities such as land clearing, cultivation, weeding and fighting pests were undertaken through joint efforts of the household and hired labour. It was interesting to note that land cultivation was the exception, which was predominantly undertaken by hired labour. The reason for this might be that many farmers hired tractors for ploughing and the tractors come with the drivers (labour). When comparing HIV affected and non-affected households, it was reported that after an illness, there was an increase in the proportion of activities that are not completed. For example, in some cases it was reported that a male household head made decisions on the livestock enterprise. After illness, there is a noticeable increase in instances where no specific member of the household makes decisions. In HIV-affected households, the performance of family members in crop activities declined while the use of hired labour increased.

In Swaziland, households with members living with HIV or male members who had died, passed on the responsibilities of performing agricultural activities to a female adult or children. The death of a male head of household meant losing an individual responsible for agricultural labour and farm management activities. Equally, while the responsibility for farm management was transferred, in many cases the skills and agricultural knowledge were not transferred to surviving members. As a consequence, agricultural production and food production were affected.

In Namibia, all respondents aged 8 and above were asked if they had worked for financial or family gain during the previous week. The most prominent categories of employment are self-employed or subsistence farmer. Self-employment means running a *cuca* shop (*shebeen*), a small shop or selling roasted meat, called “*okapana*.”

**Hired Labour** Hiring additional labour can be a key strategy for saving time and making household work easier. A household that hires additional labour may be able to use the free time to provide additional care for family members. However, in this study, few households hired additional labour or used alternative labour sourcing strategies. Of the 210 respondents interviewed in Lesotho, only 26% (55) admitted to having used hired labour; 11% (23) of the respondents hired labour for farming activities, while 6% and 5% hired labour for domestic work and gardening respectively. Another 5% hired labour for other household tasks that included caring for the sick. Only 3% of the respondents who used labour saving technologies in Lesotho reported that they did so because they were caring for someone living with HIV.

Approximately 15% of those who used hired labour maintained that it had serious budgetary implications.

Hired labour increased their expenditure and reduced resources for medication and health supplies for the patient.

**Traditional labour sourcing strategies** Yet, some households had other non-cash labour sources that they exploited. The barter system was used where households paid with clothes (1%) or with grain (10%).

Very few respondents used traditional Sesotho work groups called *matsema*.

It was suggested that since *matsema* is a reciprocal community labour exchange, it may be difficult for households with infected members to reciprocate because of the additional time required to care for ill family members. Communities would expect equal and undivided reciprocity, even from households that are severely affected.

**Labour losses as a result of deaths and funerals**

Throughout all countries, households reported various ways in which labour was lost as a result of chronic illnesses and death. Of the interviewed households in South Africa, 70 % said that taking care of an ill person means spending less time on other activities. It was found that labour losses were experienced due to the time lost when 1) a household member was ill and bedridden, 2) household members were caring for ill family members

and 3) members attend the funeral of their family or another community member. The study revealed that the households lost an average of 3.23 hours per day, with death-affected households losing an average of 7.13, illness-affected households losing 6.24 and non-affected households losing 0.34 hours per day.

**Gender Implications**

Of the seven countries participating in the study, four countries (Botswana, Zimbabwe, South Africa and Namibia) reported that most rural households were lead by women. The exceptions were Swaziland, Zambia and Lesotho (see Figure 3.2). Current statistics indicate that women are increasingly more vulnerable to HIV infection. UNAIDS (2005) has estimated that 57% of people living with HIV and AIDS in southern Africa are women. Due to cultural and social traditions, women bear the brunt of the epidemic, both in terms of providing care for people living with HIV and AIDS as well as being at risk for HIV infection.

In Swaziland, gender inequality and poverty play a role in the HIV and AIDS epidemic. The vulnerability of women to HIV infection in Swaziland, as in many other countries, is related to gender biased cultural practices. The practice of polygamy increases the risk of women being infected. Women are also tasked with the responsibility of caring for the sick members of the household, which also increases the risk of getting infected. When the man falls sick, it is the responsibility of the wife to provide care and take on additional duties to support the family. However, when the wife becomes sick, it is traditionally the responsibility of other women (not the husband) to provide care.

In Lesotho, women played a major role in caring for sick members of the household. Typically, between the age of 20 to 39 and 40 to 59, the women were directing their energies and time into caring activities, instead



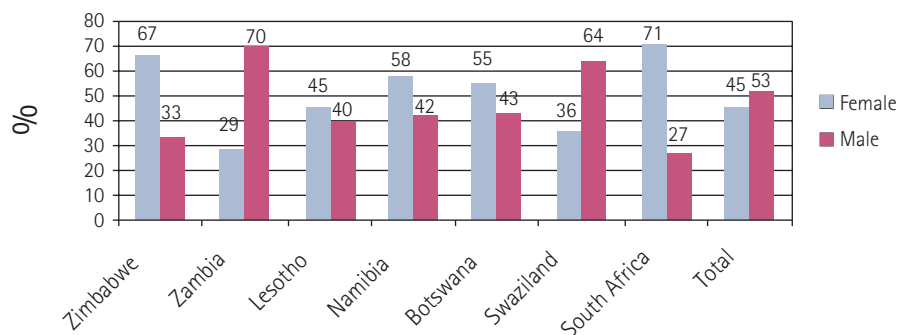


Figure 3.2 Gender of the household head in the study area

### ***Socio-economic comparison of male and female-headed households: Case study in Zimbabwe***

of farming or being employed elsewhere to generate income for their households.

In Botswana, women headed 57% of HIV - affected households compared to 47.1% of those not affected. On average female-headed households are bigger, with more dependants than male-headed households.

### **HIV-Affected households**

In Zimbabwe, households affected by HIV, including male and female-headed households, do not own many cattle. The male-headed households were found to have more land that is cultivated, and their total land area is bigger compared to their female counterparts. Traditionally, women are usually dispossessed of their land or assets after the deaths of their husbands, such that they remain with little or no assets at all.

There is a significant negative gender difference in the area allocated to cash crops and in the number of crops

that households grow. The male-headed household with HIV and AIDS continues to diversify and grow cash crops, while affected female-headed households shift out of cash crops. Since male-headed households have more income from other formal or informal jobs, they can afford to diversify and grow more crops in addition to maize, and still remain food secure. The time that women spend on care-giving roles is considered time lost from productive work in their own fields.

The male-headed household allocated relatively less land to food crops than the female-headed households and affected males. With price controls having reduced maize to a subsistence crop, there is no incentive for households to grow surplus acreage of maize over and above their food requirements. Households allocating more land to maize are concerned about their food security and may also be trying to compensate for low yields per unit area. Cash crops provide better returns in terms of income. Female-headed households are

concerned about growing enough food for the family. Affected female households invest very little in maize based farming compared to male headed households growing cash crops, who tend to invest more of their income into their cash cropping.

The female-headed households enjoy marginally higher levels of food security and food self-sufficiency than male-headed households. They are also more productive in terms of their maize yields as compared to male-headed households. Although females are affected more by HIV and AIDS, they appear to have offset the impact sufficiently by adopting cost and labour saving technologies for their maize based farming. The analysis shows that HIV and AIDS affected female-headed households are more self-sufficient compared to male-headed households.

See Table 3.2 Socio-economic comparison of HIV and AIDS affected male-headed and the female-headed households (Zimbabwe)

There is a significant difference in the number of orphans being cared for in male-versus female-headed households. Unlike Botswana, the two parent and male-headed families are entrusted with more orphans than female-headed households. The weighted index of the sick, which is a measure of severity of HIV and AIDS, is significantly higher in male-headed households. As the number of people who are sick increases, more resources - in terms of money and productive time - are diverted to take care of the sick, thus negatively affecting agricultural productivity.

### ***HIV non-affected households***

Non-affected households also suffer the impacts of HIV and AIDS, but to a lesser extent. In non-affected households, female-headed households have fewer assets as compared to male-headed households, but possess

almost the same amount of land showing a high degree of gender neutrality in security of tenure (see Table 3.1 overleaf)

The asset/wealth index of male-headed households is higher than that of female-headed households for the reasons highlighted above. For the non-affected households, both male and female-headed households grow the same crops. The male-headed household grows relatively more of both maize and cash crops than the female-headed household, primarily because of his superior access to financial resources and ownership of his own team of oxen for draft power. However, in relative terms, male-headed households still dominate in growing of cash crops, whilst women still specialise in the growing of legumes. Female-headed households still enjoy superior yields for maize and greater levels of self-sufficiency

Since the female-headed non-affected households have more time for crop production compared to the HIV and AIDS affected female-headed households, one would have expected their yields to be considerably higher, but this is not so. This evidence points to the uncertainty regarding the extent to which labour is a constraint to productivity in households that are affected.

The weighted index of the affected is high for female-headed households, since they are the ones who take care of those who are sick with HIV & AIDS-related illnesses although this is not significant.



Table 3.1 Socio-economic comparison of HIV and AIDS affected and non-affected male-headed and female-headed households

Variable	Male-headed affected	Male-headed non-affected	Female-headed affected	Female-headed non-affected
Demographic factors				
Family size	5.38	5.17	5.81	5.19
Age of household head	48.29	45.67	49.06	47.19
Assets /wealth owned				
Number of cattle owned	0.90	2.28	0.71	1.02
Total land area	3.29	1.21	3.42	1.60
Total land cultivated	2.21	1.37	2.47	1.22
Total income (ZW\$)X1000	164	1349	202	100
Asset/wealth index	20.22	27.50	19.29	19.86
Total expenditure (ZW\$)X1000	938	2 064	1 086	999
Crop choice				
Number of crops grown	2	1.83	2.5	1.71
% of land allocated to maize	66.29	31.16	46.73	56.47
Area under cash crops	0.26	0.29	0.56	0.63
Area under legumes	0.40	0.18	0.35	0.28
HIV and AIDS factors				
Number of orphans	1.63	1.50	0.71	1.14
Number of deaths	1.86	1.17	1.82	1.12
Weighted index of the sick	4.07	1.97	5.31	2.05
Impact variables				
Maize yield/ha	759	699	748	679
Food self sufficiency	0.91	0.69	0.73	0.77
Food security index	1.42	2.03	1.33	1.45

### 3. Financial and Physical Capital Assets

Financial Capital represents the financial resources that people use to achieve their livelihood objectives. This includes active income earned through remuneration (for labour and services) and passive income earned from the sale of physical convertible assets. Throughout this study, researchers explored the impact of HIV and AIDS on household expenditure, income sources, and assets such as land, livestock and farm implements.

#### Impact on Household expenditure

HIV and AIDS are expected to have a negative impact on a household's capacity to earn income, thereby changing the household's expenditure patterns. Smallholder agriculture is labour intensive with low levels of mechanisation. HIV and AIDS have the potential to erode the active labour force in a farming system, thus reducing hours at work for both on-farm and off-farm activities. Therefore a household's opportunity to earn income is reduced and in turn, the expenditure pattern is altered.

HIV and AIDS are believed to be reducing farmers' ability to produce for the market in most countries in the SADC region. With fewer resources coming into rural households, it was anticipated that household expenditure patterns have also changed. Household expenditure included expenditure on crop production, household assets, food, hospital bills, transport and funerals.

More specifically, it is hypothesised that affected households spend most of their financial resources on medicines, hospital charges, special diets for the sick and funeral expenses. This reduces income invested in other important areas such as education and agriculture, thereby compromising the present and future food security status of the household.

**Health Bills.** Study results demonstrate that HIV and AIDS increase expenditure on health, especially in Lesotho, Zimbabwe and Swaziland. Expenses for medication and hospital bills were relatively high in affected households, when compared to other household expenses. This explains why households had little to spend on food and the purchase of assets. Most of the households' income was diverted to paying for medical treatment. Households who were covered by medical insurance, spent larger amounts compared with those who paid for medication out of their pockets. Individual households provided the money to pay hospital bills, with little assistance provided through loans from relatives and neighbours.

**Food expenditures** tended to be low before an illness or death, though representing a significant proportion of household income. Food was mainly produced by household members complemented by limited purchases of essential basics not normally produced, such as salt, sugar and cooking oil. The amount of money spent on food declined during illness and after the death of a household's main bread winner. It is important to note

that many households could explain trends but could not remember the exact amounts spent on food, as they do not normally keep records.

**Burials.** Money spent on funerals has increased as a result of the epidemic. In Swaziland and Lesotho households reported that a significant proportion of their earnings was spent on funerals. The spending pattern on burials varied among households depending on whether a household has a funeral policy and its value.

**Transport.** In Lesotho, it was reported that transport expenses increased during illness because the ailing patients became weak and could no longer walk long distances. Consequently, affected households had to opt for motor vehicles instead of their traditional mode of transport such as walking and riding on horseback. The implication is that travelling became expensive for affected households who already had limited funds.

Within the South Africa sample, the overall household expenditure for affected households per month was much higher than is incurred by non-affected households. Affected households spent considerably more money renting farm machinery. Transport costs for affected households are however less for affected households than non-affected households. This may be because the epidemic reduces mobility of household members as they spend time looking after the sick. As expected health expenditure for affected households is higher than for non-affected households.

## Impact on income

**Income Sources.** Income sources for the households include wage employment, casual employment, crop and livestock sales and remittances from non-resident household members. In South Africa, some households receive social grants. Most of the households did not participate in crop output markets. Of those that did,

affected households recorded higher crop sales than non-affected households. This number is however very small in comparison to the total households surveyed. The mean adult income for affected households was found to be lower than that for the non-affected household. In Zambia, in addition to income from agriculture, income is also generated through borrowing, selling of labour, selling of naturally occurring resources such as fish, wild fruits, other forest products and charcoal.

### Impact on Physical Assets

The impact of HIV and AIDS on asset ownership has largely been negative. Barnett and Rugalema (2001) stated that HIV and AIDS reduce a household's ability to maintain old assets and acquire new ones. Rural households often resort to the disposal of productive assets, including domestic animals, as a short-term mitigation strategy (Chen & Dunn, 1996). This has resulted in loss of edible animal products, draught power and organic fertiliser.

The study investigated the impact of the epidemic on assets such as livestock, farm implements, land ownership, and non-agricultural utensils. Results indicate that HIV and AIDS have a detrimental effect on asset retention, especially for households already affected by poverty. A considerable proportion of households, especially in Zimbabwe, Lesotho and

Botswana, reported selling livestock and farming implements as a result of HIV and AIDS (see Table 3.2). Some households indicated that farming time and financial resources were diverted from agriculture to health care. The diversion of resources is one of the short-term coping strategies that are being adopted. In Zambia, affected households rely heavily on the sale of assets such as domestic utensils and productive assets to raise money to meet household expenditure demands.

In Zimbabwe, the volumes of net transactions show considerable variability across all households (Figure 3.3). Household asset transactions are affected by a number of social, economic and household-specific factors, including HIV-related factors such as severity of illness and incidence of adult deaths. The issue to clarify was "To what extent are HIV and AIDS important in accounting for the disparities in observed volumes of net transactions across the 327 households in the study - in the presence of all other important factors"?

Researchers in Zimbabwe used an econometric analysis to test the significance of the relationship between a household's experience with HIV and AIDS and its asset transactions. Though HIV and AIDS related variables are not significantly affecting the net value of asset transactions (Table 3.3), their coefficients show

Table 3.2 Percentage of reported losses due to HIV and AIDS

Country	Livestock sold	Farming time lost	Financial resources diverted	Farming implement sold
Zimbabwe	19.4	68.1	54.1	0.9
Zambia	0.5	24.1	2.0	-
Lesotho	1.4	-	-	61.0
Botswana	13.4	51.6	-	-
Swaziland	-	-	92.4	3.8



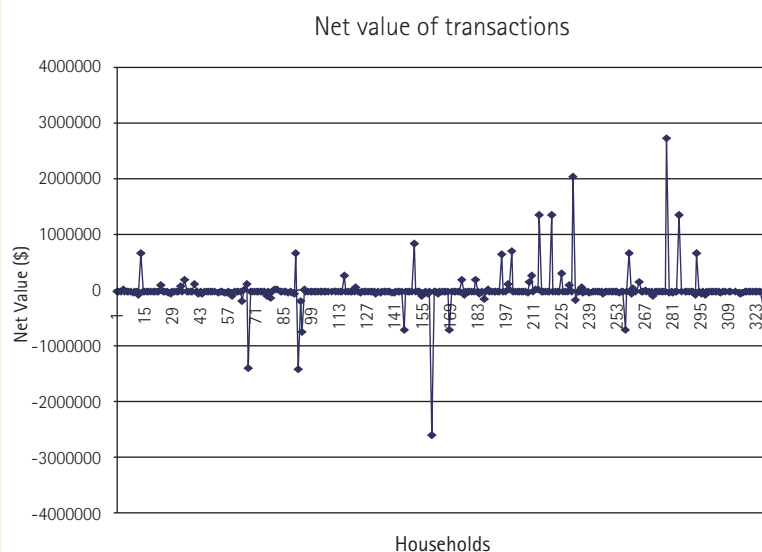


Figure 3.3: Volume of net transactions across households (Zimbabwe)

HIV and AIDS are shown to be indirectly affecting the pattern of asset transactions in rural households through their effects on other significant household demographic factors. The net value of asset transactions is higher for male-headed compared to female headed households. Net value from asset transactions also increases with family size. A larger family is likely to have older children of secondary school going age. Thus despite the effect that HIV and AIDS could have on such households, they are likely to dispose of more of their assets to invest in education and the purchase of food. As more orphans are absorbed, the overall family size increases as a consequence of HIV and AIDS, so too does the need for more income.

that they are resulting in households selling more assets than they are buying. The value of asset transactions increases with households that have sick adults and those that have suffered adult deaths.

**Livestock Assets** Over the past decade, the rate of livestock accumulation has been very low in most SADC countries, ( particularly in Zimbabwe and Lesotho) due to a combination of factors such as drought, poverty

Table 3.3 Results from the Assets Transaction Model (Zimbabwe)

Dependent Variable	Log of Net Value from Asset Transactions		
	Std. Error	Standardized Beta Coefficients	t
Constant	0.02	15.50	1.12
With/without sick household members	0.38	-0.19	-1.42
Number of Aids related adult deaths	0.19	0.14	1.01
Logarithm of total income	0.19	-0.18	-1.20
Sex of household head	0.45	-0.40	-2.72***
Age of household head	0.01	0.50	3.79***
Marital status of household head	0.35	-0.31	-2.13**
Size of the family	0.09	0.42	2.91***
Number crops grown	0.29	-0.17	-1.27
R		0.76	
R squared Adjusted		0.43	
Durbin Watson		1.96	

\*\*\* Significant at 1%, and \*\* significant at 2%

Table 3.4 Livestock ownership in various countries

Country	Cattle	Donkeys	Pigs	Goats	Sheep	Poultry
Zimbabwe	1.1	2.3	2.0	2.3	0.0	6.1
Lesotho	2.8	1.7	1.8	7.7	2.3	5.0
Namibia	17.5	5.9	5.3	19.4	29.4	14.4
Swaziland	14.4	4.0	22.5	9.7	19.5	15.0

and environmental degradation. When compared to other countries in the region, smallholder farmers in Namibia and Swaziland own relatively larger numbers of all the identified livestock types (see Table 3.4).

In Zimbabwe, the households interviewed reported very low cattle holdings of approximately one beast per household. This is not surprising, given that the overall average cattle holdings for the whole sample is approximately three beasts per household. This is also a low figure given the importance of cattle in farm production and their role as an investment asset.

In Swaziland, the effects of HIV and AIDS on agricultural assets and livestock are indirect. It was observed that households with infected members, or members who have died, would usually find themselves with less money to pay hospital or funeral bills, which might force them to sell livestock to meet such costs (see Table 3.5).

In Zambia, livestock have remained as the major productive asset upon which rural households depend. With increasing HIV and AIDS-related illnesses and

deaths however, livestock numbers have been declining, as affected household tend to sell stock to meet increasing household expenses. As can be seen in Table 3.14 below, all average herd/flock sizes per household, apart from sheep have decreased. The major reason for the declines in average herd/flock sizes were mainly selling to offset funeral expenses and to meet other financial obligations.

In Namibia, an interesting trend was noted. In general, data showed that households with middle-sized herds tend to have fewer livestock in 2004 than 2003. Those with very few livestock have either maintained their herd size – not necessarily a good sign because it means no increase in wealth – or, had a mixed record. Those with larger herds tended to maintain or increase their assets. Table 3.15 provides a summary of livestock sold in the three regions. Two factors stand out. First, very few households are selling livestock. Consumption and/or barter are the main means of disposing of animals. Second, the pattern holds true for households in the Kavango sample, this being the least economically active (or agriculturally productive) region, while those in Oshikoto are the most active.

Table 3.5 Percentage change in Livestock numbers for Households experiencing HIV and AIDS related illnesses or deaths of adult members (Swaziland)

Region	Bulls	Cows/ Heifers	Donkeys	Sheep	Poultry	Oxen	Young calves	Goats	Pigs
Lubombo	-14%	-24%	-1%	-	-24%	-10%	-2%	-5%	-2%
Manzini	-14%	-52%	-3%	-3%	-67%	-30%	-13%	-17%	-4%
Hhohho	-48%	-37%	-	-	-17%	-26%	-16%	-28%	-10%
Shiselweni	-56%	-40%	-	-	-43%	-21%	-32%	-32%	-4%

Table 3.6: Average stock herd/flock sizes per household type (Zambia)

	Household Type			
	Male HH		Female HH	
	Mean # owned in 2004	Mean # owned in 2001	Mean # owned in 2004	Mean # owned in 2001
Cattle	7.2	11.1	8.2	9.4
Sheep	7.0	0.0	0.0	0.0
Goats	9.9	12.5	4.5	10.4
Pigs	4.9	9.8	2.8	7.7
Chickens	13.9	20.5	10.6	19.9
Guinea Fowls	9	11.6	17.5	28.0
Ducks	5.2	9.6	7.25	21.3
Turkeys	5.1	13.0	2.5	0.0

Table 3.7: Sale of Livestock in 2004, Kavango, Oshana and Oshikoto (Namibia)

	Kavango	Oshana	Oshikoto
Cattle			
No. HH Sold	2	1	3
No. Sold	2	6	9
Total Value (N\$)	3,400	N/A <sup>1</sup>	28,530
Range (N\$)	1,000 – 2,400	N/A	1,800 – 9,000
Pigs			
No. HH Sold	N/A	6	3
No. Sold	N/A	9	19
Total Value (N\$)	N/A	N/A	5,616.00
Range (N\$)	N/A	N/A	35 – 600
Ave. Income per HH (N\$)	N/A	N/A	1,872.00
Goats			
No. HH Sold	2	2	10
No. Sold	13	6	18
Total Value (N\$)	2,550.00	N/A	4,405.00
Range (N\$)	N/A <sup>2</sup>	N/A	120 – 650
Ave. Income per HH (N\$)	1275.00	N/A	440.50

Table 3.8 Livestock Slaughter for funerals(Zimbabwe)

Proportion of households that slaughtered livestock at funeral of member	Type of livestock slaughtered	Proportion of households that slaughtered each type of livestock
56%	Cattle	31%
	Goats	22%
	Chickens	1.2%

<sup>1</sup> This was a refusal to provide information.<sup>2</sup> Respondent gave total of all sales and not a breakdown of price per animal.

