

TOWARDS RESPONDING TO FOOD INSECURITY TO REDUCE RISK OF HIV INFECTION:

Coping of Smallholder Farmers in Coastal Kenya



Resource poor small holder farmer displays empty grain storage facilities that have never been utilised for the last 2 years as Researcher looks on. (Photo courtesy of World Vision Kenya)

A research project submitted to
Larenstein University of Applied Sciences In Partial Fulfilment of the Requirement for
The Degree of Master of Development.

Specialization Rural Development and HIV / AIDS

**By
Rose Rehema Mweni
September 2009**

Wageningen
The Netherlands
©Copyright Rose Rehema Mweni 2009. All rights reserved.

PERMISSION TO USE

In presenting this research project in partial fulfilment of the requirements for a Master's Degree, I fully agree that Larenstein University Library may make it freely available for inspection. I further agree that permission for copying of this research project in any manner, in whole or in part, for scholarly purposes may be granted by the Larenstein Director of Research. It is understood that any copying or publication or use of this research project or parts thereof for financial gain shall not be allowed without written permission. It is also understood that due recognition shall be given to me and the University in any scholarly use which may be made of any material in my research project.

Request for permission to copy or make use of the material in this research project in whole or part should be addressed to:

Director of Research
Larenstein University of Applied Sciences
Part of Wageningen UR
Director of Research
P.O. Box 9001
6880 GB, Velp
The Netherlands
Fax: 0031 26 3615287

ACKNOWLEDGMENTS

In particular I would like to thank the Royal Dutch Government who granted me a fellowship to pursue this Master's course under the NUFFIC program.

My heartfelt gratitude to the course Manager Professional Master in Van Hall Larenstein, Mr. Kleis Oenema and all lecturers for their enormous professional support throughout the course.

Studies begin and end, but to be a Rural Development professional, you can surely count on Rural Development and AIDS coordinator Koos Kingma to provide you with the must-have knowledge in the dynamic professional environment. Many thanks her for the inspiration, valuable comments and suggestions during the writing of this thesis as well as the entire RDA class, for their continuous support throughout the whole training period. Taking the role of my supervisor she challenged me to be focused guiding me step by step throughout the whole process of the research.

I also appreciate CDA MD, Dr Nesbert Mangale for granting me this opportunity for the one year study so as to realize my professional dream while still at CDA.

Were it not for the great support in terms of words of encouragement to pursue my Course provided by Professor Abdalla Naji Said, this work would not have been efficiently accomplished. My gratitude to the CDA Kilifi District Coordinator who coordinated the respondents and participants in Vitengeni, Kilifi District, the local administration in Gede and Watamu locations, and Malindi District Agricultural Officer who willingly and openly shared his views during the data collection activity. I appreciate the support of the Kilifi KEMRI staff that was helpful with statistical data. Special thanks to the two elders in Malindi, Miss Priscilla Mwayele and Mr Changawa Rondo, and Miss Getrude Masha in Kilifi who willingly spared their time to co-ordinate the respondents' identification and gather participants for group discussions. I would also wish to pass my gratitude to the many farmers who spared their time to respond to my questions during the household interviews and Focused Group Discussions. Many thanks to all those who contributed directly or indirectly to the development of the ideas and wonderful insights in this study, for I cannot mention each by name.

I would like to express my sincere gratitude to the Dutch Government for providing financial support for my study through the Nuffic scholarship programme.

It also gives me great pleasure considering how my entire family enormously and closely supported me during the whole study period. Thanks a lot for taking care of everything while I was away. May God bless all of you abundantly.

Above all I thank God the Almighty. This work would not have been possible without Him guiding me to make a big dream comes true.

I am extremely grateful for all the help and support I have received. Any mistakes remain my own.

DEDICATION

To my three children, Ian Shimmi, Sheryl Shani and Reuben Shamma who showed me understanding and emotional support during the time I was absence doing data collection which gave me the inspiration to give my best in this thesis. It is because of you my dear ones that I aimed higher shaking off all the shackles encountered to accomplish this hard-fought piece of work. May God continue to bless you. Truly the sky is the limit!!

ABSTRACT

This Research was part of the requirement for the Masters in Management in Development in the specialisation of Rural Development and HIV/AIDS. It is purposely a research that is applicable and action oriented to Coast Development Authority (CDA).

CDA is a government parastatal to improve food production, food security, employment opportunities, incomes and wealth creation through sustainable use of the unique resources in Coast province of Kenya. In this context, of a food insecurity problem it is feared that the coping strategies of the smallholder farmers will fuel the AIDS epidemic which impounds and waters down all the development efforts that the organization is spearheading in the region. This research aims to explore how the coping strategies of smallholder farmers' in response to food insecurity could be fueling the AIDS epidemic. This will contribute to how CDA can respond to alleviate food insecurity through appropriate multi - sectoral strategies in targeting and planning for sustainable rural development. The sample was selected from smallholder farmers in Gede and Watamu locations in Malindi District and Vitengeni in Kilifi District of Coast province and carried from July to September 2009 backed up with literature.

The first section of this report provides a general overview of HIV and AIDS, the problem context, conceptual framework applied in the study highlighting on the research objective and questions. Chapter two summarizes the views of other authors on the issue being studied towards a achieving a multi-sectoral food insecurity and HIV/AIDS conceptual framework. Identification of the factors causing risks to lives and livelihoods through a situation analysis of the coping strategies adopted by the resource poor and the resource rich households is done. Data collection was through a combination of desk study and qualitative tools to allow for triangulation of results. This lead to identifying the types of interventions required as per the goals of the organisation as the entry points. The findings are discussed in chapter four where the resource poor are noted to be highly at risk of infection because of the fact that they have limited asset base and low livelihood options than the resource rich smallholder farmers.

Through the livelihood framework and SWOT analytical tools responses were analysed. A multi- sectoral response seems appropriate to address the needs of the resource poor sustainably which are improving food production and raising incomes in order to purchase food. Strategies aimed at improving the resource poor smallholder farmers' household food production so as to make food readily available while taking into consideration the 'do no harm' principle. The other was strategies aimed at raising the incomes of resources poor smallholder farmers' household while still taking into consideration the 'do no harm' principle. Increasing incomes will strengthen the asset base of the resource poor smallholder farmers to enable them to readily access food. Food availability and food accessibility were found to be pillars of food security. With enough food the resource poor smallholder farmers would have good health hence less likely to get infected once exposed to the virus. With alternative sources of incomes they will not migrate and engage in risky behaviour or occupations that would otherwise increase their likelihood to infection. For all these responses to be sustainable the 'do no harm' principle is considered in programmes so as to take care of the unwanted negative effects.

TABLE OF CONTENTS

PERMISSION TO USE.....	ii
ACKNOWLEDGMENTS	iii
DEDICATION.....	iv
ABSTRACT.....	v
LIST OF TABLES	viii
LIST OF FIGURES	viii
LIST OF ACRONYMS	ix
GLOSSARY	x
EQUIVALENTS.....	x
CHAPTER 1: INTRODUCTION	1
1.1 BACKGROUND INFORMATION: CONTEXTUALISING THE AIDS EPIDEMIC	1
1.1.1 Contextualizing the Aids Epidemic Globally	1
1.1.2 AIDS in the Context of Sub-Saharan Africa.....	2
1.1.3 The AIDS Epidemic in Kenya.....	5
1.1.4 The AIDS Epidemic in Coast province.....	8
1.2 FOOD SECURITY IN KENYA	9
1.2.1 Food security in the Kenyan Coast	9
1.2.2 Agriculture, Farming and Rural Livelihoods in the Kenyan Coast.....	10
1.2.3 Agriculture Interactions in Kenya: The consequences of HIV/ AIDS	11
1.3 COAST DEVELOPMENT AUTHORITY OVERVIEW	12
1.3.1 The Mission	12
1.3.2 The Goal of CDA.....	12
1.3.2 Organizational Structure	12
1.4 PROBLEM STATEMENT	13
1.4.1 Research Objective.....	13
1.4.2 Research Questions	14
1.4.3 Research Period.....	14
CHAPTER 2: THEORETICAL FRAMEWORK.....	15
2.1 UNDERSTANDING THE DISEASE: RISK OF HIV INFECTION.....	15
2.1.1 HIV and AIDS Differentiated.....	15
2.1.2 Risks of HIV infection.....	16
2.2 TOWARDS A MULTI-SECTORAL FOOD SECURITY RESPONSE	20
2.2.1 Conceptual Framework	20
2.2.2 Food Insecurity	21
2.2.3 Relationship between Food Insecurity and HIV/AIDS.....	22
2.2.4 Coping Strategies.....	22
2.2.5 Multi-sectoral response	25
CHAPTER 3: RESEARCH METHODOLOGY	26
3.1 SELECTION, SAMPLING AND CLUSTERING PROCEDURE	26
3.2 TOOLS AND DATA COLLECTION IMPLEMENTATION.....	27
3.2.1 Desk review of existing literature.....	27
3.2.2 Qualitative methods	28
3.3 DATA PROCESSING AND ANALYSIS	30
3.3.1 Triangulation of the results	30
3.3.2 Tools for Data Analysis	30
3.4 LIMITATIONS TO THE STUDY	31

CHAPTER 4: RESULTS AND DISCUSSION.....	32
4.1 INTRODUCTION	32
4.2 SAMPLE PROFILE	32
4.3 PARTICIPATION OUTCOMES OF RESPONDENTS AND FGDS.....	32
4.4 LIVELIHOOD ASSETS.....	34
4.4.1 Human Assets.....	34
4.4.2 Natural Assets.....	35
4.4.3 Financial Assets	39
4.4.4 Physical Assets.....	41
4.4.5 Social assets	42
4.5 FOOD AND LIVELIHOODS INSECURITY SITUATION	42
4.5.1 Introduction.....	42
4.5.2 The sources of food (maize) consumed	42
4.5.3 The number of meals.....	43
4.5.4 Trend of meals.....	44
4.5.5 Food production across the year	44
4.6 COPING STRATEGIES.....	45
4.6.1 The Coping Strategies.....	46
4.6.2 Livelihood Assets Effects	49
4.6.3 Conditions in Adopting a Coping Strategy	50
4.7 EXISTING SAFETY NETS.....	51
4.8 AREAS FOR INTERVENTIONS	52
4.9 RESULTS SUMMARIZED	53
CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS.....	55
5.1 CONCLUSION	55
5.2 RECOMMENDATIONS TO COAST DEVELOPMENT AUTHORITY	57
5.3 AREAS FOR FURTHER RESEARCH	58
6 REFERENCES	59
7 ANNEXES.....	63
Annex 1: Evolution of AIDS 1990-2007: number of people living with HIV, people newly infected with HIV and number of AIDS deaths in the world (millions)	63
Annex 2: Summary of the global HIV/AIDS figures by 2007	64
Source: UNAIDS (2008). Report on the global HIV/AIDS epidemic 2008	64
Annex 4: HIV prevalence mapping in East and Southern Africa, by 2007.....	66
Annex 5: Typologies of the Epidemic at Country Level.....	67
Annex 6: Status of the Epidemic at National or Community Level	68
Annex 7: Population and Maize production, Coast Province, Kenya.....	69
Annex 8: Coast Development Authority Organisational Structure	70
Annex 9: Relationship between Food and livelihood insecurity and HIV/AIDS ..	71
Annex 10: Research Plan	72
Annex 11: Outline of steps of the methods used during this research.	73
Annex 12: Household Questionnaire.....	74
Annex 13: Focused Group Discussion Tools	78
Annex 14: Key informants list	79
Annex 15: Checklist for Key Informants	80
Annex 16: Photographs of the study sites.	81

LIST OF TABLES

Table 1.1	Kenya National HIV Prevalence for men and women by Residence.....	7
Table 1.2	Kenya National Poverty Levels.....	7
Table 1.3	Comparison of HIV Prevalence for Coast province between 2004 and 2006.....	8
Table 2.1	Pillars of Food Security.....	21
Table 2.2	Coping strategies as per the three groups.....	24
Table 2.3	Criteria developed to determine resource rich and poor households.....	27
Table 4.1	Livelihoods per District.....	32
Table 4.2	Profile of household respondents by sex per household category.....	33
Table 4.3	Distribution of the household interviews per category per study area.....	33
Table 4.4	Respondents' marital status per household category.....	33
Table 4.5	Highest Education level of respondent or member per household category..	34
Table 4.6	Changes in Demographic characteristics per category of household for the last 5 years	34
Table 4.7	Changes in Acreage of Land per household category in the past 5 years..	35
Table 4.8	Land ownership per household category.....	36
Table 4.9	Ownership of land only under cultivation per household category.....	36
Table 4.10	Ownership of cattle and the change in numbers over the past 5 years.....	37
Table 4.11	Ownership of goats and the change in numbers over the past 5 years.....	38
Table 4.12	Ownership of poultry and the change in numbers over the past 5 years.....	38
Table 4.13	Ways of obtaining income per category.....	39
Table 4.14	Ways of spending the earned household income per category.....	40
Table 4.15	Sources of food for the household.....	43
Table 4.16	The number of meals per day per household category.....	43
Table 4.17	Reason for decreasing trend of meals per household category.....	44
Table 4.18	Food production across the year per household category.....	44
Table 4.19	Coping strategies per household category.....	46
Table 4.20	Major constraints in adopting a coping strategy in the last 5 years.....	50
Table 4.21	Major area for intervening in the food situation.....	52
Table 5.1	SWOT Analysis.....	55

LIST OF FIGURES

Figure 1.1	HIV prevalence in Kenya by province	6
Figure 1.2	Kenya National HIV prevalence among females and males age 15-49 in KAIS, 2007 and KDHS, 2003 within 95% CI.....	7
Figure 2.2:	Food Security Response Conceptual Framework	21

LIST OF ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
ARV	Antiretroviral
ASAL	Arid and Semi – Arid Land
CDA	Coast Development Authority
CDF	Constituency Development Fund
FAO	Food and Agriculture Organisation
FGD	Focused Group Discussions
ROK	Republic of Kenya
HIV	Human Immunodeficiency Virus
HPI	Heifer Project International
KAIS	Kenya AIDS Indicator Survey
KARI	Kenya Agricultural Research Institute
KEMRI	Kenya Medical Research Institute
KCDA	Kenya Coconut Development Authority
KDHS	Kenya Demographic Health Survey
MOA	Ministry OF Agriculture
MP	Member of Parliament
NACC	National AIDS Control Council
NASCOP	National AIDS and STI Control Programme
NGO	Non Governmental Organisation
PLWHA	People Living With HIV/AIDS
PMCT	Prevention of Mother to Child Transmission
PRA	Participatory Rural Appraisal
UNAIDS	The Joint United Nations Programme on HIV/AIDS
USAID	United States Agency for International Development
VCT	Voluntary Counselling and Testing

GLOSSARY

<i>Magungu</i>	Widows (Plural is <i>Gungu</i> also known as <i>Mjane</i>)
<i>Kusi</i>	Low season for informal business enterprises. A period when those employed in the tourism sector are laid off on unpaid leave. It coincides with the long rainy season between
<i>Kuthapathapa</i>	The 'survival strategies in despair' due to lack of livelihood options
<i>Luhamba lumwenga</i>	Phrased as 'One big knife' to mean 'One meal a day'
<i>Makuti</i>	Coconut leaves woven for roofing
<i>Malaya</i>	Prostitute
<i>Mchicha</i>	An indigenous vegetable (<i>Amarantus</i>)
<i>Mnavu</i>	An indigenous vegetable
<i>Mudzini</i>	The home
<i>Nzala</i>	Hunger (also known as <i>Njaa</i>)
<i>Vithio</i>	A type of sexual transmitted infection. A state of chronic illness locally believed to result from having sex with a relative.
<i>Wari</i>	Local staple food made from maize flour. Also known as <i>Ugali</i>

EQUIVALENTS

Area

1 Hectors (ha)	=	2.5 Acre
1 Acre	=	0.405ha

Weight

1 Metric ton	=	100, 000kg
--------------	---	------------

Currency

1 Euro (€)	=	Kenya Shillings 106.00 (2009)
1 Ksh	=	€ 0.009

DEFINITION OF TERMS/ CONCEPTS

Epidemic:	In this report, it refers to the outbreak of HIV infection and the infestations of the opportunistic infections known as AIDS
Food insecurity:	For the purposes of this report, it refers to lack of access to sufficient and sustainable supplies of food to meet dietary needs for an active and healthy life.
Household:	A group of people, who live in the same house, provide for each other and often share meals together. Some farmers in the study areas live in big homesteads made up of several households.
Susceptibility to HIV infection:	Likelihood of becoming exposed to the HIV and the likelihood of being infected by HIV once exposed.
Coping strategy:	They refer to survival practices by the smallholder farmers' households so as to overcome or deal with the problem of food insecurity suffered by an individual, household and or community in the short term but may or may not be sustainable. In this report, coping strategies has at times been replaced with coping mechanisms to mean the same thing.
Livelihood:	Comprises the capabilities, assets and activities required for a means of living (Chambers and Conway, 1992; cited in Ellis, 2000).