Table 3.9 Ownership of beasts slaughtered for funerals (Zimbabwe)

Type of Livestock		Frequency owner of the slaughtered livestock	Percent owner of the slaughtered livestock
Cattle	Deceased household	80	86
	Relatives	4	4
	Community members	1	1
	Bought	8	9
Goats	Deceased household	49	77
	Relatives	1	2
	Community members	1	2
	Bought	13	20
Chickens	Deceased household	2	67
	Bought	1	33

In approximately 86% of the cases where cattle were slaughtered, the beast belonged to the deceased, whilst 77% of the goats slaughtered belonged to the deceased individuals. These results are shown in Table 3.8. The implications of these results are very clear. The deceased families are losing their livestock holdings. Given that the average cattle holdings for each household that has suffered adult mortality is approximately one beast per household, then another adult death is likely to leave such a family with no cattle at all.

In South Africa, about 95% of the households which experienced death had to slaughter a beast for the funeral. The most common animal slaughtered was an ox (88%), whilst 6% slaughtered a goat. Only 1.4% of the households reported loss of assets as a result of asset grabbing by relatives of the deceased.

For most households that have experienced death, livestock was left for the deceased's family, whilst clothes and utensils were, in some instances, shared amongst all present.

**Farming Implements.** HIV and AIDS threaten households' capacity to maintain existing farm implements and to acquire new ones. Whether it is an ox plough, or scotch cart, the acquisition or sale of a farm implement has an impact on a household's overall productive capacity. In Zimbabwe, in approximately 25% cases where the deceased owned an ox-drawn plough, indications are that in one out of five cases, the asset remained with the family of the deceased and was not given to other relatives. Where the deceased individual owned cattle and a scotch cart, these also remained at the deceased's household in most cases.

Table 3.10 Percentage of households with agricultural assets (South Africa)

Asset type	Non affected %	Affected %
Plough	11.0	12.0
Pump	5.1	4.0
Cultivator	5.9	7.0
Harrow	16.9	14.0
Wheelbarrow	70.3	66

In South Africa, there is no difference between affected and non-affected groups in terms of the agricultural implements owned (Table 3.9). As with many of the countries participating in the study, the most commonly owned agricultural implement is a wheelbarrow whilst just about a tenth of both the affected and non-affected households own ox-drawn ploughs.

**Land Ownership.** Land is an important asset in rural households. It provides the basis of most rural livelihoods, and as such little or no access increases poverty in rural communities. Most households in the study reported that they had user rights or Permission to Occupy (PTO). This means land cannot be sold to generate income. There does not seem to be any difference in terms of method of acquiring land between the affected and non-affected households. None of the households affected by HIV and AIDS reported that they had lost land due to the death of family members. Rather what was prevalent was that some of the households stopped using some of their pieces of land after the death of a senior male household member.

In Swaziland access to land by a household depends on the presence of a male adult. Therefore, when a husband dies and leaves behind a wife, the ability of that household to access and retain land becomes indeterminate if there is no male child in the household. Acquiring additional land is easy for households headed by men. Women-headed households in Swaziland risk having their husbands' land confiscated by the husband's family, as women do not have the right to inherit land

in the rural areas. Sometimes widows also lose rights to land use. Forced removal of widows from land, and property grabbing by in-laws, which is common in Swaziland, is an aggravating factor to poverty, which further increases the exposure to the risk of HIV and AIDS.

The mean size of land holding for the affected households is 2.17 hectares, whilst that for the non-affected households is 2.37 hectares (Table 3.18). Almost a third (32.6%) of the affected households, and a fifth (20%) of the non-affected households said they were not utilising all the land that they had for crop production. The reduction in acreage under crop production is likely to impact on total agricultural production for these households, and for the affected households, this in turn affects the food security status of the household.

The key reasons given by respondents for failing to use all of the available land in the household included the following:

- Distance to field too far;
- Insufficient funds to purchase inputs and plough the land;
- Insufficient rain;
- Looking after ill person;
- Illness of person responsible for farming;
- No one is interested in using the land;
- Old age and sickness;
- Parents are employed off-farm far from homestead, labour for agriculture is not available;

Table 3.11 Household land ownership and utilisation

Category of household	Mean size of field in hectares	Mean size of land not being utilized in hectares
Affected	2.17	1.30
Non affected	2.37	2.63
Total	2.28	1.86



- The family cannot use it because the owner is dead;
- They do not have money and are taking care of livestock;
- Too busy to plough

It is important to note that most of the above reasons are exacerbated in situations where households are affected by sickness or the death of a household member.

**Ownership of Non-Agricultural Assets.** In South Africa, participants of focus group discussions were asked to indicate what measures of wealth the community used. It emerged from these discussions that indicators of wealth in the area, included the type and size of a person's house, livestock numbers, ownership of a car and ownership of businesses. Figure 3.7 shows that there are no differences in ownership of household assets between the affected and the non-affected households. Almost 50% of the households in the sample owned a television set and an even higher proportion owned a radio. This presents an opportunity for HIV and AIDS awareness campaigns through radio and television.

## Social Capital Dimensions

Social Capital refers to the human resources upon which people draw support in the face of challenges whilst in pursuit of their livelihood objectives. These include membership of formal and informal groups, networks and relationships of trust and reciprocity. Information on social capital was collected on family and community support networks and support systems provided by the public and the private sector.

## Community Support networks

Affected households and communities often devise means of coping with the epidemic and the associated problems.

Households have to find ways of maintaining productivity levels with the reduced household labour supply, and also meeting the household's financial needs in the face of increasing medical expenditure. Communities also have to deal with the increasing number of deaths as well as the increasing numbers of orphans.

Membership of local support networks, organisations and clubs often enables a household to have greater access to agricultural production and marketing information, as well as assistance in times of need. However, HIV and AIDS affected households often have little or no time to participate in group activities. In addition, the stigma and discrimination associated with the epidemic often results in affected households isolating themselves. In South Africa, 60% of people, who were members of the social networks, clubs or organisations, were from the non-affected households.

Apart from the support from extended family members, there seems to be very little community support offered to HIV-affected households in South Africa. Traditional support structures seem ineffective due to limited knowledge about the disease and the widespread stigma and discrimination associated with the epidemic. Researchers in South Africa emphasised the need to put in place programmes that raise awareness and disseminate information.

In Lesotho, HIV-affected households join both informal and formal support networks. Some joined by virtue of having an HIV-positive member(s) or having experienced the loss of a family member(s) to AIDS. Households reported being affiliated with community and support groups for a variety of reasons, including increased access to voluntary HIV testing, availability of counselling services and referral to treatment centres. Participants emphasised that community groups, HIV and AIDS support groups,

social clubs, health and agricultural associations can act as informal safety nets and help HIV-affected households to cope with some of the challenges. However, the long distances between communities creates a barrier for households living in the remote areas of Lesotho.

In some cases households joined community support groups that deal with HIV and AIDS related issues before illness, with the intention of assisting affected households and learning more about the disease. Whereas some households joined because they already had some experience with HIV, others wanted to be assisted with financial resources and emotional support. One of the reasons for joining safety nets was to get advice and knowledge about the disease, in particular prevention messages.

In Swaziland, households reported adopting a variety of strategies to cope with the impact of HIV and AIDS (Table 3.18). As a result of labour shortage, affected communities and households adopted coping strategies that included: increasing children's involvement in agricultural activities; exchanging labour with neighbours and relatives; shifting to less labour-intensive mono-cropping; reducing the areas under crops; using in-kind payments for labour; and working longer hours. Traditional mourning periods have been reduced, from between five and seven days to about three days. During funerals, some households resorted to preparing the grave a day before the burial because of shortage of labour. In response to reduced per capita income, many families resorted to distress sales of household assets and livestock. Dependency on forest resources has increased. More women and youth groups were established for group income-generating activities.

Table 3.12 Household coping and mitigation strategies for with HIV/AIDS (Swaziland)

Issues	Present coping strategies among farmers	Present mitigation strategies for farmers
<b>1. Labour shortages</b> <ul style="list-style-type: none"> <li>Few people available for work in the household,</li> <li>Little time spent on agricultural activities, (in many instances when a household has a chronically ill member, a considerable amount of time is spent caring for the patient)</li> <li>Untimely agricultural activities,</li> </ul>	<ul style="list-style-type: none"> <li>Most households in the Hhohho and Manzini region hired labour to assist with farming, whilst family members take care of the sick.</li> <li>Children are forced to leave school and join the work force.</li> <li>Use of reciprocal community labour (lilima)</li> <li>Growing of less labour-intensive crops</li> <li>Relying on elderly, children and extended family</li> <li>Reduction in land utilisation</li> <li>Formation of community labour groups (common among female headed households)</li> </ul>	<ul style="list-style-type: none"> <li>Home-based care centres to take care of the sick, enabling survivors to go to work</li> <li>Provision of antiretroviral drugs and food to boost the sick in order to continue working</li> <li>Training by agricultural extension staff on the introduction of less labour-intensive crops.</li> <li>Use of community councillors and educators in an effort to decrease the transmission rate of HIV and AIDS</li> </ul>

Issues	Present coping strategies among farmers	Present mitigation strategies for farmers
<b>2. Decrease in agricultural inputs</b>	<ul style="list-style-type: none"> <li>• Introduction of low purchased input technologies and practices</li> <li>• Growing of crops requiring fewer purchased inputs</li> </ul>	<ul style="list-style-type: none"> <li>• Availability of small loan facility to help affected households to purchase inputs</li> </ul>
<b>3. Loss of knowledge and skills</b>	<ul style="list-style-type: none"> <li>• Farmers keep local seeds</li> <li>• Sharing of practical experience with other survivors</li> </ul>	<ul style="list-style-type: none"> <li>• Provide training on agriculture to survivors by Agricultural extension officers</li> </ul>
<b>4. Increasing household food insecurity</b>	<ul style="list-style-type: none"> <li>• Eating less than three times a day</li> <li>• Introduction of miniature gardens</li> <li>• Consumption reducing and switching by reducing and switching to less preferred food or foregoing meals completely to be able to feed the sick.</li> <li>• Migration in search of food</li> <li>• Switching expenditure by changing patterns and reducing expenditure on other items to increase expenditure on health care.</li> </ul>	<ul style="list-style-type: none"> <li>• Provision of food by the disaster relief fund</li> <li>• Provision of agricultural inputs by National Emergency Response Committee on HIV/AIDS (NERCHA) (Indlunkhulu fields)</li> <li>• Provision of food aid to the sick and orphaned by NGOs.</li> </ul>
<b>5. Increasing medical, school fees, and other expenses</b>	<ul style="list-style-type: none"> <li>• Selling assets and livestock</li> <li>• Children are forced to leave school</li> <li>• Selling livestock and household assets</li> <li>• Expenditure switching – reducing expenditure on other items to increase expenditure on health care</li> </ul>	<ul style="list-style-type: none"> <li>• Introduction of government sponsorship to orphans by the Ministry of Education</li> <li>• Provision of free ARVs to the sick</li> </ul>

### ***Home-based Care***

In each of the countries participating in the study, home-based care programmes are offered. Yet due to the stigma and discrimination associated with HIV and AIDS, some households affected by HIV refrain from using this service. Working closely with the local clinic as well as

the district hospital, home-based care programmes provide the following services to members of the community;

- 1) Visit AIDS patients regularly to ensure that they take their medicines as required.
- 2) Provide information to household members on how to take care for the patients.

- 3) Look after affected people who live alone, for example preparing food for them, bathing them and etc.
- 4) Provide information about STIs (sexually transmitted infections), how to prevent teenage pregnancy and breast cancer (women are the target group).

### **Remittances**

In South Africa, it was noted that remittances from non-resident household members and relatives played a major part in helping households cope with the impact of HIV and AIDS. This strategy was however only effective for households with relatives and members that are working and earning a decent income. Given the increasing rate of unemployment, this coping strategy may not be sustainable in the long term.

### **Formal Safety nets**

Formal safety nets are normally found in medical insurance companies, government, hospitals and medical clinics. In Lesotho, a few participating households were affiliated to formal safety nets such as health cover schemes and other funeral insurance services. In most countries, the key reason for not joining such safety nets was lack of a regular income to pay subscriptions.

### **Social grants and Food parcels**

**South Africa case study.** Some countries such as South Africa and Botswana offer extensive support to households in the form of grants and food parcels. The South African Social Welfare Department supports the affected by

providing food parcels. The food parcels are distributed monthly to needy families and orphaned children and have the following contents; 80kg maize meal, 2kg sugar, 500g tea, Matches and candles, 3 large tins fish, Powdered milk, Samp, Juice (powder), 2kg powder soap, 2 bars soap. In addition, a number of social grants are available, including the pension grants, the orphan/foster care grants and the child grant. These are sources of income for both affected and non-affected households in the area. Sometimes, these grants are the only source of regular income. The South African government offers a disability grant for people suffering from HIV and AIDS; however none of the households interviewed in the South Africa study have been accessing this grant. It was noted that few apply for this grant because many have not disclosed the HIV status of household members. Apart from the stigma related to HIV, lack of information is another barrier to households' ability to access and utilise the grant.

Researchers in South Africa reported that a higher percentage of affected households participating in the study (85%) received social grants as compared to non-affected households (68%). Where children are left in the care of grandparents after the death of parents, the old age, orphan and child grants are often the major source of income for most households. Table 3.19 shows the types of grants and the mean amounts received from these grants. A greater proportion of the affected households (49%) receive the child grant compared to the non affected households (37.6%). The mean grant amount is also higher for the affected households than the non-affected households.

Table 3.13 Percentage of households receiving grants

Households Receiving grant	Affected n=85	Non affected n=80	Total n=165
Pension %	65.9	75.0	70.3
Child %	50.0	60.0	55.2
Disability %	7.5	9.4	8.5
Mean grant income in Rands	R929.06	R922.78	R926.01

Source: Survey data, 2005

**Zambia Case study.** To assist rural households cope with agricultural and food security issues, the Zambian government has set a clear agenda through the Agricultural Commercialization Programme, (ACP 2002-2005) to promote the development of an efficient, competitive and sustainable agricultural sector. This programme aims to enhance food security and increase small-scale farmer incomes. The ACP further calls for special efforts to strengthen the capacity of the agricultural sector to address food security (both emergency and mitigation strategies) gender, environment, information and extension services, HIV and AIDS cross-cutting issues; and the linkages between them. The following public programmes have been put in place to mitigate the socio-economic impact of HIV and AIDS on farming households and communities;

- i) The Food Security Pack (FSP) programme. This collaborative programme between the Government of the Republic of Zambia and the Programme Against Malnutrition (PAM) targeting 'vulnerable yet viable Farmers'. The goal of FSP is to reduce poverty among the targeted vulnerable but viable farmers through improved household food security. Specifically, the programme is aimed at; promoting crop diversification for increased food production; promoting farming methods that help restore soil fertility and productivity; and encouraging timely, judicious and targeted use of agricultural inputs.

The programme also aims to encourage the adoption of conservation farming (CF) technologies; developing cereal and seed banks for sustainable loan recovery; encouraging and establishing short- and long-term market relationships between buyers and sellers; and building capacity among NGOs, farmers and traders in entrepreneurship skills, post harvest handling and value-adding and marketing skills.

Further, FSP promotes fish farming among the target groups for income generation, improved household food security and nutritional balance. The programme is also expected to develop partnerships with the communities in the management and exploitation of fish resources; and to promote livestock production and alternative sources of animal draught power in target areas.

The FSP has national coverage and is earmarked to cover about 200,000 small-scale farmers. The programme however is finding it difficult to meet its targets due to untimely and sometimes inadequate funding. A lot of vulnerable farming households also complain of being sidelined (left out) from the programme activities.

- ii) The Agricultural Support Programme (ASP<sup>3</sup>). Pursuant to the national policy on HIV and AIDS, the ASP has developed and is implementing a two-pronged HIV and AIDS mainstreaming policy aimed at; (i) raising awareness about HIV and AIDS within and among its target groups; and (ii) facilitating target groups in identifying and developing suitable mitigation strategies to assist rural households to deal with the effects of the pandemic. ASP also collaborates with other national stakeholders in mitigating socio-economic HIV and AIDS impacts.

Currently, ASP is implementing the following mitigation strategies; (i) crop diversification and intensification, involving among other activities, promotion of less labour intensive cropping technologies and conservation farming technologies; (ii) promotion of livestock rearing (especially small livestock (village chickens, rabbits,



goats), and dairy); (iii) promotion of business activities (involving such activities as promotion of savings mobilisation, technical and business skills training); and (iv) food demonstrations, processing and packing (this also promotes processing and consumption of local/traditional food stuffs).

Besides all the promotional efforts, field implementation of the above outlined mitigation strategies and general mainstreaming of HIV and AIDS considerations into ASP activities have not reached the programme's desired levels. The principal contributory factors, have been the lack of knowledge by ASP about the extent to which HIV and AIDS affect its target groups, and what appropriate and justifiable mitigation strategies the programme should promote, among different but all HIV and AIDS affected households and groups. As a result, little is known about the present mitigation strategies' appropriateness and effectiveness among individual target households and groups.

In addition to the above public programmes, there are a number of non-governmental programmes involved in assisting communities and individual households cope with the effects of HIV and AIDS. Researchers in Zambia highlighted a few NGOs involved in mitigating the socio-economic impacts of HIV and AIDS in farming households and communities. Despite efforts to promote crop diversification and the intensification and development of less labour demanding cropping technologies, the adoption of such measures has remained low among HIV and AIDS affected households and communities. The study in Zambia found that households affected by HIV and AIDS have continued to liquidate their productive assets

to meet their household expenditures, resorting to environmentally unfriendly ventures (charcoal burning) as income generation activities. There is a need to further explore the barriers facing HIV-affected households and the existing strategies for mitigating the impact of HIV and AIDS.

**Botswana Case study.** The majority of households in Botswana did not use the agricultural subsidy schemes available to them. A sizeable proportion (46%) of respondents used the popular Arable Land Development Program (ALDEP). The reason for this is that ALDEP has been in existence for a long time (1975 to present), unlike other subsidy schemes, which are relatively new.

The Accelerated Rainfed Arable Programme (ARAP) was a drought recovery programme, which was discarded as soon as the incidence of droughts was thought to have relented. A majority (95%) did not use Services to Livestock Owners in Communal Area (SLOCA) in the past three years, probably because they do not own livestock and are not legible for SLOCA.

The Financial Assistance Policy (FAP) is a grant scheme where applicants are required to contribute some money towards the capital costs of the project. The reason for low participation might be that a majority of small holders are unable to raise the required contribution.

The same arguments can be used to explain the low participation in Small, Medium and Micro Enterprise (SMME) and Citizen Empowerment Development Agency (CEDA), which are, subsidised loan schemes.

As for drought relief work, two explanations could be put forward to explain the low participation of respondents. First, drought relief work is undertaken during drought period, which does not happen all the time. Secondly, the limited intake means only a few households can participate.

No household members interviewed participated in women finance and youth assistance schemes. These schemes are not yet popular or well established in the rural areas and hence people are not aware of their existence.

The Botswana research team noted an increasing dependency on government handouts. One of the major findings was that, due to programmes like drought relief, old age pension, home-based care food ration, under-five children's food rations (*tsabana*), orphan food ration, HIV and AIDS food baskets, etc, some people have decided not to bother with agriculture, especially crop production.

*“Even if you plough a big area in a good rainy year hoping that people will help you as in the past, people prefer to depend on handout”* Said another farmer. Statements like, *“rona re bereka namola le uba ga rena sepe le mabele a o a bone. Ga kere boupi ja mabele bo kwa dishopong”* or we are happy with drought relief money, we don't care for their crops from the fields, if you want sorghum porridge you simply go to the nearest store to buy sorghum flour with the cash from *namola leuba* (drought relief). Those who did not see the future of agricultural production echoed these sentiments.

## Impact on Agriculture

Throughout the seven-country study, researchers explored whether HIV and AIDS and the intensity of affliction on households influenced the agricultural production performance. In this section, data was analysed to explore the effects on various production dimensions within a household.

## Changes in optimal farm-household production decisions

HIV and AIDS affects production decisions such as, cropped area, number and type of crops grown, acres

allocated to each crop and inputs applied to each enterprise. There is a tendency for HIV and AIDS affected households to grow less labour intensive food crops compared to cash crops. Crop diversification is reduced in the presence of HIV and AIDS because of the household's incapacity to cultivate larger pieces of land, labour morbidity and mono-cultural tendencies of such type of households. Diversion of household financial resources from productive activities to more consumptive expenditures such as health care should reduce input application rates for affected households.

When a family member is ill and when there has been a death in Swazi households, the expenditure pattern changes with more resources channelled to non-food items such as health care, transportation and funerals. This compromises agricultural production, as less income is used to purchase agricultural inputs and other agricultural equipments. In the Lubombo region of Swaziland, the purchase of crop inputs decreased by 35%.

In Zimbabwe, the presence of HIV and AIDS within rural families is perceived by more than 60% of interviewed families to severely affect farming decisions though the effect is more on afflicted families (74% affected). Rural families indicated that HIV and AIDS would affect farming in a number of ways. The presence of HIV and AIDS in a family reduces time devoted to farming, diverts funds initially intended for agricultural activities and results in the selling of essential livestock such as cattle and farming implements such as the ox-drawn plough. Some survey participants indicated that HIV and AIDS also have very high informal effects. There is a significant difference in the percentage of affected and less affected rural families that perceived very high informal effects. More affected families (42%) perceived very high informal effects compared to less

affected families (35%). This confirms the presumed effects of time taken nursing the sick on the conduction of informal activities such as employment in local jobs (*maricho*).

**Managing Livestock** Affected households were faced with challenges in the process of livestock upkeep, and were compelled to adopt various coping strategies. Some households were faced with the challenge of keeping a manageable number of livestock because of reduced family labour and financial support. Some households, though few, were faced with a challenge of increasing livestock kept in order to serve multiple functions, including food for the sick and other members of the household, and income, to finance medication for the sick, meet funeral expenses and paying school fees.

In some cases households were faced with a challenge of livestock security mainly because a member(s) who used to herd livestock and protect them from theft was ill or had died. Coping strategies that were adopted included selling livestock, distributing livestock to relatives or friends and employing labour. Few households sold livestock and livestock products in large quantities. There was little income generated through livestock production.

In Botswana, a decrease in the number of livestock was reported after the household was affected by illness. Households that have been affected by HIV reported an average of 35 livestock before illness compared to 20 after illness. There is also a difference in the mean livestock numbers between affected and non-affected households. Illness in the household appears to erode the asset base.