CHAPTER 1: INTRODUCTION

In this chapter the researcher gives the background of the study, the organisation for which it is applied, the contextual problem and the conceptual framework applied. The research objective, main and sub- questions are also indicated.

This Research was part of the requirement for the Masters in Management in Development, specialisation of Rural Development and HIV/AIDS. Its main purpose was to have research that is applicable and action oriented to an organisation. In this case the organisation chosen is Coast Development Authority (CDA).

1.1 BACKGROUND INFORMATION: CONTEXTUALISING THE AIDS EPIDEMIC

This section provides a general overview of HIV and AIDS globally and in Africa, particularly the Sub-Saharan Africa region. Particular attention is devoted to Sub-Saharan Africa and Kenya, the study country situation. This has discussed the Kenya Coastal region in a limited way because of limited of area segregated literature on HIV/AIDS. However, a short description is given on the consequences of the epidemic on different sectors as well as globally agreed upon efforts to combat the epidemic. This is in a view to have a global picture of the epidemic, narrowed down to the context of the study, in relation to the worry of fuelling the epidemic if not addressed. When contextualizing the pandemic in this way, it becomes evident that AIDS is not simply a medical health problem since it is equally threatening all human beings. Its uneven distribution calls for an in-depth understanding of the dynamics that facilitate the spread of HIV.

1.1.1 Contextualizing the Aids Epidemic Globally

AIDS was first identified in early 1980s. Since then it has predominantly been understood and addressed in two major ways namely: medical problem and behavioural problem (Barnett & Whiteside, 2007; Holden S, 2004; Verheijen and Minde, 2007). The HIV/AIDS pandemic is a global crisis with current estimated 38 million people living with the virus around the world. (Refer to Annexes 1 and 2). Nearly 7,500 people become infected with HIV and 5,500 die from AIDS every day all over the world, mostly due to a lack of HIV prevention and treatment services (UNAIDS, 2008). This means that the impacts of AIDS will also be felt for decades to come. Contextualizing the AIDS pandemic reveals that it has struck most severely in nations with economies in crisis whereby of all HIV-infected people worldwide 95% live in developing countries (UNAIDS, 2004). Although distributed unequally between poor and rich, between one place and another (Barnett & Whiteside, 2006, Gillespie *et al*, 2007), there is no region and there is no continent and no country spared from this epidemic (Zewdie¹, 2003). This has globally redirected the focus of AIDS as a development issue (Holden, 2004), since AIDS will remain an entrenched problem in years to come (Muller T, 2005a). *'If the world was a fairer place, if opportunities were equal, if everyone was well nourished, good public services were the norm, and conflict was rare, the HIV would not have spread to this extent, nor would the effects of AIDS be as great as they are'* (Holden, 2004). This has caused concerted efforts to fight the spread of the epidemic as illustrated in Annex 3.

¹ Debrework Zewdie, then-Director of the Global HIV/AIDS Program for the World Bank, in interview 1/Dec/2003

1.1.2 AIDS in the Context of Sub-Saharan Africa

The hardest hit region globally is sub-Saharan Africa, inhabited by little over 10 percent of the world population, but is home to two thirds of all HIV-infected people in the world (UNAIDS, 2004). This is very unfortunate for Africa to hold such a position in the HIV/AIDS epidemic worldwide. In *“AIDS in Africa: three scenarios to 2025”*, UNAIDS (2005b) refers that “the scenarios [of the epidemic in Africa] are rooted in the complex and interrelated social, economic, cultural, political and medical realities of HIV and AIDS in Africa today”, where one of the biggest challenges is the *“need to reflect the continent’s diversity”*. The continent encompasses 53 countries and numerous ethnic, religious, and linguistic groups, whose respective boundaries rarely coincide, as well as a wide range of economic and political regimes (ibid). Moreover, the *dynamics of the epidemic – indeed the virus itself* – are not uniform across the continent. As regarded to the different regions of the continent, Sub-Saharan Africa’s epidemics vary significantly from country to country in both scale and scope. The HIV prevalence rates vary greatly with the Southern part of Africa having the highest figures (Refer to Annex 4).

In this region, it is noted that although infection rates are still highest in the urban areas, the rates increase fastest in the rural areas. This is because of interactions between the two communities. Women are disproportionately affected because of gender and income inequality (Bishop-Sambrook, 2004; Holden, 2004). In sub-Saharan Africa women currently account for 59% of all infected people, and this share continues to increase (UNAIDS, 2004).

From the onset of the global epidemic, AIDS has been considered a medical problem by both policymakers and the public worldwide (Gillespie, 2005; Collins and Rau, 2001 cited in Verheijen and Minde, 2007; Barnett and Whiteside, 2007; UNAIDS 2004). Since no vaccine or cure has yet been found, HIV prevention efforts that mainly focused on individual behaviour change through awareness creation (Barnett and Whiteside, 2006), have however failed in sub-Saharan Africa. Many of these interventions that have and still fail: countless surveys on people’s knowledge, attitudes and practices conducted since the mid-1980s up until now show that there is little correlation between increased knowledge of HIV and AIDS and changes in high-risk behaviour (Bishop-Sambrook, 2004; Barnett and Whiteside, 2006; Holden, 2004).

Meanwhile the number of people living with and dying of HIV and AIDS continues to rise (UN, 2004). On its most recent annual report on AIDS update UNAIDS (2008), calls attention to the extent data might be interpreted. This is because even though HIV prevalence appears to have fallen slightly in this region over recent years, the number of deaths each year has exceeded the number of new infections. And this calls for a different, more informed and contextualized approach to urgently combat HIV and AIDS.

1.1.2.1 The consequences of HIV in Sub-Saharan Africa

The HIV/AIDS epidemic has resulted in the single sharpest reversal in human development (UNDP, 2005 cited in UNAIDS, 2008) in history. In the most affected countries, AIDS has reduced life expectancy, deepened poverty among vulnerable households and communities, tilted the size of populations, destabilized national systems, and damaged institutional structures (UNAIDS, 2008).

With the dynamism that AIDS is in the development agenda, it is necessary to consider the impacts it has on different sectors so as to see the importance of developing a multi-sectoral approach to combating AIDS. The section below briefly describes some of the major effects of the epidemic in selected sectors.

(i) The Consequences at Individual, Household and Community level

AIDS impacts on the individual's health and on the assets they have at their disposal. When infected individuals lack treatment, they experience periods of illness because of the decline in the CD4 cell count. This is so apart from a few who through a combination of appropriate lifestyle and good nutrition which has a direct relationship to food security (Barnett and Whiteside, 2006, Bishop-Sambrook, 2004; Gillespie, 2006).

'HIV/AIDS is not only affecting and changing individuals' lives, but also the trajectories of whole societies' (Barnett and Whiteside, 2006). It has caused immense loss of human potential, enduring strain in households and communities (UNAIDS, 1999; 2008).

From this it is clear that HIV/AIDS is causing a dramatic shift in demographic characteristics, with a long-range of social consequences for the hardest-hit nations, changing population structures and creating a real social chaos. Since the beginning of the epidemic in early 1980s, more than 15 million Africans have died (UNAIDS, 2008). The erosion of social and intellectual capital and decreased investment in populations of the future are far-reaching consequences for society as a whole. While the most economically active section of the population, those between 15-49 years, are most likely to be infected by HIV, the old and the very young also feel the impact. The resultant decrease in the productive workforce and a proportional increase in people in the oldest and youngest age groups who are most likely to require aid from society, causes social disruption (UNAIDS, 2000, Holden, 2004). In cases where there is no relative to take care of the orphans, or the elders, they have to survive by themselves or look after each other. It is very common now days in the epidemic areas to have households headed by children, elders, or by single parent².

The incapacity or loss of an economically active member in a household and community at large has significant repercussions. Loss or diversion of livelihood assets is one of the major effects. Household demand for goods and services usually decline due to lower incomes and levels of consumption, resulting in the contraction of resource production (UNAIDS, 1999).

Following the long-term impact of HIV/AIDS, individuals and households (and communities) are adapting various coping strategies. This is because, people continue with the need to earn a living, raise children, and cope with day to day crises.

The coping strategies vary greatly with girls taking the traditional woman's role of producing food (earning income, or tilling the land) and caring for other children within the household. Premature death of parents causes many children to lack the knowledge and skills needed to earn a living. They are greatly challenged to face the future without education or work training. Many children may drop from schools, migrate from rural areas to urban areas, ending up exposed to risk including drug use, sexual abuse, violence, commercial sex, early marriages, begging in streets, and sometimes crime in order to survive (Holden, 2004; Barnett and Whiteside, 2006; Fournier *et al*, 1998; Smith, 2002; Munthali, 2002). In turn, this way of life makes them more susceptible to HIV infection, and increases their poverty.

In addition to the above mentioned impacts, social impact of AIDS can be made worse. This is whereby communities are steeped in stigma, fear and discrimination, gender-bias; combination of lost production and resulting malnutrition, resulting in an increasing susceptibility and vulnerability, and the latter forms a human tendency to risky sexual behaviour (Gillespie, 2005).

(ii) The consequences on the Agricultural sector

Agriculture is the cornerstone of human life whether in rural or urban areas and without it there would be no industry and other services (Barnett and Whiteside, 2006). Sub-Saharan

² Then, terminologies such as Child Headed Household, Elderly Headed Household, Female Headed Household, and so on emerge.

Africa is already overwhelmed by food insecurity, yet currently the per capita agricultural productivity is now decreasing even more with the increase of HIV/AIDS (FAO 2001c)³. This is because HIV/AIDS affected households have induced labour shortages. Frequently, there are late field operations such as late planting, weeding and harvesting by the farmers. This leads to low crop yields and buying power and eventually intensifying the effects of poverty (Egal and Valstar 1999)⁴. Due to this, the farmers use various coping strategies (Engh et al. 2000)⁵ that increase the risk of infection or re-infection with HIV. Low food production leads to poor nutrition (Bishop-Sambrook, 2004; Barnett and Whiteside, 2007; Gillespie, 2006) because of limited quantity and quality of food. Malnutrition fuels the epidemic since the limited essential nutrients weakens the body's immune system which makes the HIV to AIDS timeline shorter. De Waal and Whiteside (2003) explain that infected individuals have a higher nutritional requirement than normal.

HIV/AIDS also affects staff in organizations that promote agricultural production causing absenteeism from work. This puts a burden on the institutions that have to be strained in overworking, treating the sick and paying heavy funeral bills (James, 2005).

(iii) The Economic consequences

Low productivity of the infected has resulted to reduced incomes which is noted to have an effect on the economy of the developing countries including Kenya (Gillespie and Kadiyala, 2005; ICAD, 2004; Kim and Watts, 2005; Mutangadura, 2005 cited in Verheijen and Minde, 2007). When those who are economically active fall ill, household incomes fall, and this put a burden on the healthcare services of the country. This implies that AIDS reduces national incomes and increases expenditures of the countries that are much affected by the epidemic.

In concluding this section, AIDS is affecting all sectors of life and this calls for an examination of the dynamism causing its spread so as to see the importance of developing a multi-sectoral approach to combating cause – effects of the epidemic.

1.1.2.2 Developmental Challenge of Responding to AIDS Sub-Saharan Africa.

Responding to AIDS as a development issue has been met with challenges. Despite the fact that prevalence rates appear to have stabilized, although often at very high levels, particularly in Southern Africa, the region is the most severely affected by HIV/AIDS because it is the poorest region in the world⁶ being home to the majority of people living with HIV/AIDS (PLHA) (67%), new HIV infections (70%), and AIDS-related deaths (75%) in the world (UNAIDS, 2008). Note that the region only accounts for 10%-11% of the world's population (ibid). This resulted concerted efforts to curb this trend. In this context, countries in Sub-Saharan Africa started to mobilize and join the initiatives and recommendations of the Global Programme on AIDS, setting up programmes, although not always within the criterion set by WHO at the time.

³ Food and Agriculture Organization of the United Nations, FAO, (2001c). The impact of HIV/AIDS on food security. Paper presented at the 27th Session of the Committee on World Food Security. Rome. Cited in Barany et al, (2001)

⁴ Egal, F., and Valstar A, 1999. HIV/AIDS and nutrition: Helping families and communities to cope. *Food, Nutrition, and Agriculture* 25:20–26. Cited in Barany et al, (2001)

⁵ Engh, I.E., Stloukal L., and Du Guerny J.. 2000. *HIV/AIDS in Namibia: The impact on the livestock sector*. Rome: FAO. Cited in Barany et al, (2001)

⁶ More than 40% of the region's population live on less than one US dollar per day (Chen & Revillon, 2004 cited in UNAIDS, 2008)

This is still a challenge because up to 2007 only about half of national HIV strategies met UNAIDS quality criteria⁷ (UNAIDS, 2008). On recent annual report on AIDS update (UNAIDS, 2008), HIV prevalence appears to have fallen slightly over recent years in most areas, because the number of new infections is exceeded by the number of deaths each year. However, the total number of PLHA is still rising because of overall population growth.

In the year 2000, leaders agreed on a vision for the future, Millennium Development Goals (MDG). MDG number 6 aims at a world with less poverty, hunger and disease with greater involvement of vulnerable⁸. With hunger setting in, it even becomes more crucial to respond appropriately in order to alleviate food security hence the importance of this study. This leads us the next section of realities in Kenya.

1.1.3 The AIDS Epidemic in Kenya

In 1986, the first case of HIV in Kenya was identified (KAIS, 2007). Initially the highest rates of infection were concentrated in marginalized and special risk groups. For more than a decade now Kenya has faced a mixed HIV/AIDS epidemic where new infections are occurring in both the general population and vulnerable, high-risk groups (Refer to Annexes 5 and 6). Since 1999, the Government of Kenya declared the HIV epidemic a national disaster and concerted effort to coordinate the HIV/AIDS response. In the past four years, Kenya has witnessed considerable growth in funding of its HIV/AIDS national program from major global initiatives (ROK, 2005a). Thanks to interventions then, because the HIV prevalence rate begun to show a decline. But the HIV epidemic is complex and dynamic. A number of factors such as food insecurity which is currently hitting the population hard can impact a lot on how the HIV prevalence rises and falls, including new infections and HIV-related illness.

In line with the global requirements to fight the epidemic, the government is committed to the 'Three Ones' principle and has instituted:

- one National HIV/AIDS Action Framework - KNASP,
- one National AIDS Co-ordinating Authority – NACC
- one National HIV/AIDS Monitoring and Evaluation Framework (ROK, 2004)

This principle provides an opportunity for CDA in trying to establish partnerships in the response to food insecurity.

Results from Kenya AIDS Indicator Survey (KAIS, 2007) indicate that 7.4% of Kenyan adults aged between 15-64 years are infected with HIV, the virus that causes AIDS. More than 1.4million adults are living with HIV/AIDS. About three quarters of Kenyans live in rural areas of the country. Among those ages of 15-64 years, 7% of the rural population are infected with HIV. In urban areas, the prevalence is 9%. Though the prevalence in rural areas is lower than in urban areas, the greatest burden of disease is in rural areas since most Kenyans live in rural areas. The HIV infection has a gender dimension. A higher proportion of women in the same age category 15-64 (8.7 percent) than men (5.6 percent) are infected with HIV according to KAIS (2007). Figure 1.1 below shows the HIV prevalence rates per province.