Table 3.14 Mean Total Field Size (ha)

Country	N	Mean	Std. Deviation	Std. Error Mean
Zimbabwe	320	1.1	0.6	0.0
Zambia	201	2.5	2.8	0.2
Lesotho	210	0.9	2.0	0.1
Botswana	138	5.5	6.0	0.5
Swaziland	574	3.5	2.5	0.1
South Africa	48	1.1	1.3	0.2

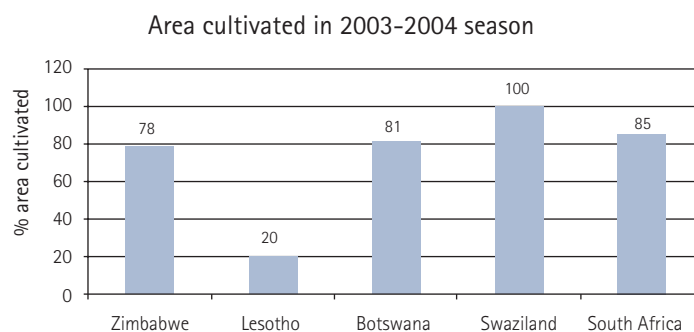


Figure 3.4: Area cultivated in 2003-2004: Comparison of 5 countries

### Size of Fields and Area Cultivated

Most smallholder farmers participating in the regional study owned small plots (see Table 3.21). With the exception of Botswana, Zambia and Swaziland where the average total field sizes are between 2.5 and 5.5 hectares respectively, the average field sizes for the rest of the region average about one hectare per household. Smallholder farmers in Zimbabwe, Botswana, Swaziland and South Africa cultivated at least 75% of their arable land in the 2003-2004 season. Data from Lesotho show that only 20% of the available land is cultivated (Figure 3.9). Generally female-headed households own less arable land compared to their male counterparts and subsequently put less land under cultivation.

<sup>3</sup> ASP is an independent small-scale farmer based programme (currently serving 20,000 farming households in 4 of the 9 provinces of Zambia), supporting increased food security and income by promoting agriculture through the “*farming as a business*” concept. The programme specifically aims at improving food security and incomes among its target groups. Further the programme strives to meet its objectives by way of facilitation, business training, crop & livestock husbandry, seed issues, infrastructure improvement, capacity building among support structures/service providers and linkages to relevant service providers.

<sup>4</sup> It must be noted that, such knowledge gaps and implementation difficulties are not only unique to ASP, but to many other similar rural development programmes.

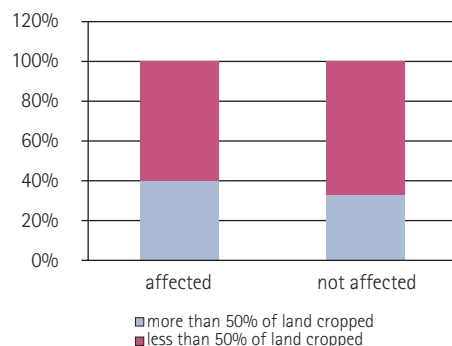


Figure 3.5 Comparison between affected and non-affected household's use of land

In Swaziland, households with a deceased adult member, experience a reduction in area under cultivation. Moreover, households who lose male members have difficulty in acquiring land in the rural areas. The impact of HIV and AIDS on the total land utilisation was examined by first looking at how many of the households, with sick or deceased members, reported a change in land utilisation. Secondly changes in land used during illness and after death were compared.

In Lesotho, two major components of crop production, cultivated area and yield, were reduced within affected households. In the first instance, most of the households had either arable land of small size or did not own any land for crop production. This contributed largely to low crop productivity observed from these households. A large number of households did not produce any crops or produced far below their food requirements. Arable land and yield declined during illness and continued to decline after a loss of a household member. In Zimbabwe, a greater proportion of the HIV-affected populations cropped more than 50% of their cropland during the 2003 (see Figure 3.10). This basically shows that these families greatly rely on farming as a means of survival.

HIV and AIDS have pronounced and significant impacts on household farming systems, especially maize acreage, when it has already resulted in adult mortality. Figure 3.5 shows that the presence of HIV and AIDS-related deaths in families, regardless of their status i.e. whether they are affected or not, greatly reduces the acreage that is allocated to the maize crop. This change in the cropping system has significant negative impacts on food self-sufficiency and hence the food security of families. Though deaths affect acreage allocated to food crops i.e. maize and legumes, it does not seem to affect acreage allocated to cash crops such as paprika and cotton.

In general, households participating in the Zimbabwean study mainly farmed to meet subsistence requirements with little land being devoted to cash cropping. It is important to note that in Zimbabwe, female-headed households, regardless of their HIV status, put significantly less acreage under maize production compared to male-headed households. This could be attributed to lack of time, due to the fact that women generally perform other core activities other than farming, i.e. family care, reproductive duties and in cases of illness, spend more time nursing the sick. This reduction in farming labour together with loss of important agricultural assets could result in reduction in land put under crop production.

In Botswana, before an illness, affected households cultivated a mean area of 10 hectares compared to 4 hectares after illness. Regardless of the location (Mmathethe, Lentsweletau or Mookane) or status of the participants (farmer, business community, health staff, agricultural staff, or the youth), it was reported that agricultural production has rapidly declined since the advent of HIV and AIDS. When respondents were asked about the reasons for the decline in agricultural production, the largest proportion indicated lack of

labour (36.8%) as a major contributing factor, followed by the presence of a sick person in the home (24.6%). By comparison, in South Africa, the cultivated fields of the death-affected and illness-affected households were 37.3% and 33.0% smaller than the non-affected households, respectively.

Similar trends occur in Namibia, as researchers noted that affected households are reducing cultivated areas and significant changes in crop choices have been observed. The reason given by the households was that the loss of labour, due to the epidemic, was negatively impacting farming (usually an adult male).

In Zambia, male-headed households cultivated an average of 3.2 hectares under rain-fed cropping, with about 0.40 hectares of land allocated to gardening. The same households also hold at any given time about 3.3 hectares of land under fallow. On the other hand, female-headed households cultivate an average of 2.7 hectares of land under rain-fed cropping, with about 0.20 hectares of land used for gardening. Females therefore cultivated 20% less land compared to their male counterparts and had 33% more land under fallow (4 hectares).

The reasons for keeping the land under fallow by the sample households varied and mainly revealed

households' limitations in utilising land. Principal among the reasons for keeping the land under fallow was financial constraints, unfortunately not agronomic reasons as one would expect. Lack of inputs such as fertilisers and seeds were sighted as major constraints by 35% of the sample households. Other reasons included; lack of draught power (32%); agronomic reasons (14%); family labour (9%); illnesses (2%) and deaths (2%). With the increasing illnesses and death toll due to HIV and AIDS, it is very probable that households so affected will keep more of their land under fallow.

### ***Crop Diversity***

Maize remains the main staple food in the region. On average approximately 65% of smallholder households across the region grow maize. When there is a surplus, maize can be used as a cash crop. In addition, a significant number of smallholder households grow grain legumes, sweet potato and cotton. There is a considerable percentage of households in Zimbabwe, Zambia, Lesotho and Namibia that are also growing small grains such as millet and rapoko. Table 3.12 highlights the crops produced in the 2003-2004 production season.

Due to the high labour and capital demands of producing, cash crops, little is happening in the smallholder farming sector. Only a handful of farmers

Table 3.15 Crops grown in different study sample countries in 2003-2004 production season

Country	Millet	Rapoko	Ground-nut	Sweet potato	Maize	Cotton	Round-nut	Paprika	Beans	Fruits	Vegetables
Zimbabwe	2%	10%	19%	6%	96%		7%	3%	10%		1%
Zambia	10%		27%	19%	90%	14%	23%				
Lesotho			18%			42%			19%	5%	25%
Namibia		58%			37%					4%	2%
Swaziland	0%		4%	7%	69%	1%	2%		5%		11%
South Africa				10%		94%			79%		25%
Total	1%	8%	8%	6%	65%	2%	5%	0%	8%	1%	8%



in Zimbabwe are growing tobacco, paprika and cotton. This reduces potential household income as households rely on marketing of subsistence crops.

Crop diversification implies that a household is likely to be food secure and hence has the option to venture into other crop enterprises that are sold for income. Between affected and less-affected households, in Zimbabwe, there was no significant evidence that the epidemic influenced crop diversity. However, the male-headed households were cropping a wider range of crops as compared to female-headed households. A greater percentage of male-headed households grow at least 3 crops compared to their female counterparts.

Crop substitution is used as a mitigation strategy by some affected households. In Namibia, pearl millet, maize and sorghum are the most common crops. However, maize and sorghum are apparently planted in place of pearl millet, due to the fact that they require less labour. This might appear as a reasonable strategy for affected households, but two factors make this more of a 'Devil's Trade-off' in a cycle of declining production. Maize is a heavy feeder and can deplete soil if not rotated. Fertiliser is a key input into maize production and it was shown that very little is spent by the sample population on agricultural inputs, particularly fertiliser. In Kavango where planting maize as an alternative is gaining popularity, no fertiliser was purchased. Maize also requires more rainfall than

millet. In Namibia's variable climate, localised droughts are common, making regular production of maize a risky enterprise. Commercial maize growers in the country consider a good crop every third year as good fortune.

In Swaziland, study results show that land allocated to maize production and to other crops declined except for soybean, in households with members affected by HIV and AIDS related diseases. In South Africa, the most common crops grown in the study area were maize, sorghum and beans. Most of the households grow maize only, whilst about a fifth of the affected households grow maize and sorghum. During focus group discussions it was reported that some households had shifted from sorghum to maize production although they think sorghum is a quality grain. This shift commenced more than five years ago as a strategy to combat crop infestation by birds. However, some of the households are now considering reverting back to sorghum because it is a less demanding in terms of inputs.

The communities cited drought and lack of inputs as the major problems affecting agricultural productivity. During the focus group discussions, all the communities agreed that indeed there has been a change in the general level of agriculture production over the past five years. Reasons given for the decline in agricultural production included the increased costs of inputs and frequent droughts.

Table 3.16. Input application rates in Zimbabwe and Zambia

Input	Country	N	Mean per ha (kgs)	Std. Deviation	Std. Error Mean
Maize seed	Zimbabwe	301	17.2	25.1	1.4
	Zambia	203	36.0	153.5	10.8
Basal fertilizer	Zimbabwe	184	58.5	43.1	3.2
	Zambia	0	.	.	.
Top Dressing fertilizer	Zimbabwe	256	332.0	4371.6	273.2
	Zambia	0	.	.	.

### ***Input Use***

From the data collected by the regional research teams, maize seeding rates are very low in Zimbabwe (17.2 kg/ha) compared to the recommended 25kg/ha; whereas in Zambia, the average maize seeding rate is 36kg/ha. There was no data for Zambian smallholder farmers' use of basal or top dressing fertiliser in the production of their maize. In Zimbabwe farmers used a considerable amount of basal and top dressing fertiliser in maize production. More results are shown in Table 3.13. In Zimbabwe, fertilizer use was almost the same across affected and non-affected households.

Compared with non-affected households in South Africa, death-affected and the illness-affected households spent 45% and 60% less money respectively, on purchased agricultural inputs. This could be attributed to the fact that the affected households diverted income that would have been used to purchase farm inputs, to pay for medical bills and other related expenses.

### **Decline in agricultural production**

Productivity is measured in terms of returns to land put under crop production. Available evidence indicates that once a household is affected by HIV and AIDS, this triggers a chain of events that are likely to reduce agricultural productivity. These include: disposing of livestock which is a critical source of draught power; the loss of a family member may mean that HIV-affected households switch from commercial to subsistence farming or from labour-intensive crops to less labour intensive crops; the extended interruption of the labour supply while HIV-affected households care for family members may mean a reduction in important activities such as land preparation, and manual irrigation. The sale of agricultural assets further constrains production. The study explored the extent to which HIV and AIDS affect these important household livelihood indicators.

In Zimbabwe, maize yields were marginally higher for HIV and AIDS affected farmers (583kgs/ha) than for non-affected farmers (570kgs/ha). However, there was significant variability in maize yields. Using a multivariate regression analysis, researchers demonstrated that the education of the household head, maize seed type and rates, nitrogen application rate, number of crops and the type of social club, emerge as factors related to the decline of household productivity. In addition, the level of management, input use, and gender of the household head influenced productivity. It is important to note that the HIV and AIDS status of the household however was not a significant factor in explaining observed variations in maize productivity across households. Maize yields for many of the households, both affected and non-affected, were found to be lower than the national communal/smallholder average yield of around 600kg/ha.

In Swaziland, a general decrease in maize production is observed after the death of a family member. This is particularly true if the family member was the main bread winner. In this study, the most affected region with respect to maize production was the Lubombo region, which reported a 44% decline in maize production. In comparison, maize production was reported to have decreased by 22% in the Shiselweni region. While the Lubombo region reported high HIV prevalence rates, it has also been affected by persistent droughts. The combined effect of HIV and AIDS and drought is the potential cause for the severe decrease in maize production. It was noted that, although there was a decline in the production of other crops, there was an increase in the production of beans, especially in the Lubombo and Manzini regions. This could be attributed to the intervention programmes, which encourage less labour-intensive crops as well as the promotion of legumes for their high protein value, in coping with AIDS-related illnesses.

## Case Study: Botswana

**Declining Production**

In Botswana, the non-affected households produced 41 bags of crop on average. The HIV-affected households produced 30 bags before illness; these declined to eight (8) after illness. Respondents from the qualitative study commented that most fields were lying fallow because farmers who were mostly female and elderly skipped planting seasons for many years, due to taking care of working age children who were suffering from HIV and AIDS.

*“ngwanaka, go oka ga bolwetse jo ke mathata. Letsema le gotola gantsi ntsi ka go okela ruri” said one respondent.* This means that caring for people living with AIDS is a task that deters farmers from doing both the home-based care work and arable production. Caring for someone living with AIDS may mean skipping several planting seasons.

*“nna ngwaga o, ke wa bothano ke saleme ebile ke o ka malwetse a a mpaletseng. Jaanong ga kena bana... two e tlhokafetse, ga kena dijo lefa ele peo, le potsane e phataletse ke seyo ke le ko bo Gaborone kana mono gae (Mookane) ke oka”* or I have not ploughed for the past 5 years because of taking care of AIDS children who eventually died. So not only have I lost my children but I have no food or seeds to commence production. The sad thing is that my small stock also strayed while I was running from one health provider to the next in the hope of saving my children.

*“Masimo nono Lentsweletau a medile dithare fela. Batho ba ba kabong ba lema ke di kgoropa ba heditse ke 8 or AIDS. Jaanong ka balwetse ba a phaka ko cliniking temo e sule.”* Our fields have transformed into forests because people who could be ploughing (the elderly women) are the true home-based caregivers. This has negatively affected arable production.

In the Namibian sample, households totally rely on agricultural production for subsistence. Yet, here too, there are major deficits. It is well known that pearl millet (known locally as *omahangu*) is the main crop in the study area, and that it is a staple food. In the selected study sites in Namibia, the Oshikoto region showed the highest level of food production followed by Oshana and then Kavango. Given the low levels of income from employment and other sources, the sale of crops could be an important source of financial support. In the Kavango sample, no grain was sold. Even the highest producing households kept all their crops, probably as a buffer against drought, or perhaps

to barter for other goods and services. In Oshana and Oshikoto crops were sold. On average the few households that sold crops earned between N\$ 160 and N\$ 350 for the year. In Oshana only two households recorded sales, while in Oshikoto, 18 households sold sorghum, with six selling either maize or pearl millet.

The production and sale of non-staple crops was investigated. Only one household in the Kavango mentioned producing other crops, at a very meagre level of 25 kg. In Oshana one or two households grew other crops, fruits and vegetables. One household reported growing 1,250 kg of another grain (not

specified) and another grew 250 kg of fruit. In Oshikoto, no households produced any other grains. Five households produced almost 500 kg of fruit, while two households produced a total of 55 kg of vegetables.

In Botswana, participants were asked to comment on future crop production trends. They expressed mixed feelings. One respondent expressed the need for training on HIV and AIDS prevention to be intensified. Youths who were involved in the study felt that government should provide incentives for young people to become more involved in agriculture. *“Unless agriculture is treated and introduced to the youth as a business like selling cellphones, the youth will not be interested in this tedious and low paying job. We want quick cash and the sale prices of crops are not encouraging,” said one participant*

Most young people indicated that they frequent *masimo* (arable fields) at harvest time (magapu, nche, sweet maize) because they would eat and sell produce to raise cash for entertainment. The out-of-school youth in particular, felt that a community agricultural field in each village should be availed for out-of-school youth interested in agriculture to pursue some of the modern production activities they learnt at school such as bee keeping, horticulture, piggery, poultry, etc. There should be agricultural training brigades for the youth who do not qualify for diploma and degree programs at the Botswana College of Agriculture. These should be modelled along the same lines as the vocational skills training for building and construction, and auto mechanics currently offered by existing brigade centres.

### Impact on agricultural extension services

Extension workers play a critical role in support of agriculture in most SADC countries. Therefore reduced capacity can significantly affect agriculture.

Due to the limited number of extension staff at the Botswana study sites, the only data available were collected key informants and focus group discussions. All participants including farmers and agricultural staff (extension and administration) confirmed that HIV and AIDS have affected everybody, including the extension workers, at a personal level and in the performance of their work. High absenteeism of extension staff, was reported as a major concern. Absenteeism was caused by two main factors, attending to sick family members, and incidences of agricultural extension workers being sick themselves.

*“kana bolwetse jo ba amile mongwe le mongwe, lelwapo lengwe le lengwe, motse mongwe le mongwe* (really this disease has affected everybody, every home, and every village). *Mo goraya gore* (this means that) *even the families of our extension workers are affected or infected,”* said a farmer,

*“Balimisi ba rona bantse ba tlhela gale even without HIV and AIDS, jaanong ke mo gogolo. Re kgona go nna dikvedi le fa ele ka matho re sa mmone Molimise, gontse gotwe oa lwala. Jaanong kana fa le sa bone dikgakolo ke mathata mo temong kana leruo-* Our Agricultural Demonstrators were in short supply even before the epidemic, now it is worse. Sometimes we spend months without seeing the Agricultural Demonstrator. This situation affects both arable and livestock farming.”

### Gender Implications

The gender of the household head was found to be a key factor in the productivity of households in Swaziland, Botswana and Zimbabwe. Researchers in Zimbabwe implemented a comprehensive econometric analysis of the gender factors affecting household maize productivity. Maize is an important crop in smallholder agriculture grown by the majority of Zimbabwean farmers to meet their food requirements. Productivity of maize is measured in terms of output per hectare.

A number of gender-related factors were significant in explaining productivity. Interactions between gender and assets and between gender and income were significant. Female-headed households usually have fewer assets compared to their male counterparts, yet in this case, gender had a positive impact on the maize yield per ha, and this is significant at the 10% level.

The gender and income term is also positive and significant at 1%. This means that as one moves from the male-headed to the female-headed households, the income increases together with the maize yield per hectare. This superior performance by females is contrary to expectations. Although not significant, there was an interaction linking productivity to gender, HIV and AIDS.

In Botswana, results emerging from the qualitative study revealed that livestock management was affected by HIV and AIDS in terms of time accorded to livestock rearing. As one respondent put it, *"we practice communal pastoral agriculture and this requires long hours searching for stray livestock, pasture and water."* With the advent of the epidemic, livestock have in some cases been left unattended, as herdmen are occasionally required to help with home-based patients under full time care. One study participant narrated that, *"first its the woman who moves to the village or town to provide the care, but the patient gets worse... as the father, uncle or brother you are summoned to the village. In fact towards the terminal stages the whole extended family is involved in care giving and support."*

*One other participant said, "Fa bo pala bolwetse (failure to recover) kana jaanong the whole extended family comes to the village to camp for weeks consuming the very last portion of the available food (livestock)... re ja seswaa sa kgoma, sa pudi, le dikoko. This means nobody is either guarding the fields against predators or weeding or looking after the remaining livestock at the cattle posts."*

Gender differences also prevail in decision making regarding land utilisation in Swaziland. Decision-making on land issues is the prerogative of the household's male members. Although the woman is consulted, the final decision lies with the man. Decision making on land issues is only transferred to the woman after her husband dies. Land access decisions tend to shift from husband to wife then to son or from father to mother then to son. This subordinate role of women has far reaching implications regarding land utilisation when the man has died. When the woman assumes responsibility of being the head with all powers bestowed on her, she may find it difficult to cope because of little experience and interference from relatives. This could have a negative impact on land utilization, as the relatives usually make decisions against usage of some of the land.

In the study sample, Lubombo region was the worst affected with about 63 % of its households living on-farm, (with ailing or deceased adults) reporting a change in land access and decision-making. The Shiselweni region is the second most affected with about 50 % of its affected households reporting a change in land access and decision-making. The Manzini and Hhohho regions have about 47 % and 45 % of its affected households respectively reporting a change in land access and decision-making.

Given that land preparation for cultivation is a heavy task, which is mainly the responsibility of men, it is within expectation that land utilisation will decline as the male household head falls sick or dies. This clearly illustrates the gender dynamics in a household that has lost a male adult household member. The situation is further worsened if the mother or the wife who had assumed the responsibility of being the head, also becomes sick or dies. The surviving son might be too young, and either lacking knowledge of farming or not at all interested in farming. This leads to a decline in land utilised which translates to reduced agricultural production in the country.



## Impact on Food Security

According to Barnett and Rugamela (2001), households are said to be food secure if four factors are in balance: food availability, equal access to food, stability of food supplies and quality of food. The impact of HIV and AIDS affects all these factors individually and has therefore been identified as having a key role in the reduction of household food security throughout southern Africa.

## Impact on food availability

Food self-sufficiency is an important factor which influences a household's ability to be food secure. The self-sufficiency of a household improves with larger families, as more labour is available. A large cattle herd means more manure and draught power are available for crop production. Higher seed rate increases maize yield and hence food self-sufficiency. However, household food self-sufficiency is likely to be reduced when a family member dies; in cases where this is an adult, this also means the loss of agricultural knowledge, labour and farm assets such as ox-drawn plough, scotch cart, cattle, and land.

Apart from a household's capacity to produce its own food, food security is associated with a household's ability to generate income from other sources such as formal employment, informal employment, remittances, etc. Of the households interviewed in Botswana, the major source of household food is purchases (65%) followed by home production (39%), government assistance (5%) and labour exchange (1%).

Results from Zimbabwe show that only three factors are significant in explaining the likelihood of a household being food secure and self-sufficient. These include the maize yield per hectare, total land cultivated and total nitrogen use by a given household. The more productive a rural household is, the more fertiliser it

uses and the more land it cultivates, thereby increasing the chances of the household being food secure. On the other hand factors that deal directly with agriculture production are significant in explaining the likelihood of a household being self-sufficient. These include family labour, asset base, land cultivated, crops grown, number of cattle and seed application rate. In Zimbabwe, there were large variations in self-sufficiency across households. This variation comes from pronounced differences in social and economic factors affecting each household.

Generally smallholder female-headed households are less food secure compared to male-headed households. Yet, from the households participating in the Zimbabwean sample, a greater proportion of HIV-affected female-headed households were found to be more self-sufficient compared to HIV-affected male-headed households. Although a greater percentage of less affected male-headed households are more self-sufficient compared to less affected female-headed households.

Formal and informal income among the households studied in Namibia, is low, leaving farm production as the main source of livelihood support. Two different categories of farmers were identified. These were collapsed communal farming and near collapse communal farming. The basis of these categories was the ability to produce enough 'mahangu' to satisfy basic caloric requirements. The levels were set at 0 – 1500 kg for collapsed communal farming, and 1,501 kg and above kg, for near collapse communal farming. Within the collapsed communal farming category a further delineation is made at 750 kg of production.