⁷ Quality criteria refers to: (1) one national multisectoral strategy and operational plan with goals, targets, costing, and identified funding per programmatic area, and a monitoring and evaluation framework; (2) one national coordinating body with terms of reference, a defined membership, an action plan, a functional secretariat, and regular meetings; (3) one national M&E plan which is costed and for which funding is secured, a functional national monitoring and evaluation unit or technical working group, and central national database with AIDS data (UNGASS Country Progress Reports 2008, cited in UNAIDS, 2008)

⁸ Available at <http://www.un.org/millenniumgoals/aids.shtml> Accessed on 28th/08/2009

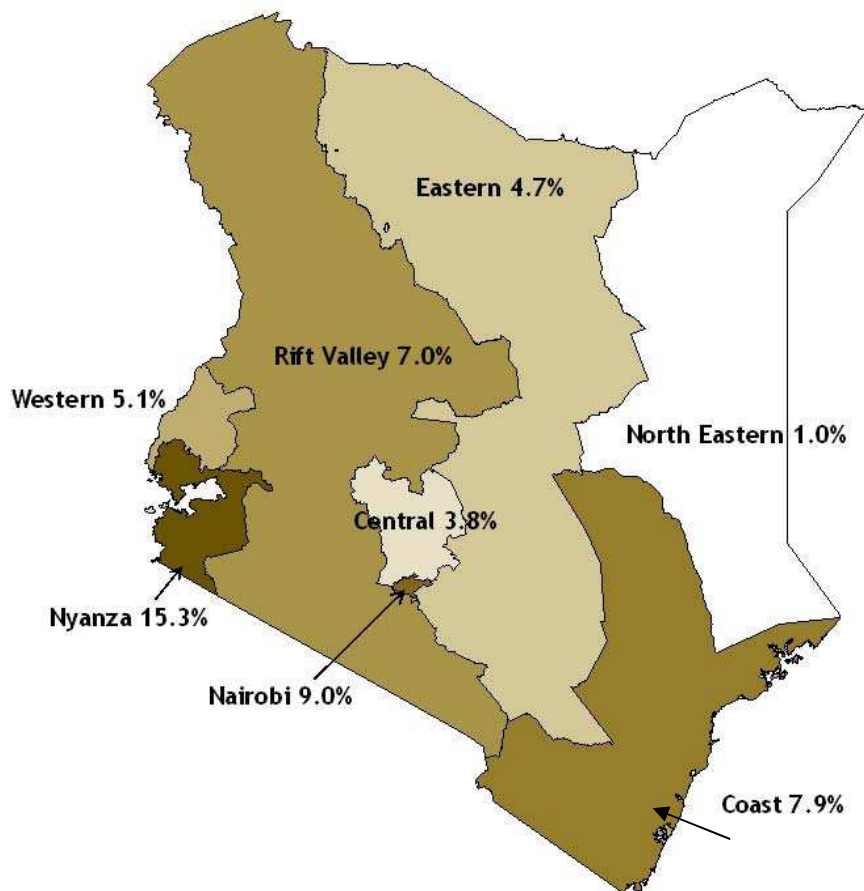


Figure 1.1: HIV prevalence in Kenya by province

Source: KAIS, (2007)

It should be noted from the above figure that the prevalence estimates may not provide the complete picture of HIV burden in a province. This is because of different population sizes across the provinces. For example, there are higher proportions of infected adults in Coast and Nairobi than that of the Rift Valley. Yet the estimated number of infected adults in Rift Valley (322,000) was greater than in Coast (135,000) or Nairobi (176,000). Together, Nyanza and Rift Valley are the home to half of all HIV-infected adults in Kenya.

There is a strong co-relation of the above stated determinants which is illustrated with data from a desk study where Kenyan prevalence rate and gender (Figure 1.2) as well as prevalence rates and place of residence (Table 1.1) vary as presented below.

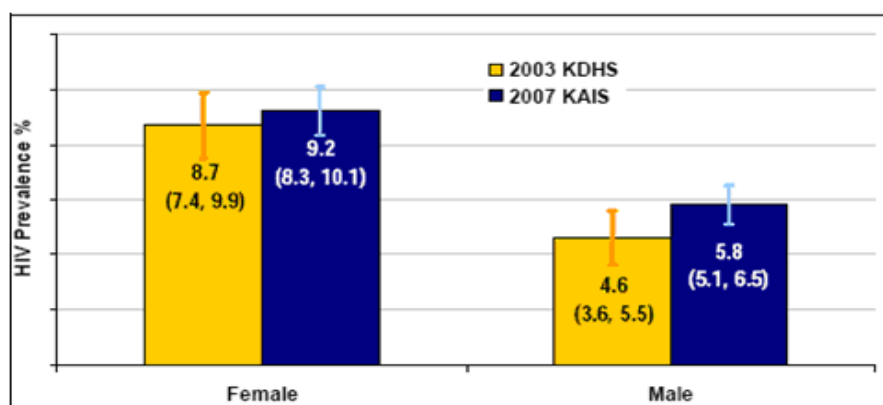


Figure 1.2: Kenya National HIV prevalence among females and males age 15-49 in KAIS, 2007 and KDHS, 2003 within 95% CI

Source: KDHS, (2003) and KAIS, (2007)

From the figure above, prevalence is high in women because of their physiological differences that increases the likelihood of infection once exposed to the virus (Barnett and Whiteside, 2006). Women also have low control over their sexuality and that of their partners as was recorded by Holden (2004). The table below shows an indication of the HIV prevalence rate for men and women between the rural and urban residences in Kenya in 2007.

Table 1.1: Kenya National HIV Prevalence for men and women by Residence.

Age (15 – 64) yrs	Urban	Rural	Total
Women	10.8	8.2	8.7
Men	6.2	5.5	5.6
Total	8.9	7.0	7.4

Source: KAIS, (2007)

The high levels of the prevalence rates in the urban areas could be explained by the fact that the residents are usually 'migratory populations' who have higher risky behaviour of having multiple partners (Barnett and Whiteside, 2006) after all they have money to trade for sex. Rural areas on the other hand have low prevalence and this could be because most of the prime age people who are the sexual active have migrated to towns and also as a result of AIDS related deaths (UNAIDS, 2008). A consideration of the poverty levels for the residences is shown in Table 1.2 below.

Table 1.2: Kenya National Poverty Levels

National Poverty line	National	Urban	Rural
1992	44.8	29.3	47.9
1994	40.3	28.9	46.8
1997	52.3	49.2	52.9
2006	45.9	33.7	49.1

Source: KNBS, 2006

As shown in Table 1.2 above rural areas have high levels of poverty as compared with the urban areas. Rural areas on the other hand have low HIV prevalence rate (Table 1.1). This implies that most of the rural residents are already facing the brunt of being resource poor

and when AIDS sets in it worsens their livelihoods situation (Rau, 2006). It is feared that because of rural to urban migrations in coping strategies, the two populations mix and this would fuel the AIDS epidemic. With these determining factors in mind the study is geared to counteract the spread of the disease among the smallholder farmers who are the rural residents by appropriately responding to food insecurity.

1.1.4 The AIDS Epidemic in Coast province

According to NACC (2005) cited in ROK (2008), the HIV prevalence rate for Coast province was as estimated at 5.7% in 2004 and 5.9% in 2006 as shown in Table 1.3 below. KAIS report, (2007) pointed out that Coast province, which is the study area, experienced a striking increase of 40% increase in HIV prevalence whereby the proportion of PLWHA adults was higher in 2007 than in 2003. The increase could be explained by the dynamism of intra province migration that increases the risk to infection. The table also indicates a gender inequality in the prevalence and this is explained by inequalities in control over sexual matters and body physiological differences (Barnett and Whiteside, 2006).

Table 1.3: Comparison of HIV Prevalence for Coast province between 2004 and 2006

Year	Number of HIV	HIV Prevalence Rate		
		Total	Male	Female
2004	84,000	5.7	4.8	6.6
2006	93,000	5.9	5.0	6.9

Source: ROK, (2008).

The HIV/AIDS crisis is generally perceived as an “urban” problem”. Rural areas, which were considered to be far removed from the epicentre of HIV, tend to be viewed as having lower prevalence rates than urban areas. On the contrary, the number of people living with HIV in many African countries, in absolute figures, predominates in rural areas. According to Rugalema, *et al.* (1999) cited in Barany *et al* (2001), the adult rural Kenyan population affected by HIV/AIDS was three times the number affected in urban areas, based on the total then standing at 1.44 million. The KAIS report (2007) noted that though the prevalence in rural areas is lower than in urban areas, the greatest burden of disease is in rural areas since most Kenyans live in rural areas.

Guerny, (n.d) noted that there is a general tendency of prevalence rates being monitored in large urban where there is a concentration of sentinel surveillance for convenience samples. It is not the case that the link between the urban and rural will always be in a fixed for the larger sample. In order to understand the incidence and HIV prevalence rate within a given population it is necessary to design a detailed population stratification by age, sex, education, socio-economic status and geography. This would help identify the particular patterns within different sub-groups that would otherwise not emerge in the general population. Small samples are easier to conduct a detailed study but they do not allow for accurate detection of changes in the sub-groups. This report is based on a study that narrows down to the district level with a generalised HIV prevalence rate that mainly reflects the sentinel surveillance samples and not particular to the study area.

AIDS is a stigmatised disease and few people know about their status in the region. The VCT centres are underutilised (GOK, 2005a). Many get tested only when the symptoms of AIDS develop. Even when a PLWHA dies the close family usually blame other causes of death rather than AIDS to avoid the household being discriminated by the community. In this

context then, it was not authentic enough to ask any direct question related to the chronically illness or death of a household member in the respondents household. In the focus of the study, everyone is at risk of fuelling the epidemics now and in future. Whether one has the infection now or not, what matters most in this study is how you cope with food insecurity and not coping with the disease. This is the reason why the respondents were not asked directly the presence of illness or death but only touched on it where some of them mentioned it as a constraint in coping.

1.2 FOOD SECURITY IN KENYA

Agriculture is the backbone of the Kenyan economy. Majority of Kenyans (estimated at 80%) depend primarily on agriculture and agriculture related services for their livelihood (ROK, 2006). The sector employs about 50% of the Kenyan labour force, accounts for 30 percent of the GDP (gross domestic product), as well as 70% of the export earnings. The agricultural sector of Kenya may conveniently be divided into two sub-sectors, namely; plantation and small holder semi-subsistence agriculture. The former, accounts for most of the agricultural export crops like tea, coffee, sugar, wheat and a variety of food crops such as maize, while large-scale farming (agro-estates) accounts for 30 percent of the total formal wage labour in the private sector (ECA, 2006; EPOS, 2004).

Kenya experiences two rainy seasons where the long rains come between March to May. Sometimes long rains extend to July and this is usually followed by a dry spell until the short rains fall between October to December. Approximately 80% of the land in Kenya is Arid and Semi-Arid (ASAL) where a large portion of land is utilized for wildlife conservation (ROK, 2008).

Kenya has faced an up and down declining trend of agricultural performance and is currently experiencing food insecurity. This is because food production was hampered by so many underlying factors with drought being the major cause. Inadequate food security policies (Gillespie *et al*, 2005) have contributed to the current situation. This has resulted in making food not to be readily available and accessed by many communities with the smallholder farmers' household being most hit (EPOS, 2004; Gillespie *et al*, 2005) Food security is a complex sustainable development issue linked to health through HIV/AIDS and malnutrition, but also to sustainable economic development, environment, and trade.

1.2.1 Food security in the Kenyan Coast

Food security is calculated as maize in kilogram divided by the number of people (Wekesa *et al*, 2003). According to data of 1998 – 2000, Coast region only produces an average of 50 million tons of maize per year as per the table below for a population of 2,487,264 people. Coast region has a large food deficit with only 20.2 kg maize per person per year as shown in the table below. Food security for Malindi is 39.4 while for Kilifi is 29 kg maize per person.

Maize is the staple food crop in Coast province. Food security here therefore locally can be said to be existing “when all people at all times have the physical availability and economic access to maize that meets the dietary needs as well as their preferences”. Hence food security is calculated as maize in kilogram divided by the number of people as shown in the table below. Maize grains when dried, is commonly ground into flour to make a dish locally known as *wari*. This *wari* is usually consumed with a side accompaniment locally known as *kitoweo* which could be some meat or vegetables. In sufficient quantities of the above combinations would be important for good health.

Considering the crop in Kwale, Kega *et al*, (1994) cited in Wekesa *et al* (2003) and in Kilifi Districts, Otieno *et al*, (1994) cited in Wekesa *et al* (2003) combined together account for half of all maize production in the region (Refer to Annex 7). Maize does well in all agro-ecological zones in the province including the Arid And Semi-Arid (ASAL) lowland areas more suited for sorghum and millet. Most maize is grown to meet subsistence needs, although at times in some areas currently, a significant proportion of green and dried maize is sold for cash.

The Coast region depends on rain-fed agriculture for food production (Wekesa *et al*, 2003). Maize production has recently been drastically affected by the absence of rainfall undermining its ability to support the smallholder farmers. For example some of the areas never harvested any maize in the last crop season. Refer to cover photo that was taken courtesy of World Vision, Kenya. In the photograph, a farmer at Shononeka, (Kilifi study site) points out to some three grain storage facilities (one is hidden behind the two) that were provided 2 years ago to the *Magungu Group* by World Vision, Kenya. These have never used because of low food production that resulted from the drought. In photograph, the researcher looks on. This was taken during the field visits.

Cassava is a subsidiary staple food in Malindi and Kilifi districts and is increasingly becoming an important cash crop too it is drought tolerant. Research by KARI has resulted to cassava being regarded as an important security crop because of its tolerance to drought, ability to give reasonable yields on poor soils, low input and labour requirements. It can also be harvested as a piece meal over a long period after the first season. The next most important annual crop is cowpea. However, even though cowpea is also drought tolerant, it is very vulnerable to pests and diseases, which often leads to very low yields (Wekesa *et al*, 2003). The MOA (GOK, unpublished report) regards these crops as 'Orphaned crops' because the smallholder farmers have totally neglected them with a preference for maize that is more prone to external factors.

Other traditional crops that do well in the area include the indigenous vegetables such as *mchicha* (amaranthus) and *mnavu*. These are drought tolerant and do not require farm inputs. They are used for food and eaten with *ugali* as *kitoweo* but is grown for sale along River Sabaki in Malindi.

1.2.2 Agriculture, Farming and Rural Livelihoods in the Kenyan Coast

Most of the rural population depend on rain-fed agriculture as a source of livelihood (Wekesa *et al*, 2003). Livelihood has been defined by Chambers and Conway (1992) cited in Ellis (2000) as 'comprising of the capabilities, assets and activities required for a means of living. This brings a distinct relationship between the assets people poses and activities they undertake. Farming has been observed to be a rarely sufficient means of survival for the rural smallholder farmer (Barnett and Whiteside, 2006). The smallholder farmers usually diversify in order increase the sources of income (Mutangandura *et al*, 1999). These activities are either on-farm, local with short migration and urban characterised by long distance migration (Ellis, 2000).

Legal land ownership is by acquisition of a title deed through the Ministry of Lands and Adjudication. In the community people inherit land from their parents, some live in communal land while some are squatters on someone else' land. The Coastal strip of Kenya has large pieces of land owned by 'absentee landlords' (CDA, 2006 unpublished report). The Government land policy is such that, when one is a squatter for more than 10 years, the state regards him/her as the owner of the land. This is the reason why this study did not enquire whether a title deed had been acquired or not. The government usually identifies

and allocates land in form of a settlement scheme at an average of 12 acres of land per household. The legalisation procedure is usually tedious and costly.

In the Coast region, cash income activities include crop and animal sales, wages, leasing of tree crops such as coconut and cashewnuts, and remittances. The agricultural sales along the coastal strip are made up of sales of coconuts, mangoes, cashewnuts, maize (green and dried), palm wine, *makuti* (coconut leaves weaved for roofing purposes). The marketing of these products is poorly established leading to low incomes for the farmers. Livelihoods such as Fishing; Tree crops; Tourism, livestock (cattle, goats, poultry, bee keeping and butterfly caterpillar) rearing. Casual labour for coconut felling, construction, weeding; petty trade in old (*mitumba*) and new clothes; grocery; piped water kiosk are other alternatives. In the hinterland of the Coast province which mainly consists of the ASAL areas, fuel wood and charcoal burning are the main livelihoods. Livestock like goats rearing; sale of firewood and charcoal; piped water kiosk; casual labour for weeding; food for work; petty trade mainly in old (*mitumba*) clothes and grocery for basic commodities are other available alternatives.

1.2.3 Agriculture Interactions in Kenya: The consequences of HIV/ AIDS

Agricultural production is heavily dependent on human labour, a major culprit of HIV pandemic. A number of factors such as food insecurity, impact a lot on how the HIV prevalence rises and falls, including new infections, mortality due to HIV-related illness, and availability of care and treatment (Holden, 2004). This in turn has an impact on the agricultural sector. For instance, Kenya's commercial agriculture sector accounts for nearly 30% of Africa's gross domestic product (Versi 1995⁹). Rugalema (1999¹⁰) wrote that this sector is particularly prone to the epidemic, signifying a severe social and economic crisis. A major workforce decline is of course the basis of this agricultural downfall because it mainly affects prime age (Yamano and Jayne, 2004). By 2020, 17% of Kenya's agricultural labour force might be lost due to AIDS (FAO 2001a¹¹). The food crop is also not spared. Recently the Daily Nation¹² had an agriculture related article on 'Rethink maize farming' so as to revitalise the food sector. The Cabinet recently convened an emergent meeting in August 2009, to discuss strategies to respond to the food insecurity because of the alarming rate nationwide.