Among the collapsed communal farming, hunger and food insecurity is a constant feature. The long-term prospects for these families are not good. Their children go to school hungry, and because they are not getting

sufficient nutrition, their physical and intellectual development is threatened. In the sample, 113 (78%), of all households in the survey were categorised as “collapsed”. In addition to not producing crops, very few of these households had livestock. Of the 113 households, only 29 had cattle. The size of herds ranges from 2 to 77. Half of the cattle owners have 11 head or less. Eleven cattle owners had between 12 and 43 head, while three have between 50 and 77 head.

A larger number of households, 43, have goats though it is still far less than half of this category. The heard sizes range from 2 to 110 head, but half of those who own goats have less than 15. Fifteen households own between 16 and 35, while five households have between 37 and 110 head.

For most of the livestock owners in this group, their herds cannot be considered a major source of food. Half of cattle owners have less than 11 head and half of goat owners have less than 15 head. According to the Namibian Ministry of Agriculture, Water and Forestry’s department of planning, reasonable off-take ratios for cattle can be set at 28% per year and for goats at 64% per year. Hence, half of cattle owners in this category can expect no more than three cattle per year for sale or consumption (even less if their numbers are below 5 head). Half the goat owners can expect 9 goats per year or less. Neither of these rates is sustainable if a household needs to meet food requirements and increase their flock size. A common phenomenon of collapsed households is that they have lost males who could provide labour. There is a strong possibility that households in this category are not able to supply the labour necessary to herd their livestock and may thus experience higher rates of loss due to theft and predators.

A sub-category of the collapsed communal farming household is the “crisis households”. Households in this sub-category produce from 751 kg to 1,500 kg of

millet. Twenty three (16%) of the Namibian sample fall into this category. These households are at the bare edge of production. They produce more crops than the previous category, and are more likely to own livestock. Over half of these households have cattle. The herd sizes range from 1 to 56 with half of cattle owners having less than 12. A similar number of households, 14, have goats. The range of animals owned was from 5 to 70 with half of owners having 12 or fewer animals. As with their counterparts in the previous category, off-take rates for most livestock owners will be too low for regular consumption or sale.

Sustainable production for most livestock owners will be difficult, and they will be susceptible to loss of animals if they have increased household expenses. Many of these households had experienced a death, but due to the available assets, the impact was not as bad as for the “collapsed” households.

The final category was the “near collapse” communal farmers. In this group, households produce more than 1,500 kg of ‘mahangu’ per year. Only 8 households (6%) of the total sample fit into this category. All of these households owned cattle and goats. The range of herds was 6 to 40 for cattle and 9 to 63 for goats. This group produces surpluses, which its members are able to sell. It is also the group most likely to have the capacity to invest in their own agricultural enterprises. It is not clear if this group is newly affected by the HIV epidemic, or if they have simply been able to maintain their status due to other socio-economic reasons.

### **Impact on Access to food**

Access to food was measured with respect to consumption patterns. Researchers collected data on the household’s ability to access food by exploring the stability of supplies, purchasing power and the dependency ratio. Information explored the direct consumption of goods and services and investment

expenditure. The data indicate monthly expenditures on food, clothing and health care in all the countries.

In Zimbabwe, a trade-off appears to exist between consumption and investment activities of rural families. In Figure 3.6 shows that less income is invested compared to that which is consumed. Both categories of households expend more on food compared to other income demanding activities but healthier rural families spend more on food. HIV and AIDS affected households invest more in farming and education.

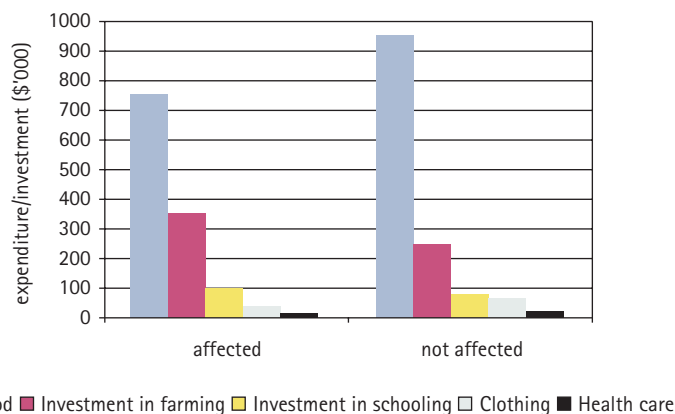


Figure 3.6 Household consumption and investment activities (Zimbabwe)

In Namibia, an analysis of food consumption requirements versus crop production was implemented. Calculations were based on the basis that an average male requires 2,944 calories per day, and a non-lactating female requires 2,140 calories per day. Since the questionnaire did not distinguish between lactating and non-lactating females, all women are assumed to be non-lactating. According to the FAO, Namibians get 53% of their Daily Energy Supply (DES) from cereals. This means that men receive 1,560 calories and women, 1,134 calories from grain daily. One hundred grams of cooked millet yields 119 calories. Hence, on a daily basis, an adult male requires 1.31 kg of cooked millet, and an adult female requires 0.952 kg of cooked millet.

An assumption is made that in making millet porridge (known locally as “*oshifima*”) only 75%, or in this case 75 grammes, of millet flour is needed to make 100 grammes of porridge. The daily requirements of adult males and adult females will be 0.982 kg and 0.714 kg of millet flour respectively. On an annual basis a man needs 358 kg of millet flour while a adult non-lactating woman requires 261 kg of millet flour. The conversion rates between millet flour and threshed millet were assumed to be the same.

The number of kilograms required to meet DES per average household in the sample (see table overleaf). Two additional assumptions were made. First, that the number of men equals the number of women. Hence, for each adult an annual average of 310 kg. millet is required to meet DES. Second, that adult values apply to household members above 15 years, while for those below 15, half the adult rate is assumed. Hence, for those 14 and below, the annual requirement of millet is 155 kg. This results in annual household requirements for pearl millet production as shown in Table 3.17.

Table 3.17 Annual Pearl Millet Production Requirements per Household (Namibia)

	Kavango	Oshana	Oshikoto	Sample
Ave. HH. Size	10	7	6	8
Ave. under 15	4	3	3	3
Ave. over 15	6	4	3	5
Kg. of pearl millet to meet 53% of caloric requirements	2170	1550	1395	1705

With the above figures it is possible to examine crop production to ascertain if agriculture compensates for the shortfall in other forms of income. In terms of pearl millet, it does not, as can be seen in the table below.

Table 3.18 Annual Pearl Millet Production Requirements per Household (Namibia)

Households	Kavango	Oshana	Oshikoto	Sample
No. HH Below calorific requirements (Produced a crop)	37	40	47	125
Did not produce a crop	6	5	0	11
No. HH above calorific requirements	0	6	3	8
Percent below calorific requirements	100%	87%	94%	%86
Percent above calorific requirements	0%	13%	6%	%14

Almost nine out of ten households in the sample are food insecure, though there is variation across regional samples. Another study carried out in the Ohangwena Region found that HIV affected households were more susceptible to going for days without food.

### ***Stability of supplies***

In Zimbabwe, researchers found that the extended interruption of the labour supply in affected households, affected land preparation or maintenance of irrigation systems, thereby affecting future production and yield realisations in turn. Loss of agricultural assets in HIV and AIDS affected households constrained production and the attainment of food security.

### ***Purchasing power***

Household consumption was measured through purchases of groceries, fuel, health care and social

welfare goods and services. Investment expenditure was measured through expenditure on education, farm implements and social networks.

The majority of households in Lesotho spent little amounts on groceries and fuel.

In Swaziland, a small increase in income from the different sources was demonstrated, with the exception of the Manzini region where a 59% increase in income from livestock production was recorded. This implies that a large number of livestock were sold in this region to gain income. However, in the Shiselweni region, a 5% decline

in income from crop production was realized. The Lubombo region registered a decline in income of 4% and 5% from other off-farm agricultural and other on-farm non-agricultural practices respectively. The decline in income influences the households' overall ability to purchase other goods and services. For a household affected by HIV and AIDS, a decline in income may influence their capacity to pay for food, supplies and services to care for ill family members.

**'New Variant Famine' = HUNGER+HIV+AIDS**

According to De Wall and Whiteside (2003), hunger, HIV and AIDS reinforce each other leading to "AIDS-induced famine" or what they refer to as the "New Variant Famine". HIV and AIDS induced famine is different because it affects the strongest, able-bodied and most productive members of the household. There are a number of ways in which the HIV epidemic could affect the household economy when compared

A one-way analysis of variance and regression analysis was used on the South African sample population to explore the impact of the proxy variables on household income and expenditures and food security. The analysis showed that the differences in medical and funeral expenses among the categories were highly significant. It was also observed that the difference of mean expenses between any two categories was statistically highly significant at 1 percent. The mean expenditures on food and education were however found not to be statistically significant. Table 3.16 below presents the mean medical and funeral expenses, food and education expenditures incurred by households during the year(2003) preceding the study. As is the tradition in most rural communities, Non-affected households also contributed money to meet medical and funeral expenses of non-household members.

The results of the analysis indicated that affected households experienced a decline in their food and

Table 3.19 Mean expenditures of household per year (Year 2004)

Type of medical expenses	Mean medical expenses	Mean food expenditure	Mean education expenditure
Death-affected	2290 (244)	3955 (373)	440 (111)
Illness-only affected	1114 (286)	4179 (340)	623 (155)
Non-affected	306 (75)	4538 (218)	761 (144)
All households	925 (109)	4329 (165)	659 (90)

Source: Survey data, 2005

to the traditional food crises that have been experienced in the SADC region. For example, the epidemic affects the most productive age groups in society hence reducing the labour supply leading to reduced productivity; the epidemic leads to diversion of household income from food to medical and funeral expenditures leading to food shortage; and children may be taken out of school for financial reasons.

education expenditures for all proxy categories, but these declines were not statistically significant. The average household off-farm income is positively related to the dependency ratio. The combined effect of reduced incomes and increased expenditures on medical and funeral expenses may result in less access to food.



## Impact on Nutritional Security

Without good nutrition, a person living with HIV becomes more susceptible to malaria, tuberculosis and other opportunistic infections which hasten the progression from HIV to AIDS. As HIV progressively weakens the immune system, an individual living with HIV may find it harder to access food, or contribute to household food production. Proper treatment and nutritional support can increase an individual's recuperation from HIV-related infections and allow people living with HIV to continue to participate directly in household activities. In addition, individuals living with HIV have between 10 and 30% more energy requirements than healthy uninfected individuals.

With respect to nutritional security, country research teams explored if the epidemic was impacting on households' nutritional security. Researchers analysed the impact of HIV and AIDS on household nutrition security by exploring changes in dietary composition, nutritional value, food quality and child nutrition.

### ***A balanced diet?***

Although maize is a staple in the diet of many households in southern Africa, and is a less labour intensive crop to grow, maize meal is generally considered less nutritious than sorghum and millet flour. In Swaziland, researchers noted that many farmers were making an effort to improve the nutritional quality of their diets by including more beans and legumes. It was suggested that this change was partially due to the promotion of protein-rich diets for people living with HIV and it was recommended that agricultural interventions should encourage this shift.

The low agricultural productivity and unemployment observed within many affected households contributes to a household's poor nutritional status. For example, in Lesotho, households participating

in the study did not produce enough to meet their food requirements and had no funds to purchase additional food. This created a situation where members of households tended to eat the same food for all meals of the day. Many households ate only bread, mealie-meal porridge and vegetables as the standard routine ration. Only very rarely did they eat proteins. The regular consumption of an unbalanced diet may contribute to the increased prevalence of opportunistic diseases.

### **Changes in dietary composition and meal frequency.**

In South Africa, the impact on food intake was significant when households suffered a death of a family member. However it was noted that the impact on food intake was very high when one member of the family suffered from a long-term chronic illness. Vulnerable households, particularly illness-affected and death-affected households were found to be less food-secure.

Food shortages within households compelled some households to adjust their diets. Some members, in particular adults, were forced to forego some or all meals in a day, so that ill members and children could have enough food to eat. The majority of household members who were found to forego meals for the whole day were mainly women. This demonstrates some of the sacrifices made by women who are caring for household members.

In Botswana, the majority (81%) of respondents had three or more meals per day before illness, however after illness, this proportion falls to 49%. Over 18% of the respondents have two meals per day before illness. This however increases after illness to 49%, demonstrating that when a household is challenged by prolonged illness, the number of meals taken per day falls.

### ***Child nutrition***

Children are especially vulnerable to malnutrition. Starting before birth, poor nutrition in pregnant women affects the physical and mental development of a baby. Children who are under-nourished, often have weakened immune systems and can experience severe, long-term developmental challenges throughout their lives.

UNAIDS (2004) estimates that there are 12 million orphans in the sub-Saharan Africa region affected by HIV and AIDS. Orphans have been absorbed into many families, increasing the number of dependents in a household. However a small, but increasing number of orphans are abandoned or left to fend for themselves in child-headed households. Households headed by children are considered among the least food secure. Where a household is barely food secure, the additional dependents are thought to reduce a household's food security. However this depends on a child's age, as they may be able to provide more support to households in terms of labour for food production.

In Zimbabwe, the presence of orphans in a household did not seem to significantly affect a household's food security status. Households with increased numbers of orphans were found to be more food secure. The positive impact on food security associated with increased number of orphans could be related to the increased food handouts being given to households with orphans by various NGOs, working in the study area. In addition, children can provide additional labour to boost the household's capacity to purchase food, though too often, this occurs at the expense of the child's education. According to the Zimbabwe National Vulnerability Assessment Committee (2002), 18% of households have removed one or more children from school due to lack of finances.

In Namibia, participants of the survey recommended increased support in the form of cash transfers or grants to support orphans, AIDS patients and the disabled. They felt that this strategy would allow these households to keep their children in school and eventually be better able to provide for the family, whether they chose to be farmers or not. Hopefully such households would eventually recover, and then interventions geared toward boosting agricultural production can be introduced.

### **Summary**

Results from this research demonstrate that HIV and AIDS increase the vulnerability of households to food insecurity because they affect the core factors of production in the household i.e. labour, capital and land. Once a household member falls sick, this entails a reduction in the labour supply to agriculture as well as the household's participation on the labour-for-income market. Furthermore, available resources are diverted from agriculture (e.g. purchase of inputs), to paying for medical expenses and funeral costs. In some instances, households are forced to sell livestock, household assets and other livelihood assets to meet the escalating expenses. Female-headed and child-headed households also risk losing their land after the death of a male household head.

Results of this section were drawn from a preliminary analysis (basic descriptive and comparative statistical analysis) and the advanced analysis (multivariate regression, logistical regression and principal component regression), aimed at exploring the nature, extent and depth of the HIV and AIDS epidemic on rural households in southern Africa. These analyses however neither demonstrate the degree of vulnerability to shocks that the different impacts have introduced to a given household, nor identify the most vulnerable households. This is addressed in Section 4, which introduces the Household Vulnerability Index and presents the results of its analysis in two countries.





## *Quantifying Vulnerability: The Household Vulnerability Index (HVI)*

One of the key outcomes of the regional study was to develop and test a statistical index that attempts to quantify the vulnerability introduced into different households by HIV and AIDS. The Household Vulnerability Index (HVI) was tested in two countries: Lesotho and South Africa. The results provide a baseline on how the index can be used to quantify the different degrees of vulnerability experienced by households. The HVI presented in this section proposes a basis for further research on a common yard-stick for measuring household vulnerability.

Vulnerability is conceptualised as the presence of factors that place households at risk of becoming food insecure or malnourished. The factors also affect household ability to cope. Vulnerability is described as having two components: “external vulnerability”, which refers to exposure to external shocks or hazards; and “internal vulnerability”, which refers to the capacity to cope with or withstand those shocks (resilience). Household vulnerability is the extent to which HIV and AIDS and other factors affect a household’s food security status and asset endowments, and the household’s ability or inability to withstand the shock caused by these factors. All of these factors determine the livelihood strategies that people pursue, and ultimately their livelihood outcomes.

How can the ‘most vulnerable’ be identified and assisted? How can the impact of the epidemic on household food security be monitored and evaluated over time? The HVI, when fully developed, will be used as a yardstick to answer these questions, and when longitudinal data is available, the HVI will also keep track of progress towards food security.

## Introduction

The Household Vulnerability Index (HVI) is a composite statistical index that was designed to quantify the vulnerability introduced into a given household by combining the various impacts from a multiplicity of variables. The nature, extent and depth of the various impacts identified are used to award vulnerability scores and weights – which are then used to compute the index for each household. The index is used to categorise households according to their varying degrees of vulnerability in order to ensure better planning and targeting of interventions for mitigating impact. Previously, vulnerability assessments have not been quantitative and therefore made effective targeting of interventions difficult.

Categorising household vulnerability is important because households affected by HIV and AIDS are not at the same level of need, neither is that need synonymous with vulnerability. Empirical evidence to date shows that not all AIDS-affected households are food insecure, and that many unaffected households are actually food insecure. Therefore a generalised labelling of AIDS-affected households as vulnerable and in need of food security assistance is not accurate. A well developed composite HVI is expected to improve targeting of food aid and other development interventions.

## Constructing HVI For the Study Data

The Household Vulnerability Index was calculated by applying the theory discussed in section 2 to the data collected by the household questionnaires. A number of steps were observed:

1. Selecting appropriate dimensions of impact. All 17 impact dimensions identified in Section 2 were used. These were clustered into five groups or assets: human, physical, social, financial, and natural.
2. Selecting appropriate variables from collected data to describe each of the five assets above.
3. Calculating or setting the lower and upper limits, or goal posts, for each variable i.e. maximum and minimum possible values.
4. Developing a matrix of weights for the asset classes. Each variable was given an appropriate weight within its asset cluster using predetermined weights. The total weight of the five asset clusters was 100, and within asset clusters the cluster's weight was appropriately distributed among the variables used to describe it.
5. Next, the individual variable indices were calculated as an index between 0 and 100 by using an appropriate transformation.
6. The Household Vulnerability Index (HVI) was then computed for each asset class as well as for each household. The household index was a weighted average of the asset cluster indices.

From the HVI indices established it was then possible to categorise the households according to three different degrees of vulnerability:

- 1) **Vulnerability level 1 = Coping level Households (CLH)** – a household in a vulnerable situation but still able to cope;
- 2) **Vulnerability level 2 = Acute level households (ALH)** – a household that has been hit so hard that it badly needs assistance to the degree of an acute health care unit in a hospital. With some rapid-response type of assistance the household may be resuscitated;
- 3) **Vulnerability level 3 = Emergency level Households (ELH)** – the equivalent of an intensive care situation – almost a point of no return – but could be resuscitated with the best possible expertise and to long term support.

The three vulnerability levels were set on the basis of a predetermined '**coping**' household, based on the 17 impact areas and the specified socio-economic context of



the study area. Practically, this was achieved by computing the HVI of a simulated household that exhibited coping characteristics in each of the tracked asset clusters.

### Analytical Space for the Dimensions

The study proposed three levels or spaces within which each asset could be assessed:

- Nature (short, medium, long term)
- Extent (ripple effects) and
- Severity (depth of morbidity)

The nature, extent and magnitude or severity of the impact was made available from the preliminary and other advanced analysis, as well as literature review.

### Quantifying the Dimensional Impacts

After the 17 impact areas (dimensions) were clustered according to the five livelihood assets, a scoring system was used to ensure that the impacts are comparable. The dimension impacts were given a score on a scale from -3 to +1. A zero score signifies no impact. A score of -1 represents an impact that is short term, limited extent and not severe. A score of -2 represents medium term impact, medium extent and medium severity. A -3 score was given to dimensions that represented long term and large-scale impact, such as the dissolution of a household, or deep or permanent severity. A score of +1 represented a positive impact that HIV and AIDS might cause. Only one positive score was used because positive impacts are rare at the household level in the case of HIV and AIDS.

According to Save the Children (UK), 2004, while it is common to see broad references to “the impact of HIV and AIDS”, in reality there are three main ways in which a household can be affected by AIDS, and each has different sets of impacts that should be examined separately:

1. Chronic Illness
2. Death
3. Support of Orphans

From preliminary analysis (graphs and charts) we can establish how the variables relate to the dimensions or impact area.

### The Lesotho Case

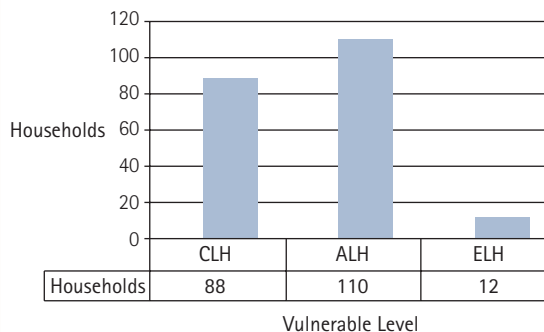
Using the HVI computations, different degrees of vulnerability were assigned values of the computed HVI in a given interval as follows:

- Vulnerability Level 1, CLH is assigned HVI values within an interval [0, 40]
- Vulnerability Level 2, ALH is assigned HVI values within an interval [41, 69]
- Vulnerability Level 3, ELH is assigned HVI values within an interval [70, 100]

### Households Vulnerability Index for Human Assets

The vulnerability levels, for human capital are shown in Figure 4.2. Most of the households (52%) were in vulnerability level 2, an acute level. HIV and AIDS has affected these households so hard that they need some immediate assistance with relief food and some agricultural development package to resuscitate them.

Figure 4.1 Number of households in each vulnerability level, Lesotho



42% of households were in vulnerable level 1, a coping level. These are households that were in a vulnerable situation but able to cope with the presence of infected members or losing a member due to AIDS. They need social support from government and society at large, to help them cope and eventually overcome the impact. These families do not require relief food supplies – but may require psychosocial support.

Households that were in an emergency level, made up the lowest proportion, 6%. Though the proportion was relatively smaller, these households require demanding and expensive interventions. Their situation is beyond their capacity, hence a need for immediate intervention.

For those households whose vulnerability levels call for public intervention, such intervention should address:

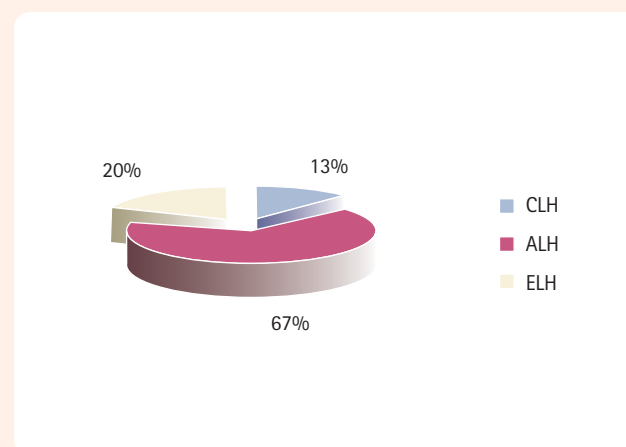
- The higher dependency ratio within these households
- Households headed by children and old people without ways and means of producing crops and livestock
- Households with higher transport expenses due to having multiple sick members
- Households with higher female-male ratios due to loss of male adults.