In 2002, the government of Kenya prioritized to fight the HIV/AIDS epidemic where by a lot of emphasis was put in institutionalizing these efforts and funds were geared to prevention and mitigation measures (ROK, 2005a). This focus would be the seen as the reason for the decline in national prevalence rates to 6.7% for adults between the age of 15 – 49 years in 2003. In the same year, the prevalence rate was higher in urban areas (10%) compared to 5.6% in rural areas (GOK, 2008). In the report, it was indicated that, the prevalence rate for women was 8.7% compared to 4.6% for men between the same age groups in the same year. Recently, due to the adverse food insecurity facing the country, the head of state had to redirect the government focus to prioritize addressing food insecurity replacing HIV/AIDS epidemic. This implies that much is being sort expertise and finances are channeled to ensure food is available to the households. This is addressed using both the short term and long term strategies of food aid to the worst hit areas as well laying lasting solutions to improvement of food production situation in the country. The Strategy for Revitalizing Agriculture (SRA) 2004 – 2014 recognizes HIV/AIDS as having far reaching adverse effects

⁹ Versi, A. 1995. Agriculture: Backbone of Kenya's economy. *African Business* 196:14. Cited in Barany, (2001)

¹⁰ Rugalema, G. 1999. *HIV/AIDS and the commercial agricultural sector of Kenya: Impact, vulnerability, susceptibility and coping strategies*. Rome: FAO. Cited in Barany, (2001)

¹¹ FAO, (2001a). Food and Agriculture Organization of the United Nations, *AIDS: A threat to rural Africa*. Rome. Cited by Barany, (2001)

¹² Daily Nation, Thursday 9th July 2009. Daily Nation is a Kenyan newspaper.

on agricultural development (ROK, 2005a). The long term strategies are highlighted in the Vision 2030 (ROK, 2007) whereby using the economic pillar, agriculture is to be improved through an innovative, commercially oriented and modern agriculture in order to improve the economy. International organizations working hand in hand with the government of Kenya give food aid which is very instrumental in solving this problem in the short term but the aid provided is not sustainable and is limited in terms of area coverage and quantities provided. In this context, households respond to food insecurity in different ways. This might pose a risk of fueling the AIDS epidemic which was seemingly declining hence the necessity of having this study look for responses that will both address food insecurity while lowering the spread of the epidemic.

1.3 COAST DEVELOPMENT AUTHORITY OVERVIEW

Coast Development Authority is a government parastatal under the Ministry of Regional Development Authorities in Kenya. It is mandated to improve food security, poverty eradication, employment creation and wealth creation of the community along the Coast province of Kenya (GOK, 2001). The Coast province is made of several administrative districts namely: Mombasa, Malindi, Kwale, Kilifi, Kaloleni, Lamu and Tana River¹³.

1.3.1 The Mission

The Mission for CDA is; The Sustainable exploitation and development of the unique natural resources for the benefit of the communities in the area of jurisdiction and Kenya in general (ROK, 2001). The rationale for CDA's establishment was to carry out regional planning and effective utilization of the unique resources found in coast by addressing the social and economic problems experienced particularly in the high incidence of poverty, unemployment, and the decline in agricultural production.

1.3.2 The Goal of CDA

To improve food production, food security, employment opportunities, incomes and wealth creation through sustainable use of the unique resources in the area of jurisdiction.

1.3.2 Organizational Structure

Coast Development Authority is a semi-government agency in MORDA in Kenya with its headquarters in the Coast province and district offices. The structure portrays departments of Agriculture, Water, Engineering, Fisheries and District operations (Refer to Annex 8).

Before being promoted to a new position, I have worked under the Technical Division, as a CDA District Co-ordinator in Malindi District. My duties were to facilitate in projects which aim at empowering smallholder farmers' livelihoods. Co-ordinating CDA's activities was with external partnerships with other organizations and internally through collaboration was with the other functional departments such as Water, Fisheries and Engineering. Much of the organisation's efforts benefit the smallholder farmers through the FFS approach in agriculture.

¹³ These districts have further been subdivided to constitute other districts since 2008.

In order to efficiently address the social and economic problems experienced by the rural households particularly in the high incidence of poverty, unemployment, and the decline in agricultural production in a participatory way Coast Development Authority has always been applying multi-sectoral approach (ROK, 2001). This is not without bottlenecks because the state of the coastal smallholder farming community does not seem to improve in terms of improved food production, food security, income generation, employment creation and wealth creation. Since HIV/AIDS impacts life surrounding the households and communities at large (Holden, 2004) it has been indicated in the Strategic plan that the epidemic undermines organisational performance (ROK, 2004).

The indirect AIDS work for CDA aims at the following:

- To reduce the vulnerability of individuals and communities to HIV/AIDS;
- To alleviate the socio-economic and human impact of the epidemic.

The assumption behind this study is that multi-sectoral recommendations that aim at improving the household food security will automatically improve the means of living (Chambers, 2007) of the small holder farmers thereby reducing their chances of susceptibility to HIV infection.

1.4 PROBLEM STATEMENT

One major area of concern for Coast Development Authority is that currently there is a problem of food insecurity affecting the smallholder farmer's households in Coast province. This is because food production was hampered by so many underlying factors with the main one being shortage of rainfall. Food (maize) is currently not readily available and accessed by especially the smallholder farmers' household who are the target group. Households cope with food insecurity in different ways. In this context, the food insecurity problem it is feared that the coping strategies of the smallholder farmers will fuel the AIDS epidemic which impounds and waters down all the development efforts that the organization is spearheading in the region.

1.4.1 Research Objective

This research aims to explore how the coping strategies of smallholder farmers' household on food insecurity are fuelling the AIDS epidemic. This will contribute to how CDA can respond to alleviate food insecurity through appropriate multi - sectoral strategies in targeting and planning for sustainable rural development. This is indirectly fighting the AIDS epidemic. This research applies a '*Conceptual framework for food insecurity and HIV/AIDS*' that is detailed in Chapter 2 in the analysis of smallholder farmers coping strategies in order to improve their wellbeing in a sustainable manner.

This will contribute to how CDA can respond to alleviate food insecurity through appropriate strategies in targeting and planning for sustainable rural development thus indirectly fighting the AIDS epidemic. This research intends to contribute to improved welfare of the targeted coastal smallholder farmers' households through integrated and multi - sectoral food security strategies in a sustainable manner.

1.4.2 Research Questions

Considering the Situation Analysis and Response Analysis steps in the above conceptual framework, the following research questions were developed.

Main Question

How can CDA effectively respond to food insecurity facing smallholder farmers' households so as to reduce their chances of being involved in risky coping strategies thereby indirectly reducing their susceptibility to HIV infection?

Sub Questions

1. What are the risky coping strategies that smallholder farmers engage to respond to food insecurity?
2. What influences their decision to adapt coping strategies to respond to food insecurity?
3. In adapting coping strategies to food insecurity, is the smallholder farmer's household consciously or unconsciously aware of the risks of HIV infection involved and how do they contribute to increasing susceptibility to HIV infection? (*the direct and indirect risk of infection involved*)
4. How can CDA respond to food insecurity facing the smallholder farmers' household in order to indirectly fight the AIDS epidemic?

1.4.3 Research Period

The period provided from proposal writing, literature review, field work on data collection, processing and analysis as well as report writing was three months (July to September 2009) Annex 5 gives the schedule.

CHAPTER 2: THEORETICAL FRAMEWORK

In this Chapter the researcher has summarized the views of other authors on the issue being studied. It provides a differentiation between HIV and AIDS, a Conceptual outline discussing food insecurity and its relation to HIV/AIDS as well looking for appropriate and feasible multi-sectoral responses towards a multi-sectoral response to HIV/AIDS.

2.1 UNDERSTANDING THE DISEASE: RISK OF HIV INFECTION

2.1.1 HIV and AIDS Differentiated

This section introduces the basic facts about the HIV/AIDS. This is in the view to understand how HIV infection occurs, risks involved and how AIDS comes about through malnutrition that weakens the body's immune system hence exposing them to infection once exposed to the virus which is focused in this study.

2.1.1.1 HIV definition and HIV infection

Susceptibility in this report refers to (i) the likelihood of an individual becoming infected with HIV or (ii) the likelihood of the spread of HIV infection within and area or at household level (Muller T, 2005). It is greatly as a result of the interactions of several shared characteristics since it is applicable to both individuals and groups of people. As Holden (2004) pointed out, susceptibility is determined by the economic and social character of a society, relationships between groups, livelihood strategies, culture, and balance of power in regard to gender

The meaning of HIV:
Human: human beings
Immuno-deficiency: a
weakening in the body's
immune system - the white
blood cells - to fight diseases
and other infections

Holden (2004) highlights the development related causes of susceptibility to HIV infection as (i) poverty; (ii) gender inequality; (iii) poor public services; and (iv) the role of crisis. The latter is of paramount importance in this study because usually the whole of the affected community becomes more susceptible to HIV infection as a result of impoverishment, loss of assets, and disruption of social-support networks. Women and girls however are likely to suffer disproportionately as observed by Gupta, (2001); Marcus, (1993); cited in Verheijen *et al*, (2007). This is due to the fact that they are subject to sexual violence than men and, are likely to resort to using their one portable asset - their bodies - in order that they and their dependants may survive. Where the crisis results into population movements, susceptibility may be further increased, if they encounter populations with high HIV prevalence (Holden S, 2004, Ghanie, 2008 cited in Ellis, 2000). Gender inequality also increases chances of susceptibility to HIV since women and girls who have low power to use condoms, education, income and livelihood opportunities. This is intertwined with poverty (Holden S, 2004).

The main sources of infection are through: (i) unprotected sex with an infected person; (ii) contact with contaminated blood or other bodily fluids (such as semen and vaginal secretions); (iii) by transfusion with infected blood; or (iv) from mother to child during pregnancy, at delivery or during breast-feeding (Barnett and Alan, 2006).

HIV is a very fragile virus. People living with HIV/AIDS (PLWHA) do not pose a threat to others in the community during casual, day-to-day activities and contacts. Hence the virus is not spread through casual contact with infected people such as: shaking hands, hugging, sitting together or playing; sharing toilet or bathroom facilities; sharing dishes, utensils or food; eating food bought at the market from someone who is HIV-positive; wearing clean

clothes which have been worn by a person living with HIV; through sneezing, coughing or insect bites; or witchcraft. (ibid).

Everyone is potentially at risk from HIV infection and the disease is found in all races, nationalities and age groups as illustrated by many authors provided in Chapter 1. People are especially at risk if they practice high-risk behaviour, have risky-lifestyles or live in potentially risky environments which may expose them to the virus through unprotected sex, or infected blood and bodily fluids. However, HIV infection is preventable and a few precautions reduce the risk of infection (Barnett and Whiteside, 2006). There are no clear symptoms of HIV infection but an infected person can pass on the virus to others hence fuelling the epidemic.

2.1.1.2 AIDS definition

HIV causes AIDS, a disease that destroys a person's immune system. AIDS is the final stage of the HIV infection. As the virus slowly damages the immune system, the ability of the body to fight off diseases and other infections is weakened. Eventually an infected person suffers from a combination of illnesses which results in their death. AIDS symptoms¹⁴ typically include rapid weight loss, tuberculosis, diarrhoea lasting more than a week, recurring fever, swollen lymph glands, skin rashes, memory loss, depression, dementia and severe chronic fatigue.

The meaning of AIDS:

Acquired: the virus is passed on from an infected person

Immune Deficiency: a weakening in the body's immune system to fight off diseases

Syndrome: a group of health problems that occur together or one after another but are all part of the same underlying medical condition

Considering the lifecycle of the disease for an individual, an individual passes through three different stages between infection and death (KAIS, 2007) and this process may spread over a period of up to eight to 10 years. Even though HIV and AIDS have no traditional or scientific cure, however, progression from HIV to the onset of full-blown AIDS can be delayed and reduced. This is through anti-retroviral drugs (ARVs) and proper nutrition (Barnett and Alan, 2006). Malnutrition and other infections weaken the body's immune system (Holden, 2004) hence the earlier manifestations of the opportunistic infections. It has been observed that stigma is very common and so harmful especially in rural communities where there are many misconceptions and misunderstandings about how the disease is transmitted (Holden, 2004). The consequences are that PLWHA are reluctant to have an HIV test and to tell others of their status. As a result, the disease continues to spread and PLWHA delay in seeking appropriate health care.

2.1.2 Risks of HIV infection

This section explores the factors that put people at risk of HIV infection (in terms of their behaviour and lifestyle, and the environment in which they live) and how these risks change during an individual's life. Opportunities for reducing the risk of HIV infection are also discussed. Note that in all the risks elaborated below, the resource poor cannot afford to take up long-term measures to protect their lives because they are too busy trying to survive (Holden, 2004).

¹⁴ Take note: these symptoms are similar to those associated with other illnesses so it not possible to rely on these alone to determine whether someone has

What is a HIV-risky behaviour?

Household risk strategies are prone to confusion with coping behaviour, since some researchers treat coping as an aspect of risk behaviour, as in phrase 'risk coping strategies' (World Bank, 1990b: 90-91; Alderman and Paxson, 1992:2, cited in Ellies, 2000). There are three main modes of behaviour which may result in individuals engaging in activities which expose them to the HIV virus.

These are:

- (i) **HIV-risky behaviour by choice**, usually for pleasure such as multiple sexual partners, high alcohol consumption which may lead to unprotected sex;
- (ii) **HIV-risky behaviour by convention**, culture, peer pressure or coercion such as sexual norms, widow inheritance, polygamy, rape, kid napping, child sexual abuse and incest, early sexual debut, early marriage, inability to negotiate for safe sex due to unbalanced power relations, and a reluctance to abandon breast-feeding by HIV-positive mothers;
- (iii) **HIV-risky behaviour by necessity** such as exchanging sexual favours for food, cash or preferential access to limited resources and caring for the AIDS sick without due caution

What are HIV-risky livelihoods?

As defined in Chapter 1, livelihood comprises of assets, capabilities and activities. Smallholder farmers diversify because they cannot only rely on agriculture (Barnett and Whiteside, 2006). Many researchers such as Bryceson, (1996) cited in Ellies, (2000) consider risk to be the main motive for livelihood diversification. Some livelihoods (also referred to as occupations) place people at risk by presenting them with opportunities for unprotected sex with non-regular partners. Resource poor households have less livelihood options (Ellies, 2000) and are more highly involved with risky livelihoods. These are mainly nonfarm activities that take place away from home usually in urban centres (Readon, 1997) where prevalence rates are usually higher than rural areas so there is a mix (KAIS report, 2007). A household may be in the village countryside but its activities may be a mix of urban and rural. Readon (1997) referred to these livelihoods as migratory.

The livelihoods that may result in unprotected sex (Holden, 2004) include: (i) Those in the informal sector who spend nights away from home in the course of their work; (ii) Seasonal migrants and daily labourers on seasonal off- farm activities; (iii) Urban migrants on employment staying away from families; (iv) Commercial sex workers, bar maids; (v) Students staying in hostels; (vi) Field workers staying away from family.

What are HIV-risky environments?

Some circumstances, places and situations present as risk environments where sexual relations of any kind carry an unusual or raised risk of sexual disease transmission (Barnett and Whiteside, 2006, Bishop-Sambrook, 2004). Such an environment is a risky environment and the behaviour is a risky behaviour. Barnett *et al* (2006) clarifies that 'the riskiness of the behaviour is a characteristic of the environment rather than the individual or the particular practice. People are more at risk if they live in environments subject to crisis, conflict or weak governance which, in turn, disrupt rural livelihoods and cause poverty, migration and a lack of social cohesion. Barnett *et al*, (2006) points out that in these environments there is a breakdown of social order and cohesion. A weak infrastructure contributes to the spread of the disease if people are unable to: access information to become better informed about

methods of prevention, treat other sexually transmitted infections (STIs) and opportunistic infections promptly, acquire condoms and live in adequate housing. Widespread stigma and discrimination about HIV/AIDS makes it difficult for people to disclose their status and take appropriate preventative action (Bishop-Sambrook, 2004). This also fuels the epidemic.

2.1.2.1 Factors that determine the risks for HIV infection

Risk factors for HIV infection has been observed to be related to age, education, gender and marital status (KAIS, 2007), physical infrastructure and asset base (Barnett *et al*, 2006; Bishop- Sambrook, 2004) as shown below.

(i) Household assets base

Assets are the resources used by a household to make a living. They include including human (household members), natural (land, trees and livestock), physical (seeds, fertilizer, tools and equipment), financial (savings, credit and remittances) and social assets (membership of groups and associations).refer to the human, physical, financial, natural and social capital that is applied for a livelihood. Resource rich household members often enjoy better access to attractive nonfarm opportunities than the resource poor (Barnett *et al*, 2006, Bishop-Sambrook, 2004). This is because they have a comparative advantage over the resource poor. The resource poor have limited assets in the form of low levels of education, less skills to diversify sources of income successfully, limited household goods, and land which is a productive asset. The resource rich therefore can diversify their income sources and manage risks better than the resource poor. Reardon (1997) and Bishop-Sambrook, (2004) showed that nonfarm earnings account for a considerable share of farm household income in rural Africa than other regions in the world. He continued to reveal that the lack of risk management makes the poor households to rely on risky livelihoods, relief and food aid for meagre safety nets. Inequalities in income, has been noted to increase the risk of HIV infection (Gillies *et al*, 1996). This is because those who earn more money can readily buy sex from the resource poor hence fuelling the epidemic.

(ii) The education, sex and poverty

The resource poor often lack opportunities to pursue education. Women in the age 15-64 years with higher educational levels have significantly lower HIV prevalence than those with less education. Those with primary education have a prevalence of 10% as compared to 7% with secondary education and 4% with tertiary education. Prevalence among women who have never attended school is 7%. This could be because women especially the illiterate, have less control over their own sexuality as well as that of their partners (Verheijen *et al*, 2007). For men, there is also a decrease in HIV prevalence with higher levels of education but the differences are less pronounced and not statistically significant (KAIS report, 2007). What this implies is that those with low levels of education are likely to be more susceptible to HIV infection than those who are well educated. The resource poor are culprits of this increased risk of infection than the resource poor.

(iii) Marital status

There is a disparity between the young, widowed, divorced which could probably be related to age and cumulative exposure to HIV since those never having been in a union are much younger than those currently in a union (median age 22 years and 36 years, respectively). (KAIS, 2007). As observed by Garbus, (2003); Marcus, (1993); Lawson, (1999); Schoepf, (1998) all cited in Verheijen *et al*, (2007) women expressed their belief that the economic consequences of leaving a relationship that they perceived as risky were far worse than the risk of contracting HIV. For couples, generally, having sex outside of marital relationships is considered “high risk” sex; given the maturity of the epidemic, however, it is important to consider all unprotected sex with persons of unknown status as potentially high risk sex. Sexually-active men, who have never been in a union have a lower prevalence than among men currently in a union.

(iv) Age and sex

The potential source of infection varies by age and sex of the household member. Among adults, the principal source of transmission is generally through unprotected sex with uninfected person. The youth are susceptible to infection either through sexual contact or harmful traditional practices such as circumcision, using unsterilized infected implements. Children and infants are potentially at risk from traditional practices, and infants from Mother to Child Transmission (MTCT). Women and girls are among the high-risk group, often due to events beyond their control since they are more likely than men to be subjects of rape and sexual violence (Holden, 2004). Women have less control over their own sexuality as well as that of their partners (Verheijen *et al*, 2007). Holden (2004) pointed out that women should submit to their partners’ demands to have sex because of social norms that render them powerless. For each sexual encounter, women physiologically are more susceptible to infection than men (Bishop-Sambrook 2004). They are also more socially vulnerable due to discriminatory social and cultural practices. In many communities women have lower rates of literacy than men, leave school earlier than boys, have limited access to sources of information, and have little opportunity to participate in decision making. They are also disadvantaged with regard to ownership, using and controlling economic resources in the household. Due their weak social position and the dominance of men, women are either unaware or unable to insist on condom use and negotiate for safe sex (*ibid*). Gender inequalities (Bishop-Sambrook, 2004) also affect the ability of women to disclose their HIV status and utilise treatment and care services. Moreover, their lack of economic independence makes them more likely to engage in survival sex where they end up selling their portable asset – their bodies in order for their dependents to survive (Holden, 2004, Bishop-Sambrook, 2004). Gender inequalities combined with age is a factor that fuels the epidemic by disadvantaging the female by her position.

(v) Physical infrastructure

It was noted that lack of physical infrastructure causes a poor households in the developed countries to satisfy their own needs only (Barnett *et al*, 2001) hence not bothering about the other people. The rural areas has less developed infrastructure than the rural areas. Lack of micro-credit opportunities with low interests rates cause a barrier to the resource poor to engage in many livelihood opportunities (Readon, 1997). Poor health infrastructure, lack of adequate water sources, education and housing facilities can directly and indirectly increase susceptibility to HIV infection (Holden, 2004). Inadequate infrastructure characterises the rural areas in Kenya. According to Rugalema, *et al* (1999) cited in Berany *et al* (2001) the adult rural Kenyan population affected by HIV/AIDS was three times the number affected in urban areas, based on the total then standing at 1.44 million. This implies that the poor physical infrastructure in the rural areas helps fuel the AIDS epidemic.

(vi) Mobility and Social cohesion

People are likely to find sexual partners from groups outside their 'usual' places as a result of mobility (Barnett and Whiteside, 2006). Social fabric of traditional safety nets appears to be broken in times of migration as in times of crisis (Readon, 1997; Barnett *et al*, 2006). Migrant family members to urban areas typically continue to maintain strong rural connections even after long stay of urban residence (Lucas and Stark, 1985; Stark and Bloom, 1985; Valentine 1993; Hoddinott, 1994 cited in Ellis 2000). Ellis (2000) also point out that homesteads have a stake in the rural settings and they are characterised by a lot of remitting and non-remitting migrants. Homesteads, also known as extended families are comprised of multiple interconnected nuclear households. Stigma is a negative social baggage associated with HIV/AIDS (Deacon, Stephney and Prosalendis, 2005 cited in Ellis 2000). Stigma works to disrupt social networks and this also fuels the AIDS epidemic (Gillespie, 2005).

The level at which HIV and AIDS is prevalent in a rural farming community will depend on the extent to which the above factors occur and on how they interact to increase vulnerability (Misati, *et al* 2007). All the above factors are more associated with the resource poor and place them at higher risks of fuelling the AIDS epidemic than the resource rich households.

2.2 TOWARDS A MULTI-SECTORAL FOOD SECURITY RESPONSE

2.2.1 Conceptual Framework

In order to analyse the situation and achieve an appropriate food security response a conceptual framework '*Food security response options analysis*' was applied in this report. This aims to be done through a process of:

- Identification of the factors causing risks to lives and livelihoods through situation and forecast analyses
- Identifying the types of intervention required as per the goals of the organisation. (the entry points)
- Identifying a range of response options and the appropriateness
- Identifying the feasibility of each option on the basis of the positive and negative external factors which may affect each ("feasibility analysis")

This study did not explore much on the area of feasibility analysis. This requires a thorough examination of the underlying positive and external factors which opens opportunities for future studies. To achieve the other three steps involved the application of a proper selection of the livelihood and SWOT analysis tools (Loevinsohn *et al*, 2003). These are utilised to analyse livelihoods, reviewing and identifying modalities to fill gaps. This leads to proposing of recommendations for interventions. A step further, would have taken us to the choice of implementing partnership agencies and targeting criteria which requires a wide exploration of stakeholder viz a viz time.

Food security response options analysis may be defined as the process by which a range of context *appropriate* and *feasible* options to address existing and forecasted risks to food security of target populations is identified. This reflects a **multi- sectoral response** since it looks at many interrelated options that touch on every sector of life. The process begins with analysing the situation. It may be **triggered** by a range of considerations and have a range of **objectives**. The **trigger** in this case is an actual **food security crisis** and that the *coping strategies of the smallholder farmers* pose a risk of fuelling the HIV/AIDS epidemic.

The **objective** therefore in this context of food insecurity is being the saving of lives and livelihoods in the short term and “*building back better*” subsequently through a multi-sectoral response. Building back better means undertaking responses which target the causes of crisis so as to reduce vulnerability and or exposure to future food security shocks. *Appropriate* and *Feasible* options in this case are those that are sustainable and are related to the needs and livelihoods of the study population; and those related to CDA the implementing agency’s goals, capacities, and the operating environment in which it finds itself. Below is a diagrammatic representation of the framework that will be applied.

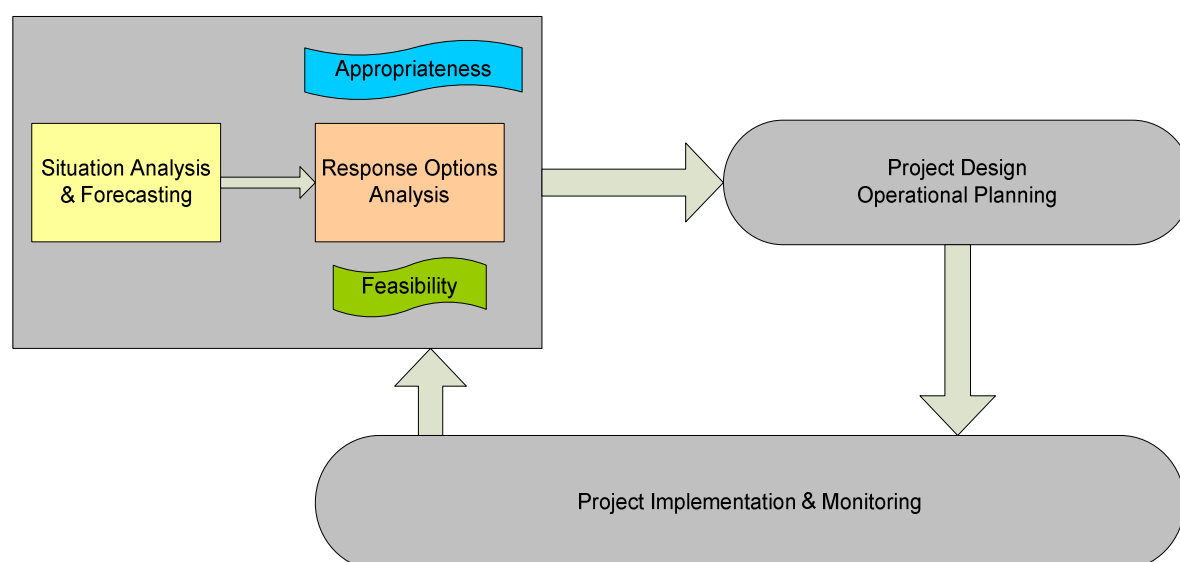


Figure 2.2: Food Security Response Conceptual Framework

Source: Adopted from *Conceptual Framework for Food Insecurity and HIV/AIDS*

2.2.2 Food Insecurity

In the World Food Summit of 1996 food security was defined as existing “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life” (WHO, n.d). Statistical, food security is calculated as the quantity of maize in kilograms per person per year (Wekesa *et al*, (2003). In this report therefore, it has been referred to include *the physical availability and economic access to food (maize) that meets the dietary needs as well as their preferences*. This was based on the three pillars of food security illustrated below.

Table 2.1: Pillars of Food Security

Pillars	Interpretation
Food availability	Sufficient quantities of food available on a consistent basis.
Food access	Having sufficient resources to obtain appropriate foods for a nutritious diet
Food appropriate use	Appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation.

Source: WHO, n.d¹⁵.

¹⁵ WHO, (n.d) World Health Organisation Programmes and projects, Trade foreign policy, diplomacy and health. Available at: <http://www.who.int/trade/glossary/story028/en/>. Accessed on 21st August 2009)

Two pillars, food availability and accessibility have been applied in this report while the pillar of food appropriateness was not explored. It was assumed that food that is readily available is consumed appropriately to meet the nutrient requirement.

2.2.3 Relationship between Food Insecurity and HIV/AIDS

Food security and AIDS is a peculiar relationship. Barnett and Whiteside (2006) illustrated how HIV compounded with other problems like hunger forms a lethal combination. The relationship is fuelled by the practicalities of limited resources and narrow options where mainly the poor women and women headed household are the most vulnerable.

De Waal and Whiteside, (2003) in the so called 'new variant famine' highlight how malnutrition fuels the epidemic as given below.

- Undernourished people are more likely to be infected once exposed to the virus.
- Malnourished pregnant mothers are likely to pass the virus to the baby
- Malnutrition of PLWHA weakens the immune system, hence the infection more virulent. The HIV positive status inhibits nutrients absorption, yet they have an estimated 30 – 50% more protein and 15% more energy than normal individuals.

On the other hand, proper nutrition together with ARV treatment delays the manifestation of the opportunistic infections. For the purposes of this study, the issue of PMTCT was not explored. Below shows how food insecurity combined with livelihood insecurity can be seen to fuel the AIDS epidemic (refer to Annex 9).

- Malnutrition weakens the body's immunity and hence the progression to AIDS once infected with the virus is faster.
- Limited livelihood options in an individual to engage in risky options hence increasing the chances of infection with the virus.

Food insecurity also raises stress within the household which is reflected in rising incidences of alcohol abuse and family breakdown (Sambrook, 2004). Garbus, (2003); Marcus, (1993); Lawson, (1999); Schoepf, (1998) cited in Verheijen et al, (2007) explained that women usually believe that economic consequences of leaving any relationship were perceived as more risky than the risk of contracting HIV. Social forces are thereby seen to increase the risk of HIV infection.

2.2.4 Coping Strategies

'Live for the present' is a phrase adopted from Barnett et al, (2006) where the people do not think of the consequences of getting HIV infection. He continues to quote 'I cannot think of AIDS business for I could drown tomorrow' a testimony of a fisherman. This implies that what matters to them is to have the ends-meet regardless of the approach. Women especially, cannot think of the long-term risks of HIV infection when they have to undertake a risk in order to feed their children.

For the purposes of this research, 'coping strategies' are those activities by the smallholder farmers to overcome a difficult situation suffered by an individual, household and or community at large (Muller T, 2005) which in this case is food insecurity. The term 'coping' can be very misleading, since it suggests that a given household can actually manage, but this may not be the case when the long-term costs are actually undermining their livelihood (Rugalema, 1999). Hilhorst (2006) documented that coping strategies may vary between households, mainly as a reflection of the household assets levels namely: natural, physical financial, human and social. These assets levels singly or combined determine a variety of livelihoods.

Livelihood Assets

The **natural assets** include land, tree crops, the environmental resources like soils, poor wild fruits, fish, and fuel wood. These can be further grouped into renewable and non-renewable natural resources (Ellis, 2000) because of the fact that some can be depleted as a result of overexploitation or mismanagement by the human capital.

Human assets include own labour. This is debited by the household members' numbers, ages, sex, education levels and skills (Carney, 1998 cited in Ellis, 2000). There is usually an inequality in human assets between the poor and rich. Limited natural and physical asset base disadvantage the poor people in rural areas. Toulmin, (1992) cited in Ellis, (2000) found out that bigger households had an advantage in terms of labour since they permit more diverse occupational strategies.

Financial assets include money that the household has access such as savings, remittances and credit. Financial asset inequalities exist between the rich and the poor.

Physical assets are those that are created by an economic production process (Ellis, 2000). They include vehicles, agricultural tools and equipments, houses, television. These greatly differentiate between the rich and the poor because their numbers depend on the financial capital. Physical assets include infrastructure such as the type of roads, power lines, access to clean water sources and telecommunication facilities. They also include market centres where produce is sold as a source of income.

Social assets are defined by Moser (1998) cited in Ellis (2000) as the common trusts a household and community may have as a result of social ties as. This composes family relationships, friends, clubs, and associations. These are an investment for the future for the smallholder farmers as seen noted by Berry (1989, 1993) in Ellis (2000) because of the time devoted to nurture them. Swift (1998) in Ellis (2000) categorises them into 'vertical' such as for those in authority and 'horizontal' relationships as associations which are voluntary. The social assets in this study were not very explicitly dealt with as in the case of the other four assets.

Erosive coping strategies that undermine the sustainability of livelihoods are used by the most resource poor and vulnerable households. This is also confirmed in another finding which explains that most households rely mainly on three sources of financial assistance namely:

- (i) Private transfers,
- (ii) Private borrowings and
- (iii) Assistance from public or other formal organisations.

Resource rich households are wealthy, not only in terms of physical and human assets, but also in social capital, as they have larger networks on which they can depend in terms of crisis. The resource poor households find it hard to receive private assistance because of lost trust, making the food insecurity problem even worse. They are not only hit harder but also bear a larger part of the burden alone. (Lundberg M *et al*, 2000).

Poor rural development policies, have forced smallholder farmers to struggle 'day in day out' in order to be able to sustain their livelihoods (Ellis, 2000). When households cannot achieve a daily intake of sufficient food in terms of quality and quantity, as a result they experience a state of 'illbeing' (Chambers, 2007; De Waal and Whiteside, 2003). Food insecurity raises stress within the household determining the coping strategies to be adopted, most of which

directly or indirectly pose the risk of increasing HIV infection. These results in '**distress sale**' of assets (Holden, 2006) and another option they face is '**distress migration**' in search of food or employment opportunities in nearby urban centres (Ellis, 2000). Ellis, (2000) found out that that it in respect to a crisis households will search for new income sources in the earlier stages. In later stages, there are forced to sale their assets. As recorded by Ellis (2000), it is only as a last resort that productive assets are sold to avoid the current crisis and this explains a state of 'income –poverty' (Chambers, 2007). It is this struggle that predisposes them more to HIV infection while looking for survival strategies. According to Misati *et al*, (2007) and Seeley, and Allison, (2006)¹⁶, most people involved in fishing as an occupation, as crew members or small-scale independent traders are within the age-group of 15 – 35 years. This age group is the most vulnerable to sexually transmitted infections (Ghanie, 2008¹⁷; Misati *et al*, (2007). Fishing as a profession involves travelling and interactions between diverse communities and they would be exposed to having multiple partners, a risky behaviour. This also increases their chances of risk to HIV infection.