By probing the data for those households in the emergency level, a number of conclusions were reached. Higher dependency ratios within households and child-headed households had an adverse effect on households' financial resources that could be used to purchase food, farm inputs and implements, hence the low crop and livestock production within households. Higher transportation expenses resulted in a reduction of expenditure on food and other goods and services.

Interventions by government through relevant ministries as well as NGOs, the private sector and the society at

large need to understand the levels of vulnerability and factors related to such levels for them to intervene in a meaningful manner. Planners and policy makers should be on board so that the country's planning and social policy formulation for HIV and AIDS related vulnerability on human capital would be guided by and focus on identified impact areas within the society.

Figure 4.2 Households Vulnerability Levels for Financial Capital Dimension



## Households Vulnerability Index for Financial Assets

Household vulnerability levels for the financial capital dimension had a slightly different pattern from human capital in that, though households in vulnerability level 2 - the acute level, were still in the lead with 67%, those in the emergency level were the second highest with 20% (Figure 4.3).

In addition, the proportion of households (13%) who were in the coping level was the lowest. In this case, affected households became highly vulnerable because of higher medical and funeral expenditure. Household income was

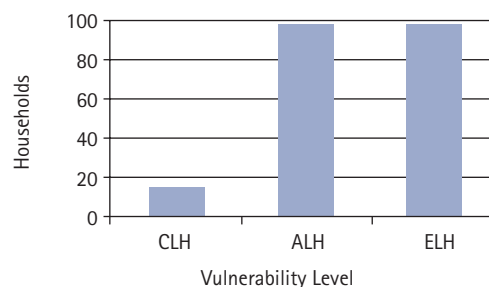
diverted to medical and funeral expenses and this resulted in a decrease in food and other goods expenditure.

To provide assistance and resuscitation to highly vulnerable households effectively, programmes need to be directed at improving household food security. In addition there is a need for Basotho as a nation to reconsider their cultural practice of spending large amounts of money on funerals, particularly when death was due to AIDS or was preceded by long illness. Funeral expenditure normally eats up into the already depleted household income and leaves orphans with little or nothing to spend on food and other basic needs.

### Household Vulnerability Index for Social Assets

In the case of social capital, most of the households (90.5%) had an index that indicated the coping level. Though the households were coping they still needed assistance that would help them to improve their status, or at least maintain that level. Acute level households made up 9% and emergency level households made up 0.5% (Table 4.1). Support networks such as the extended family, government interventions, and non-governmental institutions, community associations and other safety nets, contributed to this situation, and this should be strengthened. The support networks play an important role in taking care of sick and orphaned children, and giving financial and emotional support. On probing the data, it was seen that often, this support was adhoc and not always reliable.

Figure 4.3 Households Vulnerability Index for Physical Capital



### Household Vulnerability Index for Physical Assets

The majority of households presented with higher vulnerability levels under physical assets. Acute level households with 47% and emergency level households with 47% (Figure 4.4) were the majority. The smaller percentage of households (6%) was in a coping level (Figure 5.3). This indicates two things: 1) Most households do not have physical assets, and 2) Interventions to alleviate impacts have not addressed the need for physical assets.

Factors that also rendered the households vulnerable in the case of physical assets are small sizes of fields for households, low revenue from crop production,

Table 4.1: Households Vulnerability Index for Social Assets

Vulnerability Level	Households	Percentage
Coping Level Households (CLH)	190	90.5
Acute Level Households (ALH)	19	9.0
Emergency Level Households (ELH)	1	0.5
Total	210	100

households not owning livestock and sale of field implements to raise cash.

Households who lost male adults and are child-headed, female-headed or have higher female-male ratios were observed to be more vulnerable. The death of household heads and spouses adversely affected the value of total crop output per acre. In Lesotho, most of the households lost their livestock due to the rampant livestock theft that exists in the country. This was observed to be higher for households without male adults.

### Household Vulnerability for Natural Capital Assets

In the case of natural capital, most households were at the emergency level households were the highest with 45.2%. The acute level households followed with 41.0% (Table 4.2). The smallest group was of coping level households with 13.8%. This indicated that the bulk of households were neither endowed with natural resources including forest produce, nor managing their environment (pastures etc) appropriately.

Programmes directed to empowering and equipping children who are decision-makers, with the skills necessary for managing the environment should be put in place. In addition factors that contributed to affected households cultivating smaller proportions of their total arable land should be identified and addressed so that crop production would be increased.

### Food Production Vulnerability Index

The HVI approach as used to develop a similar index for food production. The purpose was to probe the impacts associated with food production. Most of the households (58%) were in the category of acute level households, followed by those in the coping level (27%) and then emergency level with 15% (Figure 4.5). Under this dimension, households that were most vulnerable were of these characteristics:

- Having at least one member infected with HIV.
- Having female member(s) infected with AIDS. Females normally assume the responsibility of taking care of every member including ill members.
- Experienced a negative change in cultivated areas.
- Living with infected member(s) at home.
- Experienced a negative change (reduced diversity) in types of food consumed.

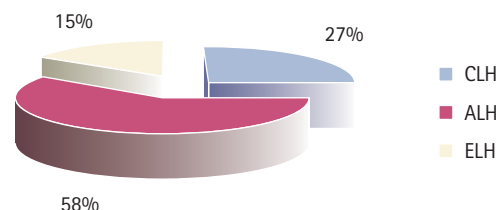


Figure 4.4 Vulnerability Levels for Household Production for Food Capital Dimension

Table 4.2: Households' Vulnerability Levels for Natural Capital

Vulnerability Level	Households	Percentage
Coping Level Households (CLH)	29	13.8
Acute Level Households (ALH)	86	41.0
Emergency Level Households (ELH)	95	45.2
Total	210	100

Living with members with AIDS-related illnesses consumed household income and productive assets.

## The Combined Household Vulnerability Index

Figure 4.6 illustrates the three household vulnerability levels for the combined five assets. 85% of households were in the acute level, while 15% were in the coping level. An important observation that demonstrates resilience of households is that although some fell in the emergency levels when considering specific assets, none were in this category in the overall index.

A number of discussion points were raised by the analysis for Lesotho:

- 1) Households are not affected in the same way across the five asset categories. For example, some households may not have social assets, but make up for that if they have physical assets.
- 2) Child-headed households tended to be affected in all asset categories, raising their plight.
- 3) Most households have access to social networks, but these networks do not seem to be having an impact on the other asset needs. What this means is that support through social networks, including the interventions by government, NGOs and the extended families is not adequate to raise the livelihood status of a household.
- 4) The HIV epidemic has increased food insecurity by reducing food production and by increasing insecurity of livestock.

For policy makers, it is important to note that HIV interventions that do not improve the livelihood status of the household in the five asset areas will not be adequate. From the study, it seems that interventions should introduce sustainable means for raising incomes for the households as the main activities, followed by those that will result in sustained food production. These two could easily improve coping levels of households.

For programme implementers, it is not adequate to introduce vertical interventions or those that address one impact without looking at the other factors systematically. There is evidence that households are affected differently, even by the same factor, and their needs are therefore different. Thus a programme providing, say, agriculture inputs, need to be flexible to include aspects of quantity, type and duration for every targeted household.

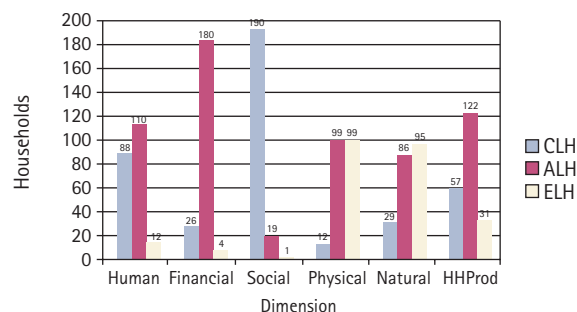


Figure 4.5 Comparison of Households Vulnerability Levels for Different Dimensions

Table 4.3: Overall Households Vulnerability Index

Vulnerability Level	Households	Percentage
Coping Level Households (CLH)	30	14.3
Acute Level Households (ALH)	180	85.7
Emergency Level Households (ELH)	0	0
Total	210	100



## The South Africa Case

In line with the regional methodology framework for computing the HVI, the South African team grouped the various variables from the survey data into clusters corresponding to the impact areas. The impact areas consisted of the different asset groups where HIV and AIDS and other related factors affect the household, including (i) human capital, (ii) financial capital, (iii) social capital, (iv) natural capital and (v) physical capital. These were further tracked by variables that describe the impacts. The following section presents the results of the HVI for each of the assets, and the index calculated for the households. The natural capital dimension was not considered because there were very few variables under this category and they had all been used in the other categories as well.

### Household Vulnerability Index for Human Capital

The human capital HVI was computed using such variables as the education levels of the household members, the sex of the household, the household size and the dependency ratios. The incidence of HIV and AIDS in the household renders the most productive household members unable to engage in productive activities, either due to illness or the time that they devote looking after the sick. Figure 4.13 shows that most of the households in the study area fell under acute level households (58%), whilst about 18% of the households fell under vulnerability level one of coping households, with 24% of households in the emergency level household category.

Factors which contribute to the emergency level of vulnerability include high dependency ratio, increased incidence of female and elderly headed households, as well as low educational levels and high unemployment

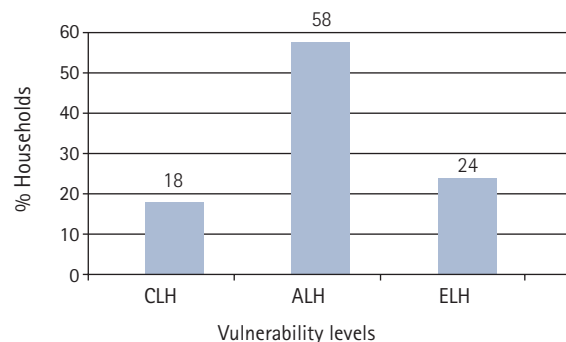


Figure 4.6 Household vulnerability levels for the Human Capital Dimension

levels in the area studied. Further, most of the households affected by HIV and AIDS reported having to divert household labour from productive activities to care for sick members.

### Household Vulnerability index for Financial Capital

Literature shows that the impacts of HIV and AIDS on the household's financial capital can include changes in the household expenditure mix, with some households spending more on medication and less on food and capital assets. In some cases households even have to sell capital assets. This study found that at most funerals, households had slaughtered a cow which resulted in a reduction of a household's physical and financial assets. Figure 4.14 shows that most of the households (59%) in the survey fell under the acute level households category, whilst 14% of the households fell under the coping category and 27% of the households were in the emergency level category. These results are similar to those found under the human capital index. The most common sources of household income in the area were

social grants from government as well as remittances from non-resident household members. In the presence of illness, particularly illness of the breadwinner, these remittances dwindle and the household becomes vulnerable to food insecurity. Further the increased expenditure on medical expenses and funerals might also increase household vulnerability levels.

Rural development projects and other employment creation programmes can resuscitate households in the acute level category. Other measures could include extensive campaigns by government to publicise the existence of the disability grants and the foster care grants to mitigate the effects of the HIV and AIDS epidemic and reduce food insecurity in affected households.

The emergency level households need such measures as food parcels and, income injections apart from medium term income generating activities. For the long term, programmes aimed at improving agricultural productivity could also assist households.

### Household Vulnerability Index for Physical Capital

The physical capital dimension considered the existence of such assets as livestock, agricultural equipment, land ownership and household furniture. Considering the vulnerability levels of households in this dimension presents a worse picture than under the human and financial capital dimensions. About 43% of the households fall under the emergency level of vulnerability. Fewer of the households (20%) fall under the acute level category (see figure 4.15).

The study found that few of the households possessed livestock and farming implements. The implications of this for agricultural growth are grave. Physical capital remains a constraint to improved agriculture

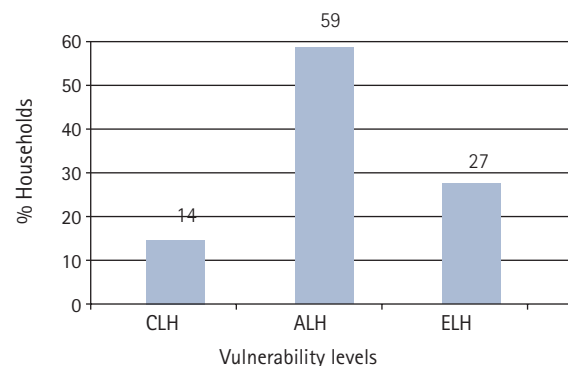


Figure 4.7 Household Vulnerability Levels under the Financial Capital Dimension

productivity, which impacts on a household's food security status, as well as the household's ability to cope with the incidence of HIV and AIDS. One way of counteracting this problem is for government to implement credit programmes that are specifically aimed at assisting farmers to acquire agriculture implements. Whilst most of the households possess either a TV set or radio in the area, the same cannot be said for agricultural implements.

### Household Vulnerability Index - Social Capital

The social grants that the government of South Africa provides play an important role in poverty alleviation and food security. Apart from the grants, the study also found that the Social Welfare Department provides food parcels to those households that are vulnerable to food insecurity. However, an insignificant number of households sampled were receiving these grants. The results of the household vulnerability analysis under the social capital dimension suggest that more needs to be done to assist rural households, particularly in the face of the HIV and AIDS pandemic.

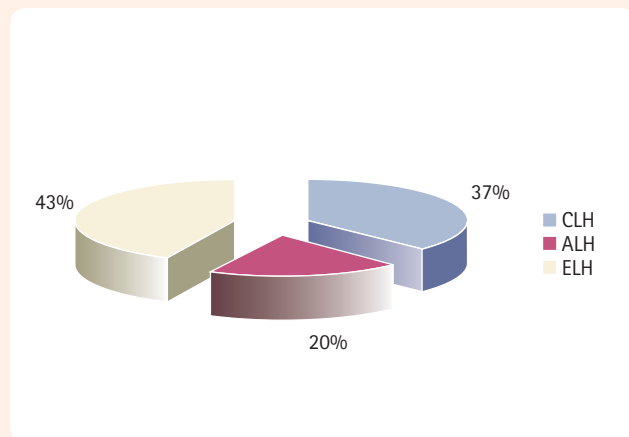


Figure 4.8 Household Vulnerability Levels under the Physical Capital Dimension

Figure 4.16 shows that about 38% of the households fall under the emergency level category of vulnerability. The majority of the households (47%) fall under the acute level category. Strategies for reducing household vulnerability under this dimension include measures to encourage the creation and strengthening of community based support organisations. Further NGO activity should also be fostered, to provide support for orphans and sick persons. Even in cases where the household is not affected by HIV, NGO activity through promotion of rural development projects will also contribute towards household food security and poverty alleviation.

### Household Vulnerability Index for Food Production

This dimension considered such variables as the maize yield, use of inputs in agricultural production and household access to productive inputs. The changes in household agriculture production patterns were also considered in computing the HVI under this dimension. About 46% of the households in this category were in the coping category, and only 10%

in the emergency level category (figure 4.17). The remaining 44% of the households were coping. This result contradicts the low levels of agriculture

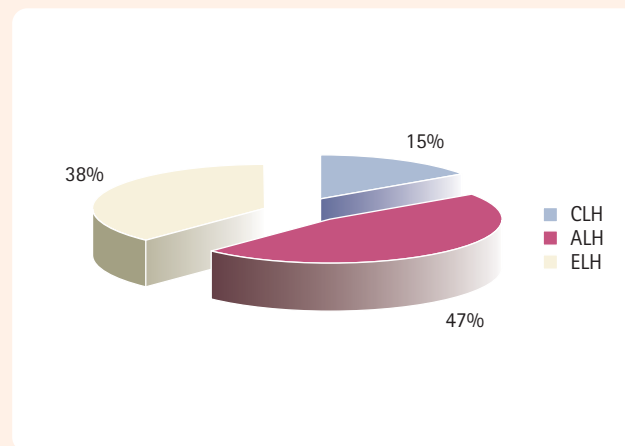


Figure 4.9 Household Vulnerability Levels under the Social Capital Dimension

production in the area, particularly in the 2004/05 seasons where the rains were bad. The result points to the significance of other good procurement sources of food security other than production.

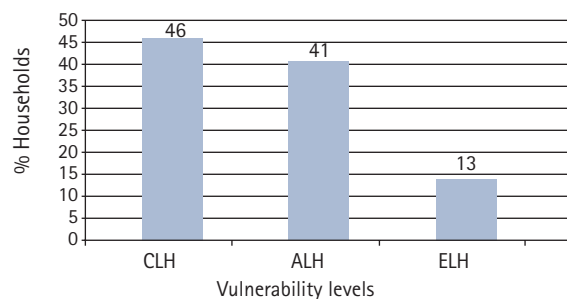


Figure 4.10 Household Vulnerability Index for Financial Capital

## Overall Household Vulnerability Index

The overall vulnerability index is computed on the basis of the different dimensions. The results of this computation are shown in Table 4.4.

The table shows that about 83% of the households surveyed are in an acute situation, whilst 11% of the households are classified as coping. The emergency level category is the smallest with about 6% of the households.

It was rather surprising that despite the existence of social grants the majority of the households fall under the acute levels of vulnerability, where they have been badly hit and are suffering from food insecurity. Possible explanations for this are that the study area is one of the poorest areas in Limpopo, and despite agriculture being practiced in the area, maize yields are extremely low and farmers are only practicing dryland agriculture. Unemployment levels in the area and Limpopo Province in general, are also high. Further, as the study found out, few of these households have cattle. These factors alone contribute towards transitory and chronic household food insecurity, and the HIV and AIDS

pandemic further exacerbates a household's vulnerability and food insecurity.

Since households exhibit different levels of vulnerability it means that there is a need for differentiated policy responses according to different types of households. Current efforts by government, community groups and other civil society organisations may improve the situation for the majority of the households in the area who fall in the acute level of vulnerability.

## Summary

From the results in Lesotho and South Africa, it was possible to use the HVI to determine the percentage of households falling under each category. It was also possible to determine the level of vulnerability of any specific household from the data collected.

When fully developed, the Household Vulnerability Index will serve as a useful tool for developing social response measures, as well as government social protection policy for vulnerable households under different categories of vulnerability. Vulnerability interventions can then be developed based on clear criteria to support and resuscitate affected households.

Table 4.4 Household Vulnerability Index (HVI)

HVI level	HVI Range	Situation of Household	Frequency	Percentage
Vulnerability Level 1	0.0 – 33.3%	Coping Households (CHH)	24	11.0
Vulnerability Level 2	33.4 – 66.7%	Acute Level households (ALH)	181	83.0
Vulnerability Level 3	66.8 – 100%	Emergency Level Households (ELH)	13	6.0
Total			218	100.0

Source: Survey data, 2005



A photograph of a field with young green plants growing in rows in dark brown soil. The plants are small and leafy, spaced out across the field. The soil is dark and appears to be rich in nutrients. There are some small rocks and debris scattered on the ground.

5



## *Advocating for Policy Change*

The impact of HIV and AIDS has been as devastating as the impact of drought or famine on agriculture and food security, although it has not been immediately visible or quantifiable. In previous chapters, FANRPAN has presented the results of the seven-country study, which attempted to quantify the impact of HIV and AIDS on several dimensions of household livelihoods. In this section, the conclusions of the study are presented and key policy recommendations for the region and specific countries discussed. In addition, recommendations for future research are presented.

### **1. The major findings from the study**

**Quantifying vulnerability** - Throughout the SADC region, HIV has introduced new levels of vulnerability to households, and challenged household livelihood strategies. Yet the exact nature, extent and depth of this impact remains unclear, especially within the context of household agricultural performance and food security outcomes. Each HIV-affected household experiences the impact of the epidemic differently. Responses, however, have been designed as though one-size-fits-all. The overall outcome is increased vulnerability – and the key challenge lies in being able to quantify this vulnerability in order to enhance the development of policies and programmes to mitigate the impact of the epidemic.

**A regional set of indicators** - Responding to the need to quantify vulnerability, FANRPAN collected data for seventeen impact areas, from seven countries,

including Botswana, Lesotho, Namibia, South Africa, Swaziland, Zambia and Zimbabwe. After collating all the data into a regional database, a descriptive and comparative analysis was completed, as a first step towards a more concerted advanced regional analysis. The regional database represents an important data source which can be used for further analysis.

**Integrated losses** - Four losses were identified - 1. Skilled labour; 2. Reduced utilisation of arable land; 3. Reduced access to finances; and 4. Loss of productive assets. These losses were identified as integrated in affected households. Significant evidence demonstrates that households and communities in the region are increasingly vulnerable, as they experience the illness and death of skilled and productive individuals due to HIV. The loss of skilled labourers is too often accompanied by a reduction in the utilisation of arable land, reduced access to finances, and the sale of assets to pay medical and funeral expenses.

The remaining members of such households have a reduced capacity to cope with the social and economic impact of the epidemic.

**Gender interacts with all variables** - The results from several countries identified gender as an important factor (i.e. through interactions with other variables), accounting for the observed variability in productivity, food security and self-sufficiency across households. The important interactions between land rights, production, income and productive assets, reflect possible areas for policy attention to safeguard the livelihoods of women farmers affected by HIV.

**Need to shift focus of HIV programmes** - An additional challenge is that the bulk of HIV and AIDS programmes are focused on awareness campaigns, orphan care, and prevention of mother-to-child transmission. Few NGOs have been involved in programmes that seek to increase incomes and mitigate the impact of HIV and AIDS especially in rural areas. While NGOs should remain independent of government interventions, it is important that co-ordination is emphasised to ensure equitable access of services and support programmes for the rural poor.

## 2. Policy implications

The HIV and AIDS epidemic is currently undermining regional and national efforts to alleviate poverty and to reduce food insecurity. Without immediate and large-scale interventions, the severity of the epidemic will be experienced throughout the region for many years to come.

Based on the research results, the following section presents the policy recommendations arising from the seven countries: Botswana, Lesotho, Malawi, South Africa,

Swaziland, Zambia and Zimbabwe. A wide variety of potential interventions exists, yet to have the greatest impact, policy makers and programme implementers need to develop interventions that create synergies in prevention, care, treatment and support efforts.

Firstly, the agriculture sector has an important role to play in the response to HIV and AIDS. Empowering farming communities and agricultural extension workers with relevant, high-quality, gender sensitive information will assist in changing the perceptions of rural communities toward HIV and AIDS. Equally, refocusing rural home-based care groups to include more livelihood-centred activities may help to de-stigmatise HIV and AIDS by building community competences to cope with the epidemic, as well as providing opportunities for employment and training.

There is need for policies that ensure access to appropriate health services, care and treatment. Governments should focus on community-based programmes, which revive and support labour-saving cultural practices. Small loan facilities should be readily available to affected households to help them purchase agricultural inputs, or start small business ventures. Formal and informal training should accompany all initiatives to enhance farming knowledge and skills. In addition, there is a need to develop policy interventions derived from food security and rural development programmes. There is need to ensure that relief programmes distributing food aid, target HIV affected households.

Gender inequality plays a significant role in the HIV and AIDS epidemic. It is therefore important for policy makers and programme implementers to address the cultural practices that expose women to HIV as well as to support the land rights of women. From the seven countries included in the study, recommendations on the need for policies and programmes that address gender inequality are emphasised.