The coping strategies in response to AIDS have been grouped into three phases by Holden (2004) and Muller (2005a) namely:

- Reversible: These strategies use protective assets
- Irreversible : These strategies use productive assets and are difficult to reverse
- Destitution as indicated in the table below.

Table 2.2: Coping strategies as per the three groups

PHASES	EXAMPLES OF STRATEGIES
Reversible	Seeking paid labour or migrating temporarily to find paid work Selling off valuables Getting help from extended family or community members Reducing food consumption Borrowing from formal or informal sources of credit Reducing expenditure on non – essentials, educations, healthcare
Irreversible	Selling land, agricultural tools, livestock used for farming business Reducing cultivatable land Further reducing consumption and expenditures on education and healthcare
Destitution	Depending on aid, charity Breaking up Migration in desperation

Source: Holden, (2004)

This calls for phase specific multi-sectoral responses in order to address food insecurity sustainably through strengthening household and community safety nets (Holden, 2004). HIV /AIDS stigma is a negative social baggage associated with HIV/AIDS (Deacon,

¹⁶ Cited in Ellis, (2000)

¹⁷ Cited in Ellis, (2000)

Stephney and Prosalendis, 2005 cited in Ellis 2000) and this should be inbuilt into the response.

2.2.5 Multi-sectoral response

The responses highlighted here focus on the micro-environment (Holden, 2004, Barnett and Whiteside, 2006) where the smallholder farmers' households are part of. Mutangadura *et al*, (1999) cited in Muller, (2005a) grouped the coping strategies of smallholder farmers into three namely:

- Strategies aimed at improving food security,
- Strategies aimed at raising incomes in order to purchase food and other basic requirements and
- Strategies aimed at alleviating labour loss

Considering the needs of the smallholder farmers from Mutangadura *et al*, (1999), it calls for a multi-sectoral approach from the needs assessment. For the basis of this report, only strategies aimed at improving food security and raising incomes will be examined. This is because the issue studied by Mutangadura *et al*, (1999) was on coping strategies as a result of the impact on AIDS where labour becomes a major constraint. The focus of this study did not consider whether the smallholder farmer is either HIV infected or affected but mainly focuses on likely risks.

This is in the context of the rural field situation in the study areas. It is the level at which CDA which is a developmental oriented organization is concerned with indirect AIDS work. In order to develop a multi-sectoral response to any issue it is necessary first to analyse the situation and come up with the area to focus on in programming. The multi-sectoral response in this study has taken a consideration first on the causes of food insecurity and the factors increasing risk of HIV infection and progression to AIDS. The second step is to identify appropriate responses as compared to the goals of CDA according to its mandate. These appropriate and feasible multi-sectoral responses will be recommended for programming.

2.2.5.1 'Do No Harm' Principle

The Principle of "Do No Harm" acknowledges the possibility that interventions designed with the intention of producing positive outcomes can have unintended negative effects on the individual beneficiaries, households or communities. This Principle of "Do No Harm" can be applied to food insecurity responses to avoid actions that will increase the risks of HIV infection to both the smallholder farmers who are beneficiaries and the implementers.

CHAPTER 3: RESEARCH METHODOLOGY

In this chapter the researcher describes the steps that were undertaken to come up with the data. The selection criterion of the samples and clustering is also elaborated. The research project was carried out for a period of three months starting from July to September 2008 (refer to Annex 10). The study was carried out through a forward – backward working approach as specified by Verschuren and Doorewaard, (2005) in order to ensure the research was focused (Refer to Annex 11).

3.1 SELECTION, SAMPLING AND CLUSTERING PROCEDURE

The entire research was conducted in two districts namely Malindi and Kilifi in Coast province of Kenya which is within CDA's area of jurisdiction. It covered villages of Mkenge, Msabaha, Dabaso, Jimba in Malindi districts and Shononeka in Kilifi¹⁸ district. Apart from being close to one another, they have diverse scenarios of urban and rural settings and are easily accessible except for Shononeka. Most of the inhabitants in one way or another are smallholder farmers (also referred to as small scale farmers because they grow crops and rare livestock on small land holdings).

The smallholder farmers (men and women) were targeted according to the following criteria. The households were clustered into two for the purposes of data collection and analysis according to their resource base. This was based on the livelihood analytical tool that examines the five assets types (Loevinsohn *et al*, 2003)

- Resource rich households
- Resource poor households

This was done through facilitating discussions with some village elders as participants to determine who is considered rich or poor in the community by looking at the resources they have. The criteria was developed using the Wealth ranking PRA tool in both Malindi and Kilifi. It was done prior to the household interviews in Malindi while Kilifi was covered after Malindi district.

It was a very tough discussion where the criterion that was usually used to identify the resource rich and resource poor could not be applied any more. This old criterion was based on the type of roof for the houses to mean the rich have roofs made of corrugated iron sheets while the poor have makuti (coconut palms) or grass thatched roofs. But this time the criteria changed due to the adverse food insecurity. This means that the indicator for identifying the rich and the poor is very dynamic as a result of experienced shocks. Here, some of those with corrugated iron sheets roofed houses were considered resource poor. Households with assets like cattle, sheep, goats, donkeys, poultry and tree crops like coconuts, cashewnuts and mangoes only were no longer considered to be rich. Those that had the above combined with food (maize) in their stores and one or two members in formal employment were considered rich. Their basic needs including three quality meals a day were complemented by remitting finances home to support their household dependants.

¹⁸ Kilifi District has currently been subdivided into Bahari, Kaloleni and Ganze Districts. Shononeka is currently in Vitengeni Division, Ganze District.

Table 2.4. Criteria developed to determine resource rich and poor households

Rich	Poor
<ul style="list-style-type: none">• Corrugated iron sheets roofed houses• Mainly dairy cattle or goats, donkey and poultry• Tree crops like coconut, cashewnut and mango trees• Enough food (maize) in store or in the field almost ready for harvesting• With one or two household members in formal employment and are remitting finances	<ul style="list-style-type: none">• Makuti (coconut palms) or grass thatched roofs• No livestock or only local poultry • No tree crops or only a few cashewnuts trees • Usually maize yields supports HH for hardly two months (none in store, limited in field)• Without any household member on formal employment so solely depend on farming for food production

Source: Research report, 2009

It was very difficult to effectively target a homogeneously defined group called “household” because of the fact that the Mijikenda community leaves in big homesteads. Homesteads¹⁹ are actually extended families and within you find several units of nuclear families. Since singling out was not easy, a strategy was adopted to pick nuclear families that lived alone as much as possible. Where the appointments failed, efforts were made to pick out those households which even though they lived in a big homestead, they operated as single entities within the homestead. This was very challenging but made possible with the help of the village elders.

This criterion for resource rich and resource poor was applied in random selection of the respondents at the household level whereby a half of the respondents were resource rich and half resource poor households. These combined both men and female as respondents during the household interviews to provide facts about their households. Note that this sex criterion becomes important only when considering gender based information on ownership of assets, type of coping strategies and their constraints. This is because it does not necessarily represent male headed or female headed households. The two clusters (resource rich and resource poor households) were used in the selection of respondents and have eventually been applied although to data analysis. A total of 22 household interviews were conducted.

3.2 TOOLS AND DATA COLLECTION IMPLEMENTATION

A keen selection of the primary data collection tools was done in order to allow for triangulation of the information collected. Key informants’ interviews at both field and headquarter level, observations and secondary data tools were used to complement household interviews as follows.

3.2.1 Desk review of existing literature

An extensive literature review was collected that focused on the susceptibility to HIV and vulnerability to AIDS as well as the interface between Food security and HIV/AIDS. Internet

¹⁹ The head of the homestead alive or deceased may have a family composed of one or more wives and their children. The elder sons are also married and living in the same home making an intertwined network of households. These greatly differ from one to another.

sites were also visited to obtain specific data on the research issue from available papers. Reports from the government and organisational documents were used. Local news papers such as the Kenya Daily Nation, was also instrumental in providing information on the extent of the food security crisis situation that had created an alarm in the whole country hence inspiring the cabinet to develop an emergency action. All this data was instrumental straight from the research proposal development to the data analysis whereby the available literature was compared with the research findings in the context of this research.

3.2.2 Qualitative methods

Qualitative methods used are household and key informant interviews, FGD and observations. The household interviews took great care to respect confidentiality and all data was kept anonymous except for few informants who were quoted by their designation.

a) Household interviews

Household interviews were conducted through field visits. Field visits were conducted to Mkenge, Msabaha, Dabaso, Jimba in Malindi district and Shononeka in Kilifi district in the Coast province. These interviews used a semi-structured questionnaires (Refer to Annex 12) to explore the demographic characteristics; assets base; trend of food availability; ways in which households were coping with food insecurity; the constraints faced as well possible interventions. The household questionnaire was administered to the most knowledgeable member of the household who in most cases was the father or mother of the household. Interview informed consent was sort from the respondents prior to administering the questionnaires in each household. A total of 22 interviews were conducted in the two categories. These interviews served to cross-check and validate interpretations from the secondary data and to make clear some common facts and issues. With these basic purposes in mind, and given some that respondents' desired not to be quoted, individual interviews are not directly referenced in the report.

The use of closed questions in the semi-structured questionnaire made it easy to gather responses from the interviewees and assist in probing suggestions whenever they were stuck.

b) Focus Group Discussions (FGDs)

Focus Group Discussions were conducted in both Malindi and Kilifi districts where both male and female were involved (Refer to Annex 15, photograph 2).

The participants for the FGDs were randomly selected to combine men and female representatives from the two locations of Gede and Watamu in Malindi district. In Kilifi they all resided in the same location. A total of 8 FGDs (4 in Malindi and 4 in Kilifi district) were conducted, where the male and female jointly participated in the sessions apply the four tools. This tricky situation in both the two districts was as a result of having more female participants during the FGDs as compared to male participants (only 2 male participants in Malindi and 3 male participants in Kilifi). This is because some would promise to participate during the planning only not to turn up on the material day due to unavoidable household responsibilities. Even though this was a very big challenge in data extraction for gender specific information which may translate to biasness of information extracted during the analysis. Coincidentally, there was active participation of all sexes since the male were few so the female felt secured to air their views openly. They would at times clash at times complement each other when providing gender specific information. They participated throughout the entire sessions since the time was pre determined at the start of the sessions allowing for flexibility. This though was counteracted by making sure attention was given to

each gender during the discussions. For purposes of triangulation of results, the male respondents were specifically targeted as respondents during the household interviews. Another limitation with this tool was that it combined ideas of both the rich and the poor and yet critical issues of the rich and poor may have different aspects, perceptions and these may be very important for planning and developing interventions that will address food insecurity.

These discussions were facilitated making use of four Participatory Rural Appraisal (PRA) tools not only to collect information (UNAIDS and KIT, 2004) but also to discuss solutions as highlighted below (For details refer to Annex 13).

- i. **Seasonal calendar:** This tool was applied to show the changes in activities of the people during the different seasons in a given calendar year. This is used to gain insight of people's time spending, movements away and back and compare with food availability so as to identify the specific periods of risk.

Below is a combination of tools that were used to complement each other in facilitating participants to identify the risks of HIV infection through the adopted coping strategies.

- ii. **Appraisal of risk behaviour:** This tool was used to help participants identify different types of risky behaviour or conditions that may lead to risk behaviour predispose them to HIV infection. It was purposely selected to increase awareness that there are different risk behaviours and that many people are at risk to become infected with HIV. Solutions were also discussed to address the different risky behaviour and which people.
- iii. **Mapping of risk areas:** This tool was used to identify places, environments and analyse situations of risk for contracting HIV in the community and map them. The purpose of this tool was to identify where sexual risk behaviour takes place, where it is negotiated or people feel at risk of contracting HIV.
- iv. **Occupational risk:** This tool was used to compliment and to help participants to discover the risks for HIV infection of different people in different occupations.

c) Key informant interviews

The 5 key informants interviewed were conducted. The interviews were limited to district headquarters, and largely and largely the heads of the office (See Annex 14). They were strategically chosen because of their positions and their stake in food security responsiveness in the area of study. These provided information on: the coping strategies of the smallholder farmers in the study areas, influences for those decisions taken by the smallholder farmers, available safety nets within the community, current and possible interventions to help solve the problem of food insecurity currently facing the smallholder farmers (Refer to Annex 15).

d) Observations

Observation was mainly done for 'people watching' and 'situation watching' during field work. 'People watching' was where the interviewees and those around were observed for their state and condition. Whereas 'situation watching' involved observing the study area for the position and extent of food insecurity in relation to the study topic.

The observations were achieved in the homes during the questionnaire administration at household level; and cross-cutting the markets, trading centres and villages when moving

from one village to another (Refer to photographs in Annex 16). This was used to explore more on the extent food insecurity faced by the farm families and on the coping strategies of the smallholder farmers' households. Triangulation of information made it possible to validate what the respondents said and what is observed. Some clarifications were provided by the village elders where possible through question and answer.

Own experiences and that of others was also the basis used to describe the context of the problem so as to derive the problem statement and develop the semi-structured questionnaire and checklist to be used in data collection. This is also the basis of selection of the sample area and key informants.

3.3 DATA PROCESSING AND ANALYSIS

The data collected from the various methods applied in this research was recorded manually in tables using the Microsoft Excel spread sheet. The data was recorded based on the cluster criterion developed of the resource poor and resource rich households. The number of cases was plotted on the y – axis starting from the resource poor to the resource rich households. The different variables were plotted on the x- axis for ease of comparison. This was done daily after data collection so that a critical perspective of the process was developed throughout. This was essential in order to see whether I was on the right track or there was need to adjust the approach or method to enhance effectiveness. This idea of daily recordings was helpful to keep track on the numbers of the different clusters and gender of respondents in the household interviews. It was also helpful to adjust during the interviews with different key informants and the FGDs in order to extract required and confirm data.

Separate spreadsheets / tables were drawn for the various methods applied in this research where the plotting of the cases and variables was similar for ease of triangulation of information. The information recorded in the tables was processed in fractions and percentages of the total respondents for ease of analysis. The processing of data included a number of important steps to prepare the raw data for analysis. The initial steps in data processing included: editing the questionnaires, both in the field and back at home to rectify errors, prior to data entry. There was a complete double-data entry of all questionnaire responses to minimize error. The use of closed questions in the semi-structured questionnaire made it easy to have a representation by use of pie charts as well as tables in the form of bar chart or histogram depending on the variables being measured.

3.3.1 Triangulation of the results

The processed data derived from the household interviews was then complemented with the findings drawn from the FGDs, key respondents and observatios. This triangulation of the results was done to confirm the validity of information in order to draw an author's opinion that will contribute to elaborate ideas for discussion and analysis.

3.3.2 Tools for Data Analysis

The tools used for analyzing the data were as follows:

i. Livelihoods framework analytical tool

This tool has been useful in to focusing on household interactions through their livelihoods are affected by HIV/AIDS, and also the vice versa in an iterative cycle (IFPRI, 2006 and

Villarreal, n.d). The coping strategies were analysed using the livelihood framework (Ellis F, 2000) which begins with the identification of the coping strategies that increase susceptibility to HIV infection (Curry J, Wiegiers E, Garbero A, Stokes S and Hourihan J, 2006). Different strategies were analysed in terms of the extent of risks involved. According to Loevinsohn (2003) they were analysed both separately and how they interrelate with one another in increasing susceptibility to HIV infection of the smallholder farmers' households. As per Ellis (2000), the livelihood platform of assets was analysed according to access and their effects in the context of food insecurity. Strategies adapted thereafter are indicated to be composed of various forms and reflect effects.

ii. SWOT analysis tool

The factors that influence the decision of the farmers' household to adapt to certain coping strategies were analyzed using the SWOT analytic tool. The decision of the farmers' household to adapt to certain coping strategies were analyzed in relation to the demographic characteristics of the household using the Strengths and Weaknesses within. Environmental factors like culture, norms, routines, beliefs and stakeholder influences were also analyzed. These forces cannot take action but indirectly influence the decision to adopt a coping strategy and they create either Opportunities or pose as Threats to the households. The SWOT analysis provides information that is helpful in matching the household resources and capabilities to the competitive environment in which it operates. As such it is instrumental in the formulation and selection of a coping strategy.

These two tools were applied throughout the data analysis process while cross checking the data derived from the different methods and confirming with observation findings whenever possible in order to have the testimonies by different sources contribute to building an opinion for discussion. They contributed to elaborate ideas which are the basis for appropriate recommendations.