### 3. National Policy Recommendations

Based on the analysis undertaken at a national level, there are a number of policy implications arising from the research. The following section presents the country specific policy recommendations requiring urgent attention from policy planners and programme implementers.

#### Botswana - Policy Implications

Based on the results of the study, the policy implications for Botswana are classified into two categories: 1) HIV and AIDS prevention, care and management and 2) Protection from agricultural decline.

##### *HIV AND AIDS: Prevention, care and management*

1. **Focus on the elderly** - Based on the data collected and feedback from key stakeholders, programmes on HIV and AIDS prevention and care, as well as information products, should be made relevant to the elderly. Throughout the research, it was shown that farmers and home-based caregivers tended to be older adults. There is a need to enhance their knowledge on HIV and AIDS so as to reduce the risk of transmission to care-givers.
2. **Increased access to HIV and AIDS information** - Research evidence indicates that infected individuals working off-farm tend to return to their home village when they are incapacitated by AIDS. Thus, there is an urgent need for timely and relevant programmes on HIV prevention, care and treatment for farmers residing at the lands and cattle posts. Development practitioners should ensure that HIV and AIDS information is part of all agricultural training activities. It is recommended that the relationship between HIV and the environment form part of education and extension messages.

##### *Protection from agricultural decline*

1. **Focus on youths** - Based on responses from the youth, it is recommended that agricultural assistance and support for agricultural production be age-specific. It is recommended that alternative agricultural training is provided at a lower academic level than that currently provided at the Botswana College of Agriculture, in order to encourage youths to participate. Equally, it was emphasised that youths and young people require additional training on HIV and AIDS. It is essential that such programmes take into consideration out-of-school youth and are sensitive to their unemployment and poverty situation.
2. **Review buying prices** - The Botswana Agricultural Marketing Board buying prices should be reviewed to protect local small farmers against unfair competition from heavily subsidised foreign imports.
3. **Develop less labour-intensive technologies for women/orphan headed households** - In the past, technologies like the Extruder Machine relieved many rural women from the energy demanding hand-stamping of cereals, significantly reducing the woman's workload. There is need to work with women to develop and promote less labour-intensive technologies for ploughing, weeding, harvesting, and processing. For smallholder farmers, it may be important to recommend the keeping of small stock, which is less demanding than cattle.
4. **Consider non-farm employment strategies** Based on the research, it is recommended that policy makers and programme implementers consider non-farm employment strategies to diversify from the traditional farming system.

5. The impact of widespread **income transfer schemes** on agricultural production and food security needs to be investigated.

## Lesotho - Policy Implications

**Key recommendations for Lesotho include:**

1. **Consider heterogeneity of households** - There is need to develop a policy that considers the varying needs of households with respect to the amount of land, labour, capital assets, skills and location. The policy should consider the varied resource constraints experienced by different communities and individual households.
2. **Assistance with appropriate technology** - There is a need for labour-saving technologies that are user friendly and can help to reduce the burden of crop production without compromising the quality, quantity and variety of crops produced.
3. **Address food insecurity** - In Lesotho, food insecurity is attributable to many causes, including drought and animal theft, all of which have been aggravated by the impact of HIV and AIDS. With chronic food insecurity and transitory hunger affecting primarily poor and rural households, there is a risk that individuals lack essential micronutrients, often referred to as 'hidden hunger' (FAO & CSF: 2005/2). As a result, individuals have a reduced capacity to cope physically and are more susceptible to opportunistic infections. It is crucial that the dynamics of risk and factors attributed to food insecurity are understood and government policies and programmes provide resources to support households.
4. **Eliminate gender inequalities** - Women face the dual burden of caring for ill family members as well as generating an income for the family, household maintenance, childcare and nursing work.

Policies and programmes are needed to develop women's knowledge and skills, as well as providing direct access to financial loans and decision-making in agriculture issues.

5. **Enhanced supervision and education from agricultural extension workers** - For enhanced agricultural productivity among communities, it is essential that extensive supervision and education by agricultural extension workers exists. As in all sectors, HIV and AIDS have affected the number and productivity of agricultural extension workers. It is therefore imperative to establish HIV and AIDS workplace policies and prevention programmes for agricultural extension workers. Such programmes should include voluntary counselling and testing, access to ARV treatment, prevention and education.
6. **Strengthening household coping capacity** - The loss of family 'bread-winners' deprives households of productive capital assets. Most of the available household resources are spent on care and support, funeral expenses and the sustaining of very basic standards of living. Expenditure on farming inputs is reduced. There is a need for policies that enable diversification of household income, to help reduce dependency on donations.

## Namibia - Policy Implications

The HIV epidemic has had a severe impact on Namibia. In rural settings, where communities are often bound by extended kinship and close social relations, households not directly affected by illness or the loss of a relative, have nonetheless in some way been tasked to support a family or neighbour. The focus is on three main elements that this study has highlighted:

- Dynamism in terms of both the epidemic and that of the response by affected people,

- Different levels of impact of the epidemic on households' ability to produce, and different levels of interventions required to meet the needs of these households, and
- Identifiable gaps in knowledge about the pace of the disease and the response by Namibians.

**1. Dynamism** - In Kavango results show that female-headed households may be on the increase, a phenomenon linked to the higher rate of deaths among males. The treatment of widows, who are often removed or forced off their marital land and sent back to their own families, may be contributing to this. Clearly defined responses to this kind of process will, given the cultural and productive variation in Namibia, require additional work to understand the matter in both its broader and localised contexts.

**2. Different Levels of Impact and Support -**

Poverty has long been viewed as widespread among communal farmers in Northern Namibia. Most of the households interviewed were poor, and the crucial factor is the extent to which the condition of poor households has worsened due to HIV. If communal farmers in Northern Namibia are considered “subsistence” farmers, then the majority of the households surveyed are not coping. This survey found that almost 80% of households are not producing enough food. The AIMS survey found that 43% of the households surveyed had times when they experienced hunger, and that HIV affected households were more likely to experience food shortages.

Households which have been defined previously as “collapsed communal farming,” require immediate intervention. The status of these households is critical. Those households which are defined as “near collapse”

may not be in a critical phase at the moment, but exposure to a major “shock,” such as the death of a productive adult, or a bad farming year brought on by drought, will result in disaster.

With adults dying because of the epidemic, the period of intervention may span decades, as younger household members require support to obtain an education and employment. Near-collapse households too, require sustained assistance. The levels of vulnerability should be assessed in order to pace interventions in line with capacities. Households that are coping may not require immediate attention. They may require longer-term interventions such as changing the farming systems, and introducing less labour intensive crops. Vulnerability assessments for these households are recommended. Households that are able to maintain their farming operations might require shorter term interventions with longer periods of monitoring.

**3. Gaps in Our Knowledge of the Epidemic -**

Understanding the impact of the epidemic on the regions and communities throughout the country, requires data that is harmonised with national level surveys. In cases such as the National Household Income and Expenditure Survey (NHIES) using the same instruments and analysis on a targeted population will yield crucial data for policy formulation, though it is recommended that modifications be made to such instruments to include questions of relevance of the impacts of HIV. Methods of incorporating these kinds of data into national surveys need to be brought into mainstream development planning.

## **South Africa - Policy Implications**

Understanding the impact of HIV and AIDS on agriculture and food security can allow for effective



interventions to address the challenges and create opportunities to enhance development and security within South Africa and throughout the region. Policy recommendations in South Africa include:

1. **Secure land ownership** - Harnessing the political will to secure land ownership, and to provide security from internal or external threats, including market forces.
2. **Increased access to land for women** - Enable women in rural areas to access deeds to land in order to cultivate subsistence and cash crops.
3. **Promote the importance of nutrition** - Promote awareness and understanding of the importance of nutrition in caring for HIV-infected individuals and other household members.
4. **Agricultural markets** - Advocate nationally and internationally for more equitable access to agricultural markets.
5. **Stratified subsidies** - There is need for more efficient and equitable access to markets for sustainable solutions to combating and to moving beyond, the challenge of HIV and AIDS in agriculture.
6. **Support enhanced knowledge management and skills transfer within families** - particularly women and children who are often currently excluded. Wealthier landholders can protect productivity and provide food security while ensuring sustainability in the longer-term, through the provision of inputs, practicing less labour-intensive cultivation, cash cropping, livestock rearing and domestic employment. Through knowledge sharing, there can be a diversification of skills, crops, labour and knowledge.
7. **Promote co-operation** - Co-operative intervention between agriculturalists, livestock farmers, extension officers, NGOs and others could

be promoted to enable maximal protection of productive cultivation and food security.

8. **Changing the strategic aim of agricultural and rural support services** - It is recommended that the government explore the possibility of changing the strategic aim of agricultural and rural support services, in particular in the nodal areas, to include achieving food security and poverty alleviation. These support services may focus more extensively on land allocation and reclamation issues as well as public works and employment.
9. **Recognising and utilising indigenous ability and availability of agricultural knowledge** - There is need for both 'top-down' and 'bottom-up' approaches in addressing the impact of HIV and AIDS on agriculture. Policies and programmes should recognise and use indigenous knowledge to support the educational and nutritional needs of people living with HIV and AIDS.
10. **Capacity investment** - there is a need to develop micro-finance opportunities and encourage investment in the development of physical and technical infrastructure as well as indigenous knowledge.

## Swaziland - Policy Implications

In Swaziland, the government has adopted the Primary Health Care (PHC) strategy to provide preventive and promotional health services, particularly in rural areas. However, fewer resources are channelled towards the provision of antiretroviral drugs and food assistance that can help to prolong the lives and enhance the productivity of the affected. To complement these types of policies, there is need to develop interventions focused on food security and rural development. In pursuing these policies, the government, in collaboration with NGOs, could intensify food distribution programmes by ensuring that HIV and AIDS affected households receive quotas of adequate rations.

***Key recommendations for Swaziland include:***

- 1. Support home-based care centres** - In households affected by HIV and AIDS, women provide the bulk of the care. The time they spend providing care reduces the time and energy they have for agricultural and income-generating activities. There is need to develop and support home-based care programmes that ease women's disproportionate care burden in HIV-affected households.
- 2. HIV policies should address agricultural issues** - There is need for policy interventions, such as agricultural policy, food-aid policy and rural development policy that will assist HIV-affected households to maintain their agricultural production and food security status. These interventions should be aimed at mitigating the negative effects of HIV on agricultural output. For example, agricultural extension workers could be trained to introduce and promote equally nutritious and less labour-intensive crops. Farmers could grow cassava instead of maize.

To bridge the farming knowledge gap between the affected household members and the survivors there is need for both formal and informal training to help cope with the situation.

- 3. Promote labour-saving practices** - The government should consider the promotion of labour-saving practices through its community-based programmes. This may include reviving cultural practices such as communal labour to assist labour-constrained households. Small loan facilities should be made readily available to the affected households in order to help purchase agricultural inputs, fertilisers or even start some income-generating activities.

- 4. Advocate for women's land rights** -. The study has clearly indicated that land rights are biased against women who, following death of a husband, are not allowed to own or acquire land for agricultural production. It is important for policy makers and development practitioners to support the land rights of vulnerable women and further assist them to maintain usage of the land. In addition, in line with empowering women, cultural practices that make women more vulnerable to contracting HIV need to be considered. On the cultural side, the mourning period for women also needs to be reviewed to allow them to engage in productive work after the death of a husband.

### **Zimbabwe - Policy Implications**

The Zimbabwean government has been proactive in enacting HIV and AIDS legislation and fiscal responses such as the AIDS levy. Like other countries, it has established a National AIDS Council (NAC). While NAC was instrumental in the successful co-ordination of an education awareness campaign, especially in urban areas, programming for rural areas and for the agricultural sector has been less effective. In addition, there remains an overwhelming need for treatment, care, research and counselling on HIV and AIDS in rural areas. Resource and other institutional challenges facing both the Ministry of Agriculture and NAC, limit effective policy and programme co-ordination. Consequently the development of specific educational and mitigation programmes for the agricultural sector, particularly the rural farming communities and service institutions, is severely compromised.

The Zimbabwe study was undoubtedly undertaken under the most unfavourable conditions. The study applied a sampling frame which controlled for common stress factors so as to generate robust data

on production, consumption and investment choices of both affected and non-affected households. From the analysis undertaken and feedback from stakeholders, there are a number of policy challenges that need urgent attention.

Key recommendations for Zimbabwe include:

- 1. Mitigating the Impact of HIV and AIDS on Agriculture** - The Government of Zimbabwe has long acknowledged the potential adverse impact of HIV and AIDS on agriculture and on the national economy. It has however been slow in taking policy actions to mitigate the impacts of HIV on agriculture. The National AIDS Council administered through the Ministry of Health and Child Welfare has been careful to avoid programmes that encroach on the turf of other Ministries. The Ministries have also been too ready to implicitly defer serious policy matters on HIV and AIDS to the National AIDS Council. Thus, important matters of planning agricultural mitigation programmes have been left on the periphery and without effective leadership.

It is recommended that the Ministry of Agriculture negotiates with NAC to assume technical leadership in planning policies and programmes to mitigate the impact of HIV and AIDS on Agriculture, given the importance of agriculture for national development. Greater collaborative engagement between the Ministry of Agriculture and Rural Development and NAC would also help NAC's operational division to focus on the impacts of HIV and AIDS on agriculture.

- 2. Create a national data bank for monitoring HIV and AIDS impacts on agriculture** - One of the major challenges to strategic planning around

the impact of HIV on agriculture is provision of timely, accurate and consistent information for planning purposes. There is need for the creation of a shared national data bank with the capacity and resources to undertake regular surveys for monitoring the trends of key HIV and AIDS stress and impact variables essential for tracking the impact of HIV on agricultural performance. At present there are two institutions conducting comprehensive regular surveys on agriculture - CSO and ZIMVAC but neither is sufficiently comprehensive in their treatment of the impact of HIV on agriculture. NAC has a Monitoring and Evaluation (M&E) Division with a mandate to co-ordinate monitoring and evaluation of HIV and AIDS intervention programmes. The M&E Division of NAC can conceivably host this communal data bank and have it managed collectively by participating institutions.

- 3. Sustain a domestic market and policy environment for smallholder farmers living with HIV, which is conducive for successful farming** - For smallholder farmers living with HIV in the rural areas to thrive on farming, domestic agricultural marketing and pricing policies must stop taxing and start supporting farmers. Zimbabwe's current domestic maize marketing and pricing policies pay maize producers less than 10 percent of the landed cost of imports. Cotton farmers who market their crop through non-competitive and yet liberalised domestic markets are also implicitly taxed. Farmers living with HIV already suffer income loss, due to the impact of HIV on agriculture and cannot afford to receive producer prices that are lower than import parity prices for the same goods. The implicit transfer of income from maize producers, through poor prices, has a social cost in terms of worsening the income and consumption possibilities of rural farmers.

#### **4. Improve access to agricultural finance programmes**

In addition to paying farmers competitive prices for their produce, the policy environment must improve farmer access to markets by eliminating market failures. In Zimbabwe, the financial institutions are completely inaccessible to rural farmers. Special agricultural finance programmes set by government and operated by the Reserve Bank are equally inaccessible to rural farmers. Yet access to modest grants, to assist young families living with HIV to buy productive assets, can permanently improve lifetime agricultural production possibilities, as well as the food security situation.

#### **5. Enhance the agricultural productivity of smallholder farmers living with HIV -**

Smallholder farmers in the rural areas presently achieve maize yields ranging from 500 to 1,500 kgs per hectare, with the average for the non-affected being 800kgs per hectare, while that of most-affected families is modestly lower, at only 740kgs per hectare.

The government should assist to double the yields of farmers in the rural areas by exposing them to labour saving and low-cost agronomic practices for stimulating the yields of the maize-based farming system. Application of agricultural lime (or other traditional liming materials - manure, leaf litter) to neutralise the inherent soil acidity of over-cropped rural farmlands is expected to increase maize yields by as much as 100%.

With current low producer prices, rural farmers have been applying only two bags of fertiliser per hectare of maize. If producer prices for maize are increased to the import parity world price of US\$200 (i.e. Z\$9million to Z\$18million), smallholder farmers would once again find fertiliser application rates of four to six bags and the corresponding increased yields of 1,500 to 2,500kgs per hectare, profitable.

#### **6. Facilitate and safeguard productive asset investments of farmers living with HIV -**

The diminishing holdings of productive farm assets, including cattle, must be seen to be an issue of serious policy concern in Zimbabwe. At a time when HIV and AIDS has rendered hand-powered land preparation unfeasible, the majority of the rural agricultural population has to rely on the relatively more expensive, yet poorly developed public and private tractor service delivery system, for tractor-powered land preparation. The result has been a chronic and persistent bottleneck, which limits cropped areas and production levels at both household and national levels.

The social benefits of effectively addressing the cattle crisis in rural areas are immense in the face of HIV and AIDS. The solution to the challenge is multi-pronged.

- (a) Political pressure on traditional leadership to discourage the customary practice of dispossessing the widows of the remaining cattle holdings upon the death of a spouse.
- (b) Targeted roll-out of comprehensive HIV and AIDS support programmes for rural families living with AIDS.
- (c) Expansion of livestock investment support programmes in rural areas to encourage restocking and commercialisation of rural herds.

#### **7. Special policy attention to HIV and AIDS-affected female-headed households in agriculture -**

The analysis revealed that impacts do not arise from the direct relationships between HIV, women and agriculture. Key impacts are often indirect, through the pervasive interactions of women with social and economic institutions that define their social relationships with men, their income realisations, land holdings and the security of their assets. Thus, a

significant policy challenge is to address gender inequities in all social, economic and political spheres of human interactions.

Female-headed households seem to do more for society while asking less from it. At present, community-based care is dominated by women, who provide the bulk of the care required by people living with HIV and AIDS in rural areas. Despite their own vulnerable income situations, women are donating time and services. The least society can do is to ensure that the caregivers are provided with adequate supplies for effective and safe execution of their duties. NAC must assume a greater role in co-ordinating non-governmental organisations to ensure equitable distribution of programmes and resources for HIV and AIDS care across all districts of Zimbabwe.

#### 4. Regional Policy Recommendations

**Key recommendations arising from the research include:**

**1. Develop a regional agricultural policy which mainstreams HIV and AIDS** - Agricultural policies which promote productive growth in the region are critical, irrespective of HIV and AIDS. However, the severe impact of the HIV epidemic on agricultural productivity and rural income growth, makes it essential that agricultural policies take into

consideration strategies that raise the standard of living within households, in particular those affected by HIV. The most effective agricultural policies within the context of HIV and AIDS should include: (1) investing in agricultural research to generate improved technologies capable of raising the productivity of crop and livestock systems; (2) rehabilitating agricultural extension services; and (3) instituting crop and input marketing systems that contribute to small scale farm productivity and food security.

By considering the impact of HIV and AIDS, a regional agricultural policy can contribute to the prevention and mitigation of the epidemic as well as improve the ability of households to cope with the social and economic stresses the epidemic is causing.

**2. Develop guidelines for governments and international organisations** - There is a need for the development of a guideline for governments and international organisations on the value of cost-effective investments that address HIV and the chronic poverty that characterises the region. Resources are scarce. There is a gap between desired and available levels for HIV prevention and treatment, and for mitigating the impacts of AIDS (e.g. social and economic programmes to protect the living standards of affected households and hard-hit communities).

**The Maseru Declaration (SADC, 2003)** - The HIV epidemic represents the region's greatest development challenge. SADC Member states have demonstrated their commitment to addressing HIV and AIDS by signing the Maseru Declaration (2003) as well as through their participation in the WHO initiatives to provide universal access to care, treatment and support. Numerous non-governmental organisations (NGOs), community-based organisations (CBOs), faith-based organisations (FBOs) and AIDS service organisations (ASOs) support various aspects of the regional and national responses to HIV and AIDS. Despite these efforts, prevalence remains high in many of the SADC countries. The epidemic will thus require increased attention and resources.



3. **Increase awareness of the impact of HIV and AIDS on agriculture** - There is a need for greater regional advocacy to raise awareness among regional and international policy makers on the impact of HIV within the agricultural sector. The loss of capital and knowledge within the agricultural sector is a growing concern, which unless addressed, will become a more severe impediment to the sustainability of agricultural output and productivity for the next generation.

4. **Encourage interventions that enhance labour availability** - Within the household, the key impact of HIV and AIDS is on labour availability and the transfer of skills and knowledge. HIV-affected households are more likely to have limited labour availability and will experience competing demands between caring and productive activities. Therefore, interventions should not place additional burdens on households' time and labour. Equally, interventions that improve treatment for HIV and opportunistic infections can assist, as less labour and time is lost due to recurrent illnesses.

5. **Support interventions that address financial capital** - An illness or death related to HIV and AIDS can reduce the financial capital of a household through healthcare costs accrued during chronic illness, funeral costs, reduced income, or increased costs from adopting orphans. Possible interventions include:

- Establishing safety nets and direct welfare support, e.g. cash transfers, food aid, agricultural input provision, support for costs of health and education;
- Providing assistance with micro-credit, taking into account the particular difficulties that may be faced by AIDS-affected households in meeting repayment requirements and

considerations regarding their labour constraints;

- Grant assistance with livestock multiplication or re-stocking.

6. **Explore interventions that support social capital** - There is a need to identify and test interventions that support social capital. For example, the following interventions could be considered:

- Provide support to households to repay local loans and maintain the viability of such support systems;
- Support households, communities and CBOs that are caring for orphans by providing direct safety nets, or by supporting community initiatives such as communal fields and vegetable gardens;
- Provide organisational support and capacity-building to relevant community-based organisations;
- Advocate for gender equality and children's rights in an effort to reduce any cultural, social or stigma-related limitations on participation in economic activities;
- Promote greater involvement of children and child-headed households in community activities.

7. **Support interventions that protect physical capital** - Most of the interventions in support of human and financial capital, support physical capital by reducing the need for households to sell productive assets, or by increasing the stock of assets. Additional responses can include:

- Direct provision of physical assets or of services for maintaining assets (e.g. veterinary and other services)
- Advocating for changes or greater enforcement of inheritance laws to reduce asset losses following the death of an adult male or both parents.

8. **Consider the heterogeneity of households -** Not all HIV-affected households are in need of support. Equally, there are many households not affected by HIV who are in need of support. It is essential that policies and programmes respect the heterogeneity of households. In developing household specific responses to HIV and AIDS, it is important to consider the specific conditions of the household.

## 5. Future Research Recommendations

The extent of the impact of HIV and AIDS on smallholder agriculture makes it necessary for urgent action to be taken to assist communities to mitigate the effects of the epidemic. While the current study has provided insights on the impact of HIV within the agricultural sector, there is a need for regional policy makers, governments and other stakeholders to commission additional research in this area. Future research on the impact of HIV in the agricultural sector should consider the following:

- **The heterogeneity of agricultural systems -** Researchers investigating the impact of HIV and AIDS on agriculture and food security need to take into consideration the context in which they are working. There is great heterogeneity within Africa and results

should not be generalised to other farming systems.