3.4 LIMITATIONS TO THE STUDY

- Shononeka is an insecure area so travelling to and from on several days to make appointments was cumbersome. Only two household interviews were conducted at Kilifi thereby not providing a very big comparison of household data. The key informant and 4 FGDs though captured a lot more information that was useful for discussion.
- Household interviews entailed revisiting several times in order to get information. Replacement was at times sort to exercise flexibility was exercised in rescheduling appointments as much as possible in Malindi district. This was time consuming. Financial constraint was also another challenge because trying to comb the area in order to get the targeted resource rich households meant spending more money too.
- The male and female respondents were identified by virtue of their gender and, do not represent male headed and female headed households. This affects the study because coping mechanisms slightly differ in the two different contexts where female headed households would be more vulnerable thus cope the worst.

CHAPTER 4: RESULTS AND DISCUSSION

4.1 INTRODUCTION

This chapter gives the facts of the household's representatives, opinion of the key informants respondents obtained through the interviews and participants views during the FGDs. The interview findings are triangulated with FGD and own observations and experiences. A discussion is also provided to analysis the situation using the theoretical framework applied. To analyse the situation the researcher uses the livelihood analysis tool.

4.2 SAMPLE PROFILE

Malindi district borders the Indian Ocean and was observed to have a diversified livelihoods while Kilifi district has a limited options. It was observed that the Kilifi site is characterised by low quality land and low population density since the households were scattered. Kilifi site had short scattered shrubs to support local goats. It is an area where people grow maize as a staple food, hot chillies for cash and a few oranges. From the FGDs, it was noted that these orange trees have water supplementation through irrigation by use of piped water. Most have them have over the period of dry spell perished. Malindi site is characterised by a dominance of maize production for food while tree crops such as coconut, mango and cashewnut for cash. This is presented in the table 4.1 below.

Table 4.1 Livelihoods per District

District	Livelihoods
Malindi	Coastal: Fishing; Formal employment in tourism sector related organisations; Agriculture for maize, cassava, cowpeas, <i>mchicha</i> ; Tree crops as coconut, cashewnuts, mangoes; Tourism, Livestock such as cattle, goats, poultry, bee keeping; Butterfly caterpillar rearing; Casual labour eg coconut felling, construction, weeding; Petty trade in old (<i>mitumba</i>) / new clothes, grocery; Piped water kiosk,
Kilifi	Hinterland: Goats rearing; Sale of firewood, charcoal; Piped water kiosk; Casual labour eg weeding; Food for work; Petty trade mainly in old (<i>mitumba</i>) clothes, grocery for basic commodities

Source: Research data, 2009

4.3 PARTICIPATION OUTCOMES OF RESPONDENTS AND FGDS

The respondents for the interviews targeted the most knowledgeable adult who coincidentally was the mother, father, widow or widower of the household.

Participation was 100% for the interviews measured from the households consenting to the household interview out of the total households covered. Vacant or abandoned households were excluded from the study and a replacement was sorted. For the FGDs it was derived from the total numbers of those who participated in the group discussions. Male participation in the FGDs was very low for male (hardly 10%) in the FGDs as compared to female, which was more than 90%. Key informants participation was good while observation was very interactive to clarify findings. This allowed for triangulation of derived data. Out of the 22

respondents interviewed, 50% were from resource poor and 50% were resource rich households. These combined both men and female respondents at the ratio of 1:1. The male and female respondents were identified by virtue of their gender and, do not represent male headed and female headed households. The two clusters as much as possible tried to cover all the five selected areas except Shononeka where it was difficult to get a resource rich household because of the earlier identified constraints. 11 of the household interview respondents' were male while 11 were female which represents 50% of each sex. The sample profile is presented in table 4.2 and 4.3 below.

Table 4.2: Profile of the household interview respondents by sex per household category

HH Category	Male respondents	Female respondents	Total No. of HH interviews
Poor	8	3	11
Rich	3	8	11
Total	11	11	22

Source: Research data, 2009

The table 4.2 above indicates that men interviewed were: resource 8 poor and 3 resource rich while the women interviewed were: resource 3 poor and 8 resource rich.

Table 4.3: Distribution of the household interviews per category per study area

Study area		No. of resource poor		No. of resource rich		Total No. of household interviews
		Men	Women	Men	Women	
District	Village					
Malindi	Mkenge	2	-	1	1	4
	Dabaso	-	-	-	3	3
	Jimba	4	1	-	2	7
	Msabaha	1	1	2	2	6
Kilifi	Shononeka	1	1	0		2
Totals		11		11		22

Source: Research data, 2009

It was not possible to have an equal distribution of interviews according to sex of the two categories because of the busy schedules of the smallholder farmers at this time of a terrible food crisis.

As per Table 4.4 below, out of those interviewed through the household questionnaire, 64% were married. 57% of those who were married were in the rich category. 18% of those interviewed were either widows or widowers. While the rest were either divorced or single as shown in the Table 4.4 below.

Table 4.4: Respondents' marital status per household category

HH Category	Married	Widow(er)	Divorced	Single	Total
Poor	6	3		2	11
Rich	8	1	2		11
Total	14	4	2	2	22

Source: Research data, 2009

Already even without going further to other indicators, from these findings it implies that those who are once in a union and later become single are more at risk of infection (KAIS, 2007). These are the widows/ widower, divorced and single respondents majority of whom are resource poor.

4.4 LIVELIHOOD ASSETS

Livelihoods strategies depend very much on the asset base of the household (Ellis, 2000; Loevinsohn and Gillespie, 2003). In order to analyse how the smallholder farmers households coping strategies therefore it is necessary to first understand their strengths and weakness in the assets and through the livelihood analytical framework be able to see the outcomes.

4.4.1 Human Assets

Education: Considering the education level of those interviewed, 41% had either not gone to school or only attained primary level of education as shown in table 4.5 below. All these were in the poor category. All the rich interviewed had attained either secondary or tertiary level of education. This implies that the resource poor have low skills and thus limited access to better livelihoods. In trying to diversify their income sources they are likely than not to be in a state of stress leading to distress sale of other assets and distress migration. The latter increases their risks and fuels the epidemic. Low education also implies less access to information (Bishop-Sambrook, 2004) even that of healthcare services hence low health status which combined with the low availability of food weakens the body's immune system. Malnutrition has been known to weaken the body's immune system (De Waal *et al*, 2003). A weakened individual if exposed to the virus, the chances are high than he will be infected.

Table 4.5: Highest Education level of respondent or member per household category

HH Category	Illiterate	Primary	Secondary	Tertiary	Total
Poor	2	7	2		11
Rich			5	6	11
Total	2	7	7	6	22

Source: Research data, 2009

Labour: The change in size of the respondents' households for the past five years was also asked so as to understand the trends. The current household size for both the resource poor and resource rich ranges from 2 to 18 members per household. The table 4.6 below gives their segregation.

Table 4.6: Changes in Demographic characteristics per category of household for the last 5 years

INDICATOR	Resource Poor		Resource Rich	
	Current	Past 5 yrs	Current	Past 5 yrs
Average Size per HH	4	10	4	4
Average No of Adult male per HH	1	2	1	1
Average No of Adult female per HH	1	1	1	1
Average No of Child < 15 per HH	2	7	2	2
Average No of Children not in school	1	-	-	-

Source: Research data, 2009

The table 4.6 above indicates that in the past, the resource poor households had an average size of 10 members per household as compared to 4 members per household currently. This is a dramatic decline which is supported by other authors (Bishop-Sambrook, 2004, Holden, 2004, Barnett *et al* 2006) as resulting from migration, dissolution, early marriages and death. Children, when they grow up, and are subjected to stress, they tend to move out to look for livelihood options (ibid) as seen from the decrease in average number of children per household of the resource poor. If this is the case, then mobility predisposes the resource poor more to HIV infection since they are likely to be infected once exposed through multiple partners (Bishop-Sambrook, 2004, De Waal *et al*, 2003). Dissolution or early marriages could also have caused the decline and all these are associated to risk of infection (ibid). The resource rich households did not show any changes in the average household size and this is supported by Ellis (2000) that resource rich households have secured livelihoods.

The resource poor household had more labour in the past than what they have today and the resource poor are less educated than the resource rich. This implies that as a result of the food crisis in these times of food crisis, the of labour in the household does not matter if they have no skill and opportunities to diversify incomes hence large resource poor household do not easily manage the food crisis. This finding is in line with Bishop-Sambrook (2004), Holden (2004) and Barnett *et al* (2006). What matters is 'quality of labour' and not 'quantity of labour' since households with high quality are less likely to be at risk of infection than those with quantity labour.

4.4.2 Natural Assets

Land : The change in acreage of land was provided as follows.

The total acreage as presented in Table 4.7 below currently ranges from 1 to 12 acres with 8 out of 11 of the rich households having 12 acres each. This makes up 36% of the total respondents which are all resource rich. Currently 9 out 11 resource poor respondents' households have their land ranging between 1 – 5 acres. This is 41% of the total respondents which are all resource poor.

There were changes that have occurred where the majority of the resource poor had bigger pieces of land than what they have today. And the majority of the resource rich had smaller pieces than they have currently. The reason behind this was confirmed in the FGD to be because of the resource poor were selling pieces of their land while some resource riche were taking advantage to exploit them. The sales were done in distress so as to obtain money to buy food. This was in turn making them more destitute and not able to neither manage nor recover from the food crisis. As observed by Bishop-Sambrook (2004) and Holden (2006), these are risk factors for predisposing the resource poor households to HIV infection.

Table 4.7: Changes in Acreage of Land per household category in the past 5 years

Land in Acres per HH	No of Resource Poor HH		No of Resource Rich HH	
	Current	Past 5 yrs	Current	Past 5 yrs
1-5 acres	9	-	-	3
6-10 acres	2	5	3	4
11-12 acres		7	8	5

Source: Research data, 2009

The respondents said that land was either owned by the male, female or homestead depending on the household characteristics. The ownership of land per household category is shown in the Table 4.8 below.

Table 4.8: Land ownership per household category

HH category	Ownership of Total Land			Total
	Man	Woman	Homestead	
Poor	5	-	6	11
Rich	7	2	2	11
Total	12	2	8	22

Source: Research data, 2009

According to the table 4.8 above, 55% of the land ownership was by men whereas only 9% was owned by women. This depicts a gender inequality in land ownership resulting in women having less control over this productive asset. Ownership is directly related to the control of assets (Holden, 2006) and this implies that men have more control over land than women. The control is even worse where the ownership of the land is by the homestead whose ownership was 36% of the total respondents. The FGD agreed that this type of asset ownership is one of the constraints factors to better livelihood strategies. This is because a homestead like an extended family is made up of several households. Homestead owned assets belong to everyone so no single member has control over them. Management of such homestead assets becomes very difficult than that of household assets. 27% of the resource poor households have the land being owned by the homestead and this implies that they are more at risk of engaging in other non-farm activities for food and income thus fuelling the epidemic.

The ownership of the land under cultivation according to the two household categories was also asked so as to confirm the control of production since it is linked to food availability. This was necessary because of the existence of homestead ownership. According to the table below, 73% of the resource rich households have land under cultivation owned by female while 73% of the resource poor households have land under cultivation owned by male as shown in the Table 4.9 below.

Table 4.9: Ownership of land only under cultivation per household category

HH category	Ownership of Cultivated Land			Total
	Male	Female	Homestead	
Poor	8	-	3	11
Rich	2	8	1	11
Total	10	8	4	22

Source: Research data, 2009

This finding implies that in majority of the resource poor households, food production and availability is very difficult because of the limited control of land on which to produce food. On the other hand, in the resource rich households, women control cultivatable land and food production is within their control. The control of this productive asset strengthens their asset base since with inputs they could depend on on-farm activities for incomes. This greatly lowers the likelihood of risk to infection.

The reason for the change in total land size and land under cultivation was given as selling by 8 households in the poor category (for a reduction) and, buying and inheritance by 4 and 2 households respectively (for an increase).

Livestock: The respondents were asked on the ownership and changes in numbers of the cattle (table 4.10), goats (table 4.11) and poultry (table 4.12) in their households and the findings are presented.

Note that from Table 4.10 below, there were more female than male who owned cattle. This was explained to be because of a project known as Heifer Project International (HPI) that provides heifers to women as a response to food security.

Table 4.10: Ownership of cattle and the change in numbers over the past 5 years

Ownership	No of HH		No of cattle	No of HH with cattle per category			
				Current		Past	
				Rich	Poor	Rich	Poor
None	Rich	Poor	None	5	10	7	2
	5	10	1	1	1	1	3
Male	2	-	2	3	-	1	3
			3				2
Female	4	1	5			1	1
			7	2	-	1	
Total	22		Total	22		22	

Source: Research data, 2009

This implies that women in the resource rich households had more control over this asset but this is mainly found with the resource rich category which translates to better nutrition (more proteins from milk) for the members (De Waal, 2003). Good nutrition builds body immunity and reduces the risk of infection. The resource rich women also had cattle as a source of income hence reducing their risk in engaging to other risky options as compared with the resource poor women. Only one resource poor household owned cattle, which implies that due to limited milk, the protein needs of the household members are not met. If there are PLWHA in the household then they will progress faster into AIDS from weakened body immunity (Sambrook, 2004, De Waal, 2003)

There were changes as seen from the Table 4.10 above. The numbers of cattle heads owned by the households has reduced. In the past five years, only 40% of the total households did not own cattle whereas the number has increased to 68% currently. 18% of the resource poor did not own cattle 5 years ago while it is 91% currently. The reduction was explained to be because of selling to obtain income so as to buy food. In the FGD the sale was explained to be a distress sale because they got meagre incomes out of it. The incomes obtained does is not enough to cater for the food requirement and other basic needs of the households- distress sell (Holden , 2006). They in turn get involved into risky activities like sell of coconut wine for women in the local clubs which were described as risky environments. In the clubs, the customers bought coconut wine and sex as well increasing the chances of risk (Sambrook, 2004).

The ownership and changes in numbers of the goats in the past 5 years for the 22 households interviewed is shown in table 4.11 below.

Table 4.11: Ownership of goats and the change in numbers over the past 5 years

Ownership	No of HH		No of goats	No of HH with goats per category			
				Current		Past	
	Rich	Poor		Rich	Poor	Rich	Poor
			2	3	2	-	-
Male	6	1	5	1	1	1	4
Female	3	2	7	1	-	2	3
None	2	8	10	4	-	-	2
Total	22		15			1	-
			16			1	-
			None	2	8	6	2
			Total	22		22	

Source: Research data, 2009

According to the Table 4.11 above, there is gender inequality in the ownership of goat in that more men own goats (7 men, 5 women). 45% of the (10 out of 22) households do not have any goats currently as compared to 36% households in the past. In the past, 18% of the resource poor did not have any heads of goats. This number has increased currently to 73% and this could be explained the distress sell of goats to cope with the food insecurity situation. This has been noted by Bishop-Sambrook (2004) and Holden (2006) as a coping strategy. The resource poor sold the goats at very low prices (Ksh 500 per goat) which could not sustain their food requirement. As argued by Rugalema (1999) they are not able to manage the crisis. This implies that they will the problem of malnutrition which lowers the body's immune system. If a PLWHA then the progression to manifest the opportunistic illness is faster. It also predisposes the resource poor household members to opt to diversify into risky occupations and engage in risky behaviors in order to survive. This has been known to fuel the epidemic as observed by Barnett *et al* (2006) and Bishop-Sambrook (2004).

The ownership and changes in numbers of the poultry in the past 5 years for the 22 households interviewed is shown in table 4.12 below.

Table 4.12: Ownership of poultry and the change in numbers over the past 5 years

Ownership	No of HH		No of Poultry	No of HH with Poultry per category			
				Current		Past	
	Rich	Poor		Rich	Poor	Rich	Poor
			None	2	7	6	2
None	2	7	3- 10	5	3	-	6
Male	1	-	11- 20	2	1	2	3
Female	8	4	50	2	-		
Total	22		100			3	-
			Total	22		22	

Source: Research data, 2009

According to Table 4.12 above, 55% (12 out of 22) were households where female owned poultry as compared to 5% (1 out of 22) men. This gives an indication that poultry is a woman associated type of livestock. This gives them control over the enterprise hence are likely to be strengthened if they continue to multiply. Approximately a similar figure of 36% of the households, do not own poultry now and in the past. Even though an equal number of households had poultry currently and in the past 5 years the numbers have greatly reduced from 100 to 50 as highest number of birds. 64% (14 out of 22) of the respondents said that the poultry had been sold out. This implies that this is a type of livestock that is easily sold by the woman to cope with food shortages. But the income obtained from the sales is very low (FGD said it is Ksh 50 per poultry) this time (Ksh 250 was price before) hence they do not manage to meet their food requirement. This is likely to pose a risk in fuelling the epidemic since they may engage in risky occupations in order to earn incomes. Considering that the resource poor are more disadvantaged in terms of education and skills they become more at risk.