- **Monitoring over time -** To more effectively assess the impact of HIV and AIDS on the agricultural sector, there is a need to monitor households that have been affected by HIV and AIDS over a longer period. A longitudinal study would enable evaluation of various mitigation strategies and existing programmes.
- **Focusing on HIV and AIDS variables -** The impact of HIV on key variables such as productivity, food security and self sufficiency appeared to be somewhat contradictory or ambiguous in some of the country results. Consequently it is recommended that further analysis on specific HIV and AIDS variables be conducted to explore if they play a role in significantly explaining differences among important impact variables such as productivity, food self-sufficiency and food security.
- **Further research on the Household Vulnerability Index -** more research is needed to support the development of this tool, for use as a national and regional yard-stick for quantifying the different degrees of vulnerability introduced into different households by the epidemic. The research must be directed towards how this tool can support the regional vulnerability assessment and early warning systems – by providing a statistical yardstick which includes HIV and AIDS as a co-factor.









## *‘Vulnerable yet Viable’: Social Protection Policies for Households Affected by HIV and AIDS*

*“Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control” (United Nations 1948).*

\*\*\*

The previous sections highlighted the findings of a study commissioned by the Food, Agriculture and Natural Resources Policy Analysis Network (FANRPAN) on the impact of HIV and AIDS on agriculture and food security in the seven most affected counties in the region - Botswana, Lesotho, Namibia, South Africa, Swaziland, Zambia and Zimbabwe. The sections examined the aggregated impact on household agricultural labour supply, economics as well as food availability, access and utilisation. The study tracked, among many variables, household dependency ratios, productivity, consumption patterns, asset-base, and gender dynamics. A key conclusion was that while the epidemic is having an ‘invisible’ impact on agriculture and food security – issues of hunger and HIV are reinforcing each other – and leading to a potentially tragic new level of famine.

In addition, a new statistical tool, the “Household Vulnerability Index” (HVI) was introduced to support regional vulnerability assessments and early warning systems with a yardstick for determining the current levels of vulnerability introduced by the epidemic. This tool aims to enable policy makers to develop more strategic policy responses with respect to various sources and degrees of vulnerability.

With this information, it is possible for policymakers to consider more effective strategies for development and social assistance to address the unacceptable levels of deprivation that have been introduced into households by the HIV epidemic. This final section of the book is a special call to policy makers to design new social protection regimes that will rebuild the resilience of affected households. Careful assessment of these



“varying degrees of resilience” constitutes the missing link in the current design of development programmes.

### **Expanding the Net: Link between social protection policies and safety nets**

In Africa, ‘safety nets’ were promoted in the 1980s as a response to the adverse effects of economic structural adjustment programmes. Although some safety nets

had a development component, they remained largely associated with the idea of a “short-term buffer”.

“Social protection” is a term that extends beyond the traditional concept of short-term safety net programmes, by emphasising a longer-term development approach which includes social assistance and social insurance. Many individuals advocate that social protection should be a right as opposed to a form of emergency relief.

#### **Defining social protection**

Social protection has three key elements – vulnerability, unacceptable levels of deprivation, and public action. According to Norton, Conway and Foster, 2002, social protection refers to the public actions taken in response to levels of vulnerability, risk and deprivation which are deemed socially unacceptable within a given polity or society.

Traditionally, social protection was aimed at simply “raising the consumption of the poor through publicly-provided transfers”, but more recently the focus has shifted to “helping low-income households cope with income fluctuations as well” (Morduch & Sharma, 2002).

A narrow definition of social protection might restrict the definition, for policy purposes, to direct transfers of food, but a broader definition recognises that production, employment, trade and transfers can be effectively supported under the rubric of social protection.

#### **Goals of social protection**

- 1. Social insurance** - If the objective of economic growth is to raise average income; the objective of social protection is to reduce variations around average income.
- 2. Social assistance** - To buffer the consumption of chronically poor individuals who cannot benefit from interventions that raise earned income (i.e. the labour-constrained poor – people with disabilities, orphans, people living with HIV and AIDS [PLWHIV] etc.).

#### **Types of social protection**

- 1. Production-based entitlements:* stimulated through the provision of inputs (seeds and tools) to food deficit farmers;
- 2. Employment-based transfers:* can be created, for example through food-for-work projects;
- 3. Trade-based entitlements:* can be enhanced, for example by using consumer subsidies or food price interventions.
- 4. Transfer-based entitlements:* food aid or supplementary feeding, or cash transfers or vouchers that boost the purchasing power of the food insecure.

Traditional safety nets have been short-term programmes designed to re-distribute resources to poor people to reduce chronic poverty or to protect them against risks to their livelihoods. These populations have experienced risks posed by disease, loss of employment, drought, conflict, financial crises, or macroeconomic adjustment. Social protection is a more holistic approach, and involves programmes that reduce the impact of emergencies by assisting households to cope with the aftermath. Social protection also promotes interventions designed to prevent emergencies, shocks and destitution in the first place. To achieve both the short-term and long-term goals of a broader development strategy, there is a need to develop and maintain partnerships between government, the private sector and civil society (IFPRI, 2004)

## **The Dilemmas of Public-funded Social Protection for Food Security**

Several theories have been put forward as to why southern Africa coped less effectively with the food crisis of 2001/02 than with the drought of 1991/92. The World Food Programme (2005) described it as the “lethal mix of three factors – HIV and AIDS, market liberalisation, and governance failures”. All three of these factors have impacted negatively on informal social security systems and have increased the poverty and vulnerability of people throughout the southern African region.

Against these real and possibly increasing needs, is a call to address the key questions that dominate the debate on social protection in the SADC region:

1. How can poor countries provide effective social protection for their citizens, given the fiscal constraints these governments face, and pressures to prioritise public spending in the “productive” economic sectors rather than the social sectors?
2. Given the close linkages between chronic and transitory food insecurity, can public interventions achieve positive synergies between social protection and pro-poor economic growth, (by supporting people through short-term crises while reducing their long-term vulnerability)?
3. How can governments and donors move beyond supporting a set of loosely related ‘social welfare’ or ‘safety net’ instruments, towards an integrated approach to social protection that addresses vulnerability in a comprehensive and systematic way?
4. Given fiscal and administrative constraints, and an economic context of reducing government interventions in the economy, how can public actors (governments, donors) work together in partnership with private and informal actors (communities, CSOs and NGOs, FBOs) to deliver effective social protection?
5. How can targeting and quantifying of household vulnerability be best improved in order to provide concrete guidelines for designing appropriate social protection programmes for emerging vulnerable groups that differ from the traditional ones?

Based on these critical questions, there are several key recommendations to take into consideration for the design of social protection programmes:

1. Since comprehensive social protection for all southern Africans is unaffordable, at least for the foreseeable future, affordable, high-impact interventions should be prioritised;
2. Social protection must be perceived in its broader sense of providing social assistance to those who are chronically unable to make ends meet, as well as social insurance against transitory fluctuations in household access to food;
3. In the current policy context of Poverty Reduction Strategy Papers (PRSPs), social protection must be fully integrated into poverty reduction programmes, and should include measures that empower citizens wherever possible to move out of poverty and reduce their vulnerability.

## **A Case for Social Protection in Households affected by HIV and AIDS**

Given that social protection is an expensive use of scarce public resources, there are four key arguments for prioritising social protection with a specific focus on households affected by HIV and AIDS.

**1. Equity** – humanitarian relief to people whose lives and livelihoods are threatened by natural disasters is grounded in the humanitarian principle that saving lives is an imperative that must be followed, whatever the cost. International human rights charters - e.g. the United Nations Universal Declaration of Human Rights, 1948, reinforce this argument. The HIV epidemic has reached emergency proportions in southern Africa. The epidemic was sighted as a contributing factor in declaring a state of food emergency in Lesotho and Swaziland in 2005. Hence all national and regional development programmes and policies need to reflect the same urgency and concern to save lives and livelihoods - no matter the cost.

**2. Millennium Development Goals** - the current preoccupation of governments and donors with poverty reduction and the UN Millennium Development Goals (MDGs), requires a holistic approach that includes not only policies for raising incomes, but also redistribution of assets and income to the poor. This should include measures to reduce income variability and smooth consumption – which is the essence of social protection. In addition, social protection can also generate positive returns, as the presence of effective social assistance and social insurance programmes can encourage moderate risk-taking by the poor, leading to higher average incomes.

**3. Cost of ignoring social protection** - the direct and indirect cost of not investing in social protection policies and programmes presents another argument for investing in social protection. In countries that are heavily dependent on rain-fed agriculture, the costs of harvest failure are threefold: lost income to farming households, lost foreign exchange from agricultural exports, and higher than normal food imports, for which scarce foreign exchange must be

expended. A recent study of the costs of climatic variability in southern Africa estimated that the 1991/92 drought cost the region over US\$ 2 billion in lost maize production (10 million tonnes), in costs of importing cereal to bridge production deficits, and in incalculable wider impacts on the agriculture sector and GDP (Clay et. al, 2003). If these countries had succeeded during the 1990s in 'weather-proofing' their economies – by investing in small-scale irrigation, livelihood diversification, market integration and comprehensive social protection measures – then the costs and impacts of the 2001/02 weather shocks might have been largely contained. Instead – though the full costs have not yet been estimated – the 2001/2 crisis exposed the heightened vulnerability of national economies and household livelihoods. These effects were magnified in most affected countries by the absence of adequate social protection policies and programmes.

- 4. The “new reality”** – a new reality that governments need to accept is that the magnitude of the impact of the HIV and AIDS epidemic on agriculture and food security has reached “famine level proportions” - but unlike the case of drought, famine and floods – the impact of the epidemic is gradual and not easily visible or quantifiable to attract crisis-type emergency intervention and aid. Yet, the impact of HIV and AIDS on household food security in the SADC region has reached alarming levels. In this crisis lies the call for a new design of public-based social protection packages and programmes, based on this new reality, that will reduce vulnerability in the short term and develop coping capacity for the longer term. The new programmes should be based on a new scheme of Public-Private Partnerships. The region needs a long-term, multi-sectoral response to HIV.

## Policy Recommendations

Duvereux (2003) highlighted three categories of focus for the development of the ideal, comprehensive social protection policies for Southern Africa. These cover risk reduction, mitigation of impacts and building coping capacity (resilience).

### 1. Risk Reduction Measures:

The establishment of National Social Protection Agencies (NASPAs) co-ordinated at the regional level by SADC, with at least four mandated functions:

1. To develop and implement a clear strategy for monitoring, and quantifying the impact of HIV and AIDS on agriculture and food security, as well as monitoring and measuring the resultant vulnerability on livelihoods, for public action and response;
2. To find sustainable solutions to the problem of constrained access to agricultural inputs that undermines the viability of farmers' livelihoods and raises vulnerability throughout the region;
3. To monitor national food availability and trends in food prices, in collaboration with early warning systems such as FEWSNET, and to ensure that rapid response capability exists;
4. To design more effective responses to the impacts of HIV and AIDS on household livelihoods, for instance, by identifying and disseminating labour-saving agricultural technologies and/or low-labour alternatives to farming, for households that have become labour-constrained because of AIDS-related illness and deaths.

## 2. Risk Mitigation Measures:

The 2001-02 Food Crisis in southern Africa underlined the importance of maintaining national grain reserves. However it is important to:

1. Maintain the appropriate level of national grain stock i.e. balancing risk mitigation objectives against the high financial costs of holding un-utilised grain in silos;
2. Effective and transparent management of the national grain reserves;
3. Invest in exploring the feasibility of alternatives such as grain futures markets.

## 3. Risk Coping Measures:

A major challenge is to target the benefits of social protection transfers on the most needy – especially in the context of HIV and AIDS. The use of “vulnerability” as an absolute status - for example by simply describing chronically ill or female-headed households or orphans as vulnerable groups – is inaccurate. Specifically, vulnerability should not be used synonymously with need, as it should reflect the likelihood of a particular outcome arising for that group in the future.

Policy options for risk coping measures include:

1. Understudying and extending the concept of social pensions (as in South Africa, Namibia and Botswana) to all countries in SADC;
2. A robust targeted public transfer scheme based on a standardised vulnerability index able to establish and categorise the level of vulnerability in a given HIV affected household that would minimise the losses to untargeted transfers;

3. Select measures that achieve both risk coping and risk reduction objectives simultaneously e.g. public works programmes, which build market-integrating roads and other infrastructure; and school-based feeding schemes that enable transfer of skills that should offer future generations more livelihood options than farming for subsistence.

For the longer term, a risk management approach to household food security is critical. There is need for an approach that would shift policy attention away from reactive short-term safety nets, and towards a risk reducing strategy that minimises income and consumption variability by supporting farmers while simultaneously promoting livelihood diversification, to reduce dependence on rain-fed agriculture. Since the objective is to support more secure and more lucrative livelihoods for all southern Africans, such a strategy should achieve both social protection and economic development objectives.

### **A targeted Public Transfer Scheme based on a standardised vulnerability index: The Household Vulnerability Index (HVI)**

Implementing any risk coping measures for households affected by HIV and AIDS will be highly dependent on proper targeting of the vulnerable, because not every household affected by AIDS falls under the vulnerable category.

The Food, Agriculture, Natural Resources Policy Analysis Network (FANRPAN) has developed a tool for quantifying vulnerability of affected families – the Household Vulnerability Index (HVI). The different Household Vulnerability Indices (HVI) reflected the different degrees



of vulnerability. Three levels of vulnerability will be of particular importance for social protection purposes:

1. Vulnerability level 1 = Coping level households (CLH) – households in a vulnerable situation but still able to cope;
2. Vulnerability level 2 = Acute level households (ALH) – households that have been hit so hard that they badly need assistance to the degree of an acute health care unit in a hospital. With some rapid-response type of assistance these may be resuscitated;
3. Vulnerability level 3 = Emergency level households (ELH) – the equivalent of an intensive care situation – almost a point of no return – but could be resuscitated with the best possible expertise.

Policy makers and development specialists can use this tool to design, plan and implement comprehensive and well-targeted public-funded social protection programmes that specifically focus on reducing household vulnerability and to improve food security among HIV-affected families.

## **Some On-going Social Protection Programmes and Systems**

According to IFPRI, 2004, there are already many examples of safety net programme options being implemented in different parts of the world as a way of reducing household vulnerability to food security. These include: cash transfers and conditional transfers; free food distribution; direct feeding programmes; school-based food programmes; food stamps; price subsidies; subsidised agricultural inputs; public works programmes; social health insurance; and micro-finance.

### **1. Cash Transfers and Conditional Transfers**

These involve the direct transfer of cash to poor households. These programmes are often targeted at specific groups – the elderly, children, the malnourished,

pregnant women, single parents, the disabled or the very poor. An urban programme in Mozambique, for example, gives transfers to many of these groups whose households are poor. South Africa and Namibia have old-age pension systems. South Africa also has a child support grant and a disability grant. Such programmes provide significant social and economic security.

### **2. Free Food Distribution**

Hunger is one of the most obvious manifestations of extreme poverty. ‘Free food’ distribution has generally been more politically acceptable than cash transfers. Moreover ‘free food’ from food surplus countries is often available to food deficit countries as food aid, whereas providing the equivalent aid in cash may not be politically feasible. In a pure relief programme, food is distributed free, either as disaster relief or as in-kind transfer to certain disadvantaged groups in the society. Direct distribution is sometimes combined with other programmes involving nutrition, education, and health services.

An example of direct food distribution is food-for-work programmes in which food is used as payment to workers. This is common in many countries in Africa and these programmes play a dual role – providing employment for the poor and creating public assets such as rural roads.

### **3. Direct Feeding Programmes**

These distribute meals and nutritional supplements to people who are deemed vulnerable to malnutrition, usually pre-school children and women of childbearing age from low-income households. The programmes represent a public investment in human capital because they reduce the long-term effects of malnutrition.

The attraction of feeding programmes is that they have a clearly identifiable target group – even very poor countries generally have the capacity to measure malnutrition, and these programmes can be implemented through existing health systems and by community workers.

#### **4. School-Based Food Programmes**

These distribute prepared food (e.g. nutrient-fortified biscuits and milk) to children in school. School feeding tends to increase school attendance and reduces short-term hunger experienced by children in the classroom, hence improving their learning ability. Food-for-education programmes distribute free food grain to low-income families if their children attend primary school. The grain can be used to feed family members or sold to meet other expenses.

Both these feeding programmes provide immediate sustenance for the hungry while empowering future generations by educating today's children.

#### **5. Food Stamps**

These are distributed to eligible consumers. The food stamps or coupons have a cash value when used for purchasing food in a commercial store and the seller redeems the stamps from a bank or a government office. The major advantage of a food stamp programme is that it utilises the normal food marketing system hence eliminating some administrative burdens including the cost of commodity handling. The major challenge lies in identifying qualified recipients.

#### **6. Price Subsidies**

Some form of price subsidies for consumers is common in most countries. As a way of protecting the poor from

high prices, governments provide food at a lower-than-market price, subsidise commodities and services such as electricity, provide low rent housing, and reduce or waive fees for education and health care services. A general food price subsidy makes unlimited amounts of the subsidised foods to all.

Unrestricted subsidies achieve maximum coverage of the population but are more costly than targeted programmes. Costs and administrative complexity can be reduced through “self-targeting” i.e. by subsidising items disproportionately consumed by the poor. Food price subsidies can also be seasonally targeted – governments of some countries with major seasonal food shortages and price spikes, buy food grains during the harvest season and release stocks onto the open market during the lean season.

#### **7. Subsidized Agricultural Inputs**

Agricultural inputs such as fertilisers are often subsidised to help poor farmers and increase crop productivity. However, subsidised agricultural inputs are commonly used in direct proportion with landholding size, so such subsidies end up benefiting the not so poor. Instead free distribution of very small quantities of inputs such as fertiliser and seed to small and marginal farmers can increase their incomes more effectively.

As an excellent example, a food security pack is distributed by an NGO, Programme Against Malnutrition (PAM) in collaboration with the Zambian government, to vulnerable but viable households to self-sustain and increase their food security.

#### **8. Public Works Programmes**

These programmes constitute an important type of safety net for reaching the poor throughout Africa.

They provide emergency relief, as well as contributing to economic development. These kinds of programmes transfer short-term wages or food but, if carefully designed, could also help build needed assets such as schools and clinics, facilitate access to markets through the construction of roads and provide training and organisational capacity.

In South Africa, the public works programmes have included support for small contractors, certified training to increase opportunities for workers to enter the labour market and capacity building for community-based organisations involved in project implementation.

Public works programmes are “self-targeted” in that the very poor are most likely to accept the low-wage, unskilled work offered. In terms of policy recommendations, these programmes should target infrastructure and resource deficiencies and focus on high return investments. They should be mainstreamed into cross-sectoral public planning and they should be flexible enough to respond both to chronic poverty and crises.

## 9. Social Health Insurance

In many African countries, social insurance is a form of social protection. Social health insurance schemes are typically contributory in nature, with participation by government, the beneficiaries themselves, and donor organisations or international agencies such as the International Labour organization (ILO).

## 10. Micro-finance

Micro-finance, which includes both credit and savings, is a form of social protection and enterprise promotion. The worldwide micro-finance movement has promoted individual and group-based access to savings and credit,

sometimes with insurance and training components. The movement has for the first time, given millions of poor people access to more formal financial institutions.

Micro-finance can protect the poor during large shocks, helping them to avoid drastic actions such as distress sales of land and draft animals that can permanently damage future earning potential. The presence of micro-finance institutions in the community can also increase a household’s risk-bearing ability, enabling investment in more profitable activities.

Some of the challenges with microfinance arise from difficulties in reaching the poorest; developing sustainable co-insurance between poor people and these factors are exacerbated by the HIV epidemic. Other barriers are the expense of building parallel financial institutions, and the lack of rural infrastructure and markets that hinder credit viability.

## Conclusion

Social protection refers to the public actions taken in response to levels of vulnerability, risk and deprivation which are deemed socially unacceptable within a given polity or society. Most societies have private inter-household, intra-family and intra-household transfers that promote resilience to shocks, mitigating their negative effects. However in countries or communities where people are universally poor, there is less to share, particularly in times of shocks that affect many in the society (such as drought, famine, floods, HIV, or widespread structural unemployment), which is precisely why social protection is critical in Southern Africa. Social protection must, however, be perceived in its broader sense of providing social assistance to those who are chronically unable to make ends meet, as well as social insurance against transitory fluctuations in household access to food.

The HIV and AIDS epidemic has introduced a new reality in the region that will require new thinking and innovation. The programmes described in this section confirm that it is indeed possible for governments to accompany vulnerable groups and help them cope through creative public programmes. “Social protection” is a newer term that incorporates safety net programmes but also includes a role for “renewed state involvement”, emphasises a “longer-term development approach”, and is often “advocated for as a “right”, rather than a reactive form of relief”.

Any meaningful efforts to develop a comprehensive social protection programme for HIV affected households must be accompanied by a comprehensive system of measuring and quantifying vulnerability – *the impact of HIV and AIDS is gradual, widespread and not so easily visible*. The use of “vulnerability” as an absolute status - for

example by simply describing chronically ill or female-headed households or orphans as vulnerable groups should be avoided. Vulnerability should especially not be used synonymously with need, as it should reflect the likelihood of a particular outcome arising in the future.

The establishment of National Social Protection Agencies (NASPAs) co-ordinated at the regional level by SADC is an urgent action. These should be tasked to develop and implement a clear strategy for monitoring, and quantifying the impact of HIV and AIDS on agriculture and food security, as well as monitoring and measuring the resultant vulnerability on livelihoods for public action and response. If not checked, the depth, magnitude and severity of HIV and AIDS on agriculture and food security will soon cause a food crisis of much greater magnitude than previously experienced.











# Index

## A

Access to food • 11, 90  
 Acute Level Households • 102, 103, 104  
 Affected households • 14, 40, 61  
 Africa • 3, 9, 12, 16, 17, 23, 51, 52, 53, 57, 71, 75, 89, 94, 95, 117, 123, 127, 128, 129, 130, 131, 133, 134  
 agricultural inputs • 24, 31, 74, 76, 78, 83, 84, 111, 118, 130, 133, 134  
 agricultural sector • 12, 17, 23, 24, 39, 76, 118, 122, 123  
 agriculture • 1, 4, 8, 9, 10, 11, 12, 15, 18, 19, 21, 22, 23, 24, 28, 29, 36, 37, 39, 42, 52, 53, 54, 60, 61, 62, 69, 74, 78, 83, 87, 88, 89, 92, 95, 104, 106, 107, 108, 110, 111, 115, 116, 117, 119, 120, 122, 123, 126, 129, 130, 131, 136  
 AIDS-affected households • 99  
 ARVs • See Anti-retroviral Drugs

## B

Barnett and Rugamela • 9, 89  
 Botswana • 14, 19, 33, 34, 35, 36, 52, 54, 55, 57, 58, 62, 75, 77, 78, 80, 81, 86, 87, 88, 89, 94, 110, 111, 113, 126, 131

## C

caregivers • 37, 40, 86, 113, 121  
 cereals • 91, 113  
 Children • 3, 4, 55, 72, 74, 95, 100  
 children's rights • 4, 122  
 Chronic Illness • 4, 100  
 community based Organisations • 40  
 Consumption • 23, 26, 27, 65, 74  
 coping • 3, 6, 18, 25, 28, 33, 44, 49, 62, 71, 72, 74, 75, 80, 85, 99, 100, 101, 102, 103, 104, 105, 107, 108,

115, 116, 130, 131

Coping Level Households • 102, 103, 104  
 cultivation • 12, 15, 16, 29, 49, 55, 80, 81, 88, 117  
 Cultivation • 4

## D

Death • 3, 6, 47, 93, 100  
 dependency ratio • 11, 12, 18, 25, 26, 33, 54, 90, 93, 101, 105  
 dimensions • 22, 29, 33, 42, 44, 46, 52, 78, 99, 100, 106, 108, 110  
 Disability • 75  
 Drinkwater • 3, 10, 23, 24, 28

## E

early warning systems • 123, 126, 130  
 Emergency Level Households • 102, 103, 104  
 ensuring sustainability • 117  
 epidemic • 1, 3, 4, 8, 11, 12, 14, 17, 19, 23, 42, 44, 52, 53, 57, 61, 62, 71, 82, 83, 87, 88, 90, 93, 94, 95, 98, 104, 106, 110, 111, 115, 116, 121, 123, 126, 129, 130, 135, 136  
 extended family • 3, 24, 71, 72, 88, 102  
 extension • 12, 15, 16, 29, 31, 35, 52, 72, 74, 76, 87, 111, 113, 115, 117, 118, 121  
 extension workers • 15, 31, 35, 87, 111, 115, 118

## F

faith-based organisations • 121  
 Famine  
 hunger • 18, 19, 23, 93  
 FANRPAN • 19, 22, 24, 26, 28, 50, 110, 126, 131  
 FAO • 14, 15, 39, 91, 115  
 farmers • 12, 16, 24, 35, 36, 37, 39, 55, 61, 72, 74, 76,

80, 82, 84, 86, 87, 89, 90, 94, 95, 106, 108, 111,  
113, 116, 117, 119, 120, 127, 130, 131, 134

farming knowledge • 111, 118

farming system • 8, 60, 114, 120

farming systems • 4, 81, 116, 123

female headed households • 14, 64

FEWSNET • 8, 130

financial asset • 30

fiscal responses • 118

Food • 9, 10, 11, 14, 16, 19, 25, 26, 27, 28, 60, 61, 75,  
76, 89, 94, 103, 107, 126, 128, 131, 133, 134

Food and Agricultural Organisation • 14

food consumption • 4, 19, 31, 91

food production • See

food security • 1, 3, 4, 6, 7, 9, 10, 11, 12, 14, 16, 18,  
19, 21, 22, 23, 24, 25, 28, 29, 39, 41, 42, 52, 53,  
58, 59, 61, 69, 76, 81, 89, 92, 93, 95, 98, 99, 102,  
106, 107, 110, 111, 115, 116, 117, 118, 120, 121,  
123, 126, 130, 131, 133, 134, 136

Food security • 9, 10, 25, 28, 60

food shortages • 116, 134

## G

Gender • 33, 53, 57, 58, 87, 88, 111

gender equality • 122

girl child • 4, 6

greater involvement • 122

## H

health services • 111, 117, 133

healthcare • 3, 4, 122

### HIV and AIDS

epidemic • 1, 3, 4, 6, 7, 8, 9, 12, 16, 17, 18, 19, 21, 22,  
23, 24, 25, 26, 28, 29, 30, 31, 32, 33, 34, 35, 36,  
37, 39, 40, 42, 44, 47, 49, 52, 53, 54, 57, 58, 59,  
60, 61, 62, 64, 65, 68, 69, 71, 72, 73, 74, 75, 76,  
77, 78, 81, 82, 83, 84, 86, 87, 88, 89, 91, 92, 93,  
94, 95, 98, 99, 100, 101, 105, 106, 107, 108, 110,  
111, 113, 115, 116, 117, 118, 119, 120, 121, 122,

123, 125, 126, 127, 128, 129, 130, 131, 136

home-based care • 17, 38, 74, 78, 86, 111, 118

horticulture • 36, 87

household • 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 16, 17,  
18, 22, 24, 25, 26, 28, 29, 30, 31, 32, 33, 35, 36, 37,  
38, 39, 40, 41, 42, 44, 46, 47, 49, 52, 53, 54, 55, 57,  
58, 59, 60, 61, 62, 64, 65, 67, 68, 69, 71, 72, 74, 75,  
76, 77, 78, 80, 81, 83, 84, 86, 87, 88, 89, 90, 91, 93,  
94, 95, 98, 99, 100, 102, 103, 104, 105, 106, 107,  
108, 110, 115, 116, 117, 118, 120, 122, 123, 126,  
128, 129, 130, 131, 133, 135

Household consumption • 91, 92

Household Vulnerability Index • 22, 42, 43, 44, 46, 96,  
97, 98, 99, 102, 104, 105, 106, 107, 108, 123, 126,  
131, 132

households • 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 14, 15,  
16, 17, 18, 19, 22, 24, 25, 28, 29, 31, 33, 34, 35, 36,  
37, 38, 39, 40, 41, 42, 44, 45, 47, 52, 53, 54, 55, 57,  
58, 59, 60, 61, 62, 64, 65, 67, 68, 69, 71, 72, 74, 75,  
76, 77, 78, 80, 81, 82, 83, 84, 86, 87, 88, 89, 90, 91,  
92, 93, 94, 95, 98, 99, 100, 101, 102, 103, 104, 105,  
106, 107, 108, 110, 111, 113, 115, 116, 117, 118,  
119, 120, 121, 122, 123, 126, 127, 128, 129, 130,  
131, 133, 134, 136

Human Capital • 23, 27, 53, 105

hunger • 18, 89, 93, 115, 116, 126, 134

## I

impact • 1, 3, 4, 6, 7, 8, 9, 10, 12, 14, 15, 16, 19, 22,  
23, 24, 26, 28, 29, 33, 35, 36, 38, 39, 40, 41, 42, 44,  
46, 52, 53, 54, 59, 60, 62, 68, 69, 72, 75, 76, 77, 81,  
88, 89, 90, 93, 94, 95, 98, 99, 100, 101, 104, 105,  
110, 111, 115, 116, 117, 119, 121, 122, 123, 126,  
128, 129, 130, 136

impact of HIV • 1, 8, 22, 39, 110, 119, 122, 123, 130

implements • 60, 62, 68, 69, 78, 92, 101, 103, 106

income • 3, 4, 6, 7, 8, 9, 10, 11, 12, 14, 25, 28, 29, 31,  
33, 47, 49, 52, 53, 54, 58, 59, 60, 61, 62, 64, 69, 72,  
75, 76, 77, 78, 80, 83, 84, 86, 88, 89, 91, 92, 93, 95,



101, 102, 104, 105, 106, 111, 115, 118, 119, 120,  
121, 122, 127, 129, 131, 133, 134  
infection • 1, 18, 37, 54, 57

## L

labour • 3, 4, 7, 8, 10, 11, 12, 14, 15, 16, 17, 18, 29,  
31, 33, 35, 49, 52, 53, 54, 55, 57, 59, 60, 62, 69,  
71, 72, 76, 77, 78, 80, 81, 82, 83, 84, 85, 89, 90,  
92, 93, 94, 95, 105, 110, 111, 113, 115, 116, 117,  
118, 120, 122, 126, 127, 130, 135  
labour availability • 3, 15, 122  
labour-intensive technologies • 113  
Lesotho • 19, 22, 36, 42, 52, 53, 54, 55, 57, 61, 62, 64,  
65, 71, 72, 75, 80, 81, 82, 92, 94, 98, 100, 101, 103,  
104, 108, 110, 111, 115, 126, 129  
livelihoods • 2, 4, 12, 24, 28, 39, 69, 110, 111, 128,  
129, 130, 131, 136  
livestock • 4, 6, 11, 12, 14, 19, 29, 30, 31, 48, 52, 55,  
60, 61, 62, 64, 65, 67, 68, 71, 72, 74, 76, 77, 78,  
80, 84, 87, 88, 90, 92, 95, 101, 103, 104, 106, 117,  
120, 121, 122  
living standards • 121

## M

maize yields • 59, 84, 108, 120  
Malawi • 15, 23, 111  
Maseru Declaration • 1, 121  
Mdladla • 24, 25, 26, 28  
micro-credit • 122  
Mobility • 31, 54  
monitoring • 9, 10, 116, 119, 130, 136

## N

Namibia • 14, 19, 37, 52, 54, 55, 57, 65, 67, 82, 83,  
86, 89, 91, 92, 95, 110, 115, 116, 126, 131, 133  
National AIDS Council • 118, 119  
Natural Capital • 23, 103  
Natural Resources • 19, 23, 126, 131  
nutrition • 3, 31, 52, 53, 90, 94, 95, 117, 133

## O

off-farm • 6, 7, 8, 11, 12, 16, 26, 27, 29, 53, 60, 69, 83,  
90, 91, 93, 113, 116  
opportunistic infections • 94, 115, 122  
orphans • OVC, children • 3, 17, 25, 74, 75, 102

## P

Physical assets • 102, 104, 122  
Physical capital • 31, 52, 105, 106, 122  
Policy • 28, 61, 76, 101, 104, 108, 110, 111, 113, 114,  
115, 116, 118, 119, 120, 121, 122, 123, 126, 127,  
129, 131, 135  
Policy • 2, 3, 19, 77, 109, 110, 111, 113, 115, 116, 117,  
118, 121, 126, 130, 131, 133  
Policy makers • 101, 104, 111, 114, 118, 122, 123, 126  
Poultry • 87  
Poverty • 116, 129  
Poverty alleviation • 106, 107, 117  
Prevention • 17, 72, 87, 111, 113, 115, 121  
Production • 115, See productivity,  
productivity • 1, 7, 8, 9, 11, 12, 16, 17, 24, 31, 41, 52,  
54, 59, 71, 76, 81, 83, 84, 87, 88, 93, 94, 106, 111,  
115, 117, 120, 121, 122, 123, 126, 134

## R

research • 6, 7, 16, 19, 22, 24, 26, 28, 31, 33, 34, 35,  
36, 37, 38, 39, 52, 54, 78, 84, 94, 95, 98, 110, 111,  
113, 114, 118, 121, 123  
rural • 3, 7, 8, 9, 12, 16, 17, 18, 22, 23, 24, 28, 37, 38,  
39, 40, 51, 52, 53, 54, 57, 61, 64, 65, 69, 76, 78,  
81, 89, 91, 93, 95, 107, 111, 113, 115, 117, 118,  
119, 120, 121, 133, 135  
rural development • 117

## S

SADC • 1, 7, 15, 19, 22, 24, 28, 52, 61, 64, 87, 93,  
110, 121, 128, 130, 131, 136  
safety nets • 15, 33, 52, 72, 75, 102, 122, 127, 128, 131  
shocks • 1, 3, 12, 25, 29, 95, 98, 128, 130, 135

smallholder farmers • 65, 80, 84, 113, 119, 120  
 South Africa • 17, 19, 22, 37, 41, 42, 52, 53, 54, 57,  
 61, 68, 69, 71, 75, 80, 82, 83, 84, 94, 98, 105, 106,  
 108, 110, 111, 116, 117, 126, 131, 133, 135  
 Southern Africa • 1, 16, 18, 22, 130, 135  
 stigma • 1, 71, 74, 75, 122  
 Sub-Saharan Africa  
 Southern Africa • 1  
 Swaziland • 15, 17, 19, 22, 38, 39, 52, 54, 55, 57, 61,  
 63, 65, 69, 72, 78, 80, 81, 82, 83, 84, 87, 88, 92,  
 94, 110, 111, 117, 118, 126, 129

## T

Tanzania • 14, 16, 17  
 traditional leadership • 40, 120  
 treatment • 4, 6, 14, 17, 37, 61, 71, 94, 111, 113, 115,  
 116, 118, 119, 121, 122  
 Treatment  
 antiretroviral drugs • 1, 72, 117

## U

Uganda • 14, 15, 17  
 UNAIDS • 1, 17, 57, 95  
 United Nations • 19, 126, 129

## V

vegetable gardens • 122  
 voluntary counselling and testing • 115  
 vulnerability • 3, 18, 19, 22, 24, 25, 29, 42, 44, 52, 57,  
 95, 98, 99, 100, 101, 102, 104, 105, 106, 107, 108,  
 110, 116, 123, 126, 127, 128, 129, 130, 131, 133,  
 135, 136

Vulnerability Assessment Committee • 7, 95  
 vulnerable • See Vulnerability

## W

welfare support • 122  
 women & girls • 1, 6, 9, 10, 11, 16, 17, 18, 38, 53, 54,  
 55, 57, 58, 59, 69, 72, 75, 78, 81, 86, 88, 91, 94, 95,  
 111, 112, 113, 115, 117, 118, 120, 121, 133  
 World Vision • 8

## Y

yield • 29, 31, 42, 60, 81, 84, 88, 89, 92, 107, 116

## Z

Zambia • 6, 15, 17, 19, 39, 52, 54, 55, 57, 62, 65, 67,  
 76, 77, 80, 82, 83, 84, 110, 111, 126  
 Zimbabwe • 7, 17, 19, 22, 24, 40, 52, 53, 54, 57, 58,  
 59, 61, 62, 64, 65, 67, 68, 78, 80, 81, 82, 83, 84, 87,  
 89, 91, 92, 95, 110, 111, 118, 119, 120, 121, 126





## Bibliography

Alleyne, E., Kapungwe, A., & Kamona, R. (2001). *The impact of HIV/AIDS on agriculture extension organisation and field operations in Zambia*. Cited in Gillespie, S., Kadiyala, S. (2005). HIV/AIDS and Food and Nutrition Security: From Evidence to Action. Food Policy Review 7. IFPRI: Washington.

Ainsworth, M., Ghosh, S., & Semali I. (1995). *The impact of adult deaths on household composition in Kagera region, Tanzania*. Preliminary results presented at the annual meetings of the Population Association of America, San Francisco, California, April 1995, and at the IXth International Conference on AIDS and STDs in Africa, Kampala, Uganda, December 1995

Barnett, T., & Blaikie, P. (1992). *AIDS in Africa. Its present and future impact*. Belhaven Press: London.

Barnett, T. (1994). *The effects of HIV/AIDS on farming systems and rural livelihoods in Uganda, Tanzania and Zambia*. UN FAO: Rome.

Barnett, T. and Rugalema, G. (2001). *HIV/AIDS and food security*. In: Flores, R. and Gillespie, S. (eds) Health and Nutrition: Emerging and Re-emerging Issues in Developing Countries. 2020 Focus 5, IFPRI Washington DC

Baylies, C. (2002). *The impact of AIDS on rural households in Africa: shock like any other?*, Development and change, 33 (4), 611-32.

Booyesen, F., & Bachman, M. (2002). *HIV/AIDS, Poverty and Growth: Evidence from a Household Impact Study in Free State Province, South Africa*. Paper presented at the Annual Conference for the Study of African Economies (CSAE).

Bota, S., Malinidi, G., & Nyekonyeka, M. (1998). *Factoring AIDS into agricultural sector in Malawi, Ministry of Agriculture and Irrigation*. Cited in Toupouzis, D., *Addressing the impact of HIV/AIDS on Ministries of Agriculture: Focus on eastern and southern Africa*, UN FAO: Rome.

Brown, L., Webb, P., & Haddad, L. (1994). *The role of labour in household food security. Implications of AIDS in Africa*. Food Policy, 19 (6), 568-573.

Central Statistics Office (1992). *Zimbabwe National Report*, Harare: Zimbabwe.

deBruyn M. (1992). *Women and AIDS in developing countries*. Social Science and Medicine. 34, 249-262.

De Waal A. & Tumushabe J. (2003) *HIV/AIDS and food security in Africa: A report for the department for international development*. Draft. Pretoria.

De Waal, A. & Whiteside, A. (2003). 'New Variant Famine': *AIDS and Food Crisis in Southern Africa*, The Lancet, 362, 1234-37.

Devereux, S. (2003). *Policy Options for increasing the contribution of social protection to Food security*. Forum for food security in southern Africa.

Drimie, S. (2002). *The impact of HIV/AIDS on Land: Case studies from Kenya, Lesotho and South Africa*, FAO- Southern African Regional Office: Harare.

Drinkwater, M. (2003). *HIV/AIDS and Agrarian change in Southern Africa*, Presentation for the United Nations Regional Inter-agency Coordination and Support technical Consultation on Vulnerability in light of HIV and AIDS, Johannesburg: South Africa. Sourced at: [http://www.sarpn.org.za/documents/d0000601/Drinkwater\\_CARE\\_Sept03.pdf](http://www.sarpn.org.za/documents/d0000601/Drinkwater_CARE_Sept03.pdf)

Engh, I., Stloukal, L., & Du Guerny J. (2000), *HIV/AIDS in Namibia: the impact on the livestock sector*, UN FAO; Rome.

Food Agriculture Organisation (2001), Report from the Committee on World Food Security. Sourced at: <http://www.fao.org/docrep/meeting/003/X9563E.htm>



Food Agriculture Organisation (2004), *FAO Statistical Database Yearbook*, FAO: Rome.

Gillepsie, S., Kadiyala, S. (2005). *HIV/AIDS and Food and Nutrition Security: From Evidence to Action*. Food Policy Review 7. IFPRI: Washington.

Halswimmer, M. (1994). *The social and economic impact of HIV/AIDS on Nakambala Sugar Estate*, UN FAO: Rome.

Halswimmer, M. (1999). Is HIV/AIDS a threat to Livestock production? The example of Rakai, Uganda., UN FAO: Rome.

Harvey, P. (2003). *HIV/AIDS: What are the implications for action ? A literature review*. Overseas Development Institute.

International Food Policy Research Institute (2004). *Safety Net Program Options*. IFPRI: Washington.

Jackson, H. (2002). *AIDS Africa Continent in Crisis*. SFAIDS: Harare.

Jayne, T., Villareal, M., Pingali, P., & Hemrich, G. (2004). *Policy Synthesis: Interactions Between the Agricultural Sector and The HIV/AIDS Pandemic: Implications For Agricultural Policy*. USAID: Washington.

Lehutso-Phooko, M. & Naidoo, J. (2002). *Income Inequality Prospects with HIV/AIDS – A Social Dimension*. In *Labour Markets and Social Frontiers*, 2, South Africa Reserve Bank. pp 11-16.

Lovevinsohn, M., & Gillespie, S. (2003). *HIV/AIDS, Food Security and Rural Livelihoods. Understanding and Responding*. FCND Discussion Paper 157. International Food Policy Research Institute: Washington.

Mano, R., & Matshe, I. (2005). *Impact of HIV and AIDS on Smallholder Agriculture and Food security in Zimbabwe: An Empirical Analysis*, A FARNPAN Zimbabwe Project Report (Draft report).

Maxwell, S., & Frankenberger T. (1992). *Household food security concepts, indicators, and measurements*. New York, NY, USA: UNICEF.

Mdladla, P., Marsland, N., Van Zyl J., & Drimie, S. (2003). *Towards identifying the vulnerability of HIV/AIDS affected households to food insecurity*. The RVAC - UNAIDS Experiences: Challenges and Opportunities.

Morris, C., & Cheevers, E. (2000). *The direct costs of HIV/AIDS in a South African. sugar mill*. AIDS Analysis Africa 10(5):7-8.

Morduch, J., & Sharma, M. (2002). *Strengthening Public Safety Nets from the Bottom Up*, Social Protection Discussion Paper No.0227, World Bank, Washington

Mutangadura, G., Jackson, H., & Mukurazita, D. (1999). *AIDS and the African Smallholder Agriculture*, SFAIDS: Harare.

Mutangadura, G. (2001). *Women and AIDS in southern Africa: the Case of Zimbabwe and its policy implications*. Jenda Journal of Culture and African Women Studies, vol.1.2. Sourced on 05/05/06 at <http://www.jendajournal.com/vol1.2/mutangadura.html>.

Nesamvuni A., Oni S., Odhiambo J., & Nthakheni N. (2003). *Agriculture as the cornerstone on the economy of the Limpopo Province*. Study of agricultural industry in the Limpopo Province, By the Department of Agriculture and the University of Venda for Science and Technology

Norton, A., Conway T., & Foster, M. (2002). *Social Protection: Defining the Field of Action and Policy*, Development Policy Review, 20(5): 541–67.

Odenya, W. (2003). *HIV/AIDS and food security within the southern African development Community (SADC)*. Paper presented to a SADC regional Food training workshop (Maseru, Lesotho).

Petty, C., Selveter, K., Seaman, J., & Acidri, J. (2004). *Mozambique assessment: the impact of HIV/AIDS on household economy*. Save the Children. Sourced at:

Rugalema, G. (1998). *Consequences of Loss of Labour Due to HIV/AIDS in Smallholder Households in a Buhaya Village, Bukoba District, Tanzania*. Paper presented at the First Regional Conference for Eastern and Southern Africa

on Responding to HIV/AIDS Technology Development Needs of African Smallholder Agriculture, held in Harare, June 8-10 1998

Rugalema, G. (2000). *Coping or struggling? A journey into the impact of HIV/AIDS in Southern Africa*, Review of African Political Economy, 26 (86), 537-45.

Rugube, L., (2003). Food security defined: SADC Food Security Protocol Programmes, Regional and International prospects in key concepts and issues affecting food security in southern Africa: SADC Food security.

SADC-FANR VAC (2003). *Regional food security assessment report*, Regional Vulnerability Assessment Committee: Harare.

Sen, A. (1981), *Poverty and famines*, Oxford: Clarendon Press.

Southern African Regional Institute for Policy Studies (2000). *SADC regional human development report, Challenges and opportunities for regional integration*. Southern African Political Economy Series: Harare.

Staatz, J. (1990). *Measuring food security in Africa, Conceptual, empirical and policy issues*, American Journal for Agricultural Economics, 72, nr5.

Thomson, A., & Metz, A. (1997). *Implications of economic policy for food security: A training manual*. UN FAO: Rome.

Tibaijuka, A. (1997). *AIDS and economic welfare in peasant agriculture: case studies from Kagabiro village, Kagera region, Tanzania*. World Development 25, 963-975.

Toupouzi, D., & Du Guerny, J. (1999). Sustainable agricultural, rural development and vulnerability to the AIDS epidemic, UN FAO and UNAIDS joint publication.

Topouzis, D. (1998). *The Implications of HIV/AIDS for Rural Development Policy and Programming: Focus on Sub-Saharan Africa*. UNDP HIV and Development Programme, Study Paper No. 6. UNDP: New York.

UNAIDS (2005). *Report on the global AIDS epidemic*. UNAIDS: Geneva.

UNAIDS (2006). *Report on the global AIDS epidemic*. UNAIDS: Geneva.

Wisner, B., Blaikie, P., Cannon, T., Davis, I. (2004). *At risk: Natural hazards people's vulnerability and disasters*. 2<sup>nd</sup> edition. London: Routledge.

World Food Programme (1979). *Food aid policies and programmes: Role of food aid in strengthening food security in developing countries*. UN FAO: Rome, Italy.

Yamano, T., & Jayne, T. (2004). *Measuring the impacts of working-age adult mortality on small scale farm households in Kenya*. World development, 32 (1), 91-119.

Zimbabwe National Vulnerability Assessment Committee (2003). *SADC-FANR National Vulnerability Assessment Committee*, Harare: Zimbabwe.