Cash crops: Concerning the tree crops, only 2 female out of all the 22 respondents said that they own some tree crops. This was confirmed during the FGDs whereby it was unanimously said that perennial crops (tree crops) are owned by the male. The numbers of these tree crops has generally decreased over the past 5 years due to drought/pests/diseases (8 out of 22); felling for timber especially coconut and mango (6 out of 22); and clearing to make room for annual crops (8 out of 22). This implies that the importance of tree crops which is presumed a safety net (cash crops) was declining. The smallholder farmers then have to use more farm inputs in order to increase the production of these trees. Since the resource poor have limited finances they cannot keep apace. They end up diversifying to other risky livelihood options in order to obtain income which fuels the epidemic.

4.4.3 Financial Assets

Incomes: The ways of obtaining income to meet basic needs in the household are presented in the table below. Note that some respondents had multiple answers.

According to table 4.13 below, 29% respondents' households do obtain incomes from the sale of agricultural produce. The agricultural produce as observed was an assortment of food and cash crops as well as livestock sales.

Table 4.13: Ways of obtaining income per category

HH Category	Ways of obtaining income by HHs				Total
	Sale of agricultural produce	Formal employment (teaching, tourism,	Informal employment (casual labour, petty trade, transport business, beach boys and tour guides ,fishing, sale of firewood and charcoal, water kiosk)	Other sources eg From relatives and friends (borrow, remittances, pension)	
Poor	4		5	2	11
Rich	5	6	5	4	20
Total	9	6	10	6	31

Source: Research data, 2009

The rich have an upper hand in benefiting from this source of income as observed from the figures of cash crops and livestock above. This could be explained by the fact that the resource poor have less tree crops: coconut, cashewnut and mango trees than the resource rich. The FGD also mentioned that there were poor marketing strategies for these crops translating to low incomes. A greater percentage of 32% (10 out of 31) depend on informal employment. These were elaborated and observed to be casual labour in weeding, coconut felling; petty trade in groceries, old (locally known as *mitumba*) and new clothes; transport business of goods such as construction blocks, agricultural produce and people using motorcycles (locally known as *bajaji*); beach boys and tour guides; fishing and fish mongering; sale of firewood and charcoal; and water kiosk among others. The informal activities are in this case non-farm activities and mainly took place away from home. According to the findings of (Sambrook, 2004) was observed to increase the chances of risk to HIV infection due to the fact being away from might lead to having multiple sexual partners. The resource rich have more livelihood options (20 out of 31) for income generation than the resource poor. 19% (6 out of 31 answers) have are either themselves or members of their households in the formal employment sectors. These were the resource rich and they were employed in the teaching and tourism sectors. This implies that they have reliable monthly incomes from the wages to meet their basic needs hence are less likely to engage in risky livelihoods strategies. The resource poor were not in any formal employment which implies that they are forced by hunger to diversify in order to earn a living hence putting them at risk. It was earlier observed that the resource poor are less educated so they have less capacity to be employed in the formal sectors.

“*Sina namna*” implying ‘I have no options’. “*na sidima kukeresi nikathariza na nafunalaha*” (yet I cannot sit back and wait while we are hungry) was the answer provided by one respondent in the resource poor category whose name has been withheld. This respondent shows some despair. She could easily find herself in risky environments like the local cubs to find solace there hence putting herself into risk of HIV infection.

In the FGD it was noted that the resource poor have lost trust in the society because of continued borrowing without repaying. They was also explained that when one leaves her house to borrow from the neighbor, they actually meet outside with the neighbor coming to borrow from her as well. Society networks are a form of safety net (Bishop-Sambrook, 2004) so the poor cannot receive much of the required support. This is still a privilege that the resource poor are enjoying even in the face of the food crisis.

The ways of spending household incomes was also explored and the findings presented IN Table 4.14 below.

Table 4.14: Ways of spending the earned household income per category

HH Category	Ways of spending of HH incomes				
	Purchase food	Support of relatives	Shelter construction, buying assets,	Leisure/ Others (alcohol drinking, Weddings)	School fees,
Poor	11	-	-	2	-
Rich	4	4	2	2	4
Total	16	4	2	4	

Source: Research data, 2009

Note: Some respondents had multiple answers.

Out of the 16 households that spend most of the incomes earned, mainly on purchasing food, 11 are resource poor households. This makes up 50% of the total households interviewed. 18% of the totals (4 out of 22) are rich households that extend support to relatives and friends. In the FGDs this support is only availed to those who are in a position to repay back knocking out the resource poor from this support. It was elaborated that the resource poor accumulated debts they could not pay to an extent that the poor women would offer their bodies to cancel the debts. This is an activity that fuels the epidemic. In this time of food crisis some of the resource rich (2 out of 11) could afford to buy more assets so as to strengthen their asset base. Only the rich could afford to pay the school fees hence building upon human asset for the future livelihood security. Coincidentally, both the rich and the poor do spend money on leisure. For the resource poor it was noted during the FGDs that they would go into drinking not because of leisure but because of stress yet the household was lavishing in hunger at home. The burden was weighing on the woman in the house who had to struggle to feed the children when the husband was away drinking. Drinking was also explained to be a cause of family breakdown due to double stress (hunger and sexual violence). All these are factors that fuel the epidemic.

This was confirmed during the FGDs where the participants unanimously consented that *“Kama huna kitu kabisa utalipa karo na kuezeka nyumba au utamsaidia mwenzako na nini na jamii yako ina njaa?”* implying that ‘if you have nothing at all, how can you pay the school fees, repair your house, or support others you there is no food in your household?’. From the respondent’s testimony, it can be observed that the poor are now just looking at themselves while not considering others hence disrupting the social networks that acted as safety nets. Without support the poor easy gets in situations of risk to infection in trying to survive.

4.4.4 Physical Assets

Radio and bicycle: 16 out of 22 households had either a radio or a bicycle or both. Out of these 14 said that they were owned by the male. 6 resource poor respondents currently did not have them at all. They explained that in the past five years, they had one or both but they had been sold out. This was at low price, also referred to as ‘distress sales’ by many authors.

The sale of these assets at low prices because of hunger does not provide enough incomes to meet the households food requirement. Hence this is just a survival measure yet malnutrition may set in due to lack of access to enough food. Malnutrition in the long run weakens the body’s immunity, a factor that fuels the epidemic.

All the resource rich respondents complained of an increased theft of assets like goats, poultry and household goods in the night. In the FGDs, in both sites, it was noted that there were many youths who were unemployed. Some had completed advanced level of education (Kenya Certificate of Secondary Education) while some had even proceeded to tertiary colleges. These were idle in the community hence resolving to ‘steal in distress’ and ‘sell in distress when they have ‘migrated in distress’ and not earned enough incomes. The youth are at more risk of infection because of double stress of unemployment which predisposes them to develop risky behaviour, visit risky environments and be in risky situations and occupations. This fuels the epidemic.

4.4.5 Social assets

These are not tangible assets hence can easily be ignored yet they act as safety nets for the households in times of crisis. The resource poor households lack common trusts in the intra-household and community levels as seen from the reduced support and social ties in support of Moser (1998) cited in Ellis (2000). In the FGD it was observed that there exists some groups like Jeza Ulole Women Group at Shononeka, Mkenge FFS at Mkenge, some family networks, friends affiliations. These are an investment for the future for the smallholder farmers as seen noted by Berry (1989, 1993) in Ellis (2000) because of the time devoted to nurture them. Swift (1998) in Ellis (2000) emphasises that these social assets observed in this study area are in form of 'horizontal relationships' because they voluntary.

From the above analysis, it is clear that the resource poor respondents' households have limited resources in terms of low education; less land owned which they have less control of in terms of cultivation and food production; less tree crops, livestock, poor housing, no physical items like radio and bicycle; with no saving culture; less chances of receiving credit and remittances; disrupted social networks. Having limited assets undermines their ability to buy consistent and sufficient quantities of food (WHO, n.d). By not being able to access foods, the resource poor are likely to have malnutrition which weakens the body. Because of this outcome, they are likely to get infected once exposed to the virus in their daily survival strategies. The resource rich, because of their adequate resource have more secured livelihoods so chances of risk to infection.

4.5 FOOD AND LIVELIHOODS INSECURITY SITUATION

4.5.1 Introduction

A meal here was observed to mainly constitute '*ugali*' which is the staple food cooked from maize flour and a side accompaniment locally known as '*kitoweo*'. A good '*kitoweo*' is usually a stew of vegetables (such as mchicha, mnavu, sukuma wiki, spinach, cabbage) and a meat (fish, beef, mutton, pork, chicken, prawns). Food insecurity in this report therefore, is the "situation when food (maize in the context of Coastal Kenya) is not physical available and cannot be economically accessed in order to meets the dietary needs and preferences of the households.

4.5.2 The sources of food (maize) consumed

The sources of food consumed by the household were presented as follows.

The household interviews revealed that the most of the food consumed by the household is mainly purchased. Out of the 22 respondents interviewed, only one resource rich depended entirely on own harvest of maize as the main source of food. There was none in the category of the poor. 82% of those interviewed solely purchased most of their food. This confirms with the FGD that maize harvested does not sustain a household for the whole year. This is detailed in Table 4.15 below. The observations and the FGDs revealed that even the food in the market has become very expensive making it almost impossible to for the resource poor households to purchase food daily. Observations from the market revealed that a packet of maize flour costs Ksh 80.00. This implies that most of the resource poor households cannot achieve enough quantities and quality of food daily. And in line with De Waal *et al* (2003) and Bishop-Sambrook (2004) this may result into malnutrition for the resource poor households. Malnutrition as observed by De Waal *et al* (2003) weakens the body immunity which is a factor that fuels the AIDS epidemic they lack very reliable sources of food.

Table 4.15: Sources of food for the household

HH Category	Source of most food		
	Own harvest	Purchased	Food Aid
Poor		8	3
Rich	1	10	
Total	1	18	3

Source: Research data, 2009

4.5.3 The number of meals

A question was asked for the respondents to comment about the trend of meals. All stated that there has been a decreasing trend of the food. On the reason for declining trend, all the 22 respondents pointed out that there was a downward trend of meals in the household was decreasing in the past 5 years.

The number of meals consumed by the respondents' household per day is represented in the Table 4.16 below.

Table 4.16: The number of meals per day per household category

HH Category	HH frequencies of No. of meals per day			
	At times no meal	At times one	At times two	Three
Poor	3	3	8*	-
Rich	-	-	3	9
Total	3	3	11	9

Source: Research data, 2009

Note: More than one answer was provided by the respondents.

Star (*) represents that some were not two meals as such but some '*ugali*' left over's carried from dinner to breakfast the following day.

The '*kitoweo*' would mainly be vegetables for the resource poor while the resource rich would afford to have a variation of meats. The resource rich were better off in terms of having more meals a day because they had a better variety of meals than the resource poor households. All those who said that they usually take three meals a day were the resource rich. The resource poor said at times none (were 3), at least one (were 3) and at times two (were 8) meals per day. Some of those that had at times two meals a day elaborated further by saying that the second meal was '*ugali*' left-over locally known as '*kiporo*' carried from previous dinner to breakfast the following day for lack of '*kitoweo*' (relish or a spiced side dish which is an accompaniment to food, e.g. pickled or fresh vegetables). Through the FGDS 'taking one meal a day' was locally referred to as '*luhamba lumwenga*' meaning 'one big knife'. This was because the one meal that was consumed was assumed to be in large quantities and was expected to daily requirement of calories. Yet for the resource poor, this meal was not a balanced diet since it lacked essential nutrients in the right quantity and quality. The '*luhamba lumwenga*' is a factor that fuels the epidemic since it may result into malnutrition that weakens the body's immune system.

To confirm with these findings, on the signs of food insecurity, the media houses in Kenya popularly featured the situation. They featured incidences where households cope with periods of food insecurity by reducing the number of meals, switching diets, and reducing the

number of household members eating at home. The livestock base is often depleted as households struggle to raise cash to buy food.

4.5.4 Trend of meals

This trend of meals for the poor households could result in malnutrition. Their nutritional status declines and household members become increasingly susceptible to illnesses. Malnutrition is a key factor that quickens the progression from HIV infection to full blown AIDS because it weakens the body's immune system (Holden, 2004; Bishop-Sambrook, 2004; Barnett *et al*, 2006, De Waal *et al*, 2003).

According to Table 4.17 below 36% (8 out of 22) of the respondents explained that it was because of drought. This is in line with the ROK (2005) report that shows a downward agricultural performance as a result of drought. These were all resource rich respondents. While 18% (4 out of 22) were the resource poor who said it was due to lack of money to buy food respectively. This indicated in the table below.

Table 4.17: Reason for decreasing trend of meals per household category

HH Category	Reason for decrease					Total
	Drought	Seasonality	Lack of money	Labour shortage due to death/illness	other causes eg Theft, poor soils	
Poor			4	5	2	11
Rich	8	3				11
Total	8	3	4	5	2	22

Source: Research data, 2009

4.5.5 Food production across the year

Food production was applied as a co-efficient for food availability. The respondent's household's food production across the year is indicated in the Table 4.18 below. Maize, cowpeas and cassava were selected because they are annual crops that constitute food for the smallholder farmers.

The food production was grouped into 1- 3 months, 4- 6 months and more than 6 months in a calendar year according to the durations of food availability provided by the respondents. The food production assumes that food produced is readily available and accessible to be consumed within those months. Table 4.18 below shows how different food crops are distributed.

Table 4.18: Food production across the year per household category

HH Category	No of HH producing food across the year per type of crop							
	Maize		Cowpeas		Cassava		Others	
	1-3 M	4-6M	1-3 M	4-6M	1-3 M	4-6M	1-3 M	4-6M
Poor	11		1		2			
Rich	7	5	3	4	4	2	3	1
Total	17	5	4	4	6	2	3	1

Source: Research data, 2009

Maize: According to table 4.18 above, 100% (all the 22) of the respondents' households produce maize for food. 100% of the resource poor respondents have maize as food for only 1 – 3 months only in a calendar year (Wekesa *et al*, (2003). This implies that maize is consistently available for consumption by the resource poor in the right quantities (WHO, n.d) in only three months in a calendar year. This confirms that food availability is a problem mainly to the resource poor households. That explains why they have to buy from the market to top up for the deficit. Because food in the market is more expensive it implies that the resource poor have a low daily nutrient intake leading to malnutrition.

The rest of the year, the resource poor have to look for alternative means in order to access this essential food commodity. As a result of this they end up in coping strategies that put them in risk situations, environments, behavior and finally it becomes a migratory occupation (Barnett *et al*, 2006, Misati *et al*, 2007) for survival because as life must continue (Ellis.2000).

When the resource poor become undernourished, De Waal *et al* (2003) in the 'new variant famine' explains that they are likely to be infected once exposed.

Cowpeas and Cassava: Except for cowpeas, all the other food crops have a similarity in the findings. Cassava, cowpeas and the other food crops are not very popular with the resource poor who only prefer to grow maize for food. Cassava is a crop that acts as safety net since if grown would do better with low rainfall and inputs as compared to maize (Wekesa *et al*, (2003). Yet it not much effort is put to grow it. It is a cheap source of energy that is very essential for the body to be strong. This implies that CDA has to take account of the preferential crop (maize) as well as promote cassava to supplement food in the nine months when maize (food) is not available.

By considering these two sections, the resource poor are not able to consistently access food in the right quantities and quality because of limited asset base. They also cannot produce enough quantities of food as a co-efficient of food availability. These two pillars of food security by virtue of being limited may increase the likelihood of the resource poor being infected with HIV once exposed (WHO, n.d; De Waal *et al*, 2003). Combining limited access and availability of food, the resource poor are forced to adopt coping strategies in order to survive (Rugalema *et al*, 1999). The question here is asked whether they are really able to cope (Rugalema *et al*, 1999) with the food insecurity or the strategies are undermining their wellbeing (Chambers *et al*, 2007) thereby fuelling the epidemic . This is expounded in the next section.

4.6 COPING STRATEGIES

Information for the households coping strategies in months of food deficit was gathered through a process of 'household unravelling' and 'community unravelling'. Households gave facts of what they did while the FGDs who represent views of the community situation.

4.6.1 The Coping Strategies

Table 4.19: Coping strategies per household category

HH Category	No of HH utilising the Coping Strategy																					
	Food Aid		Remittances from family member		Remittances from non family member		Borrow Money		Reduce meals		Sold or trade assets		S. Child drop out		Migrate for food or employment		Commercial sex work		Forced early marriage		HH dissolution	
	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P	C	P
Total Poor	3	-	3	1	1	6	3	10	11	4	8	4	10	3	4	3	4	-	3	-	5	-
Total Rich	-	-	9	4	4	4	4	2	4	-	-	-	-	-	2	-	-	-	-	-	-	-
Totals	3	-	12	5	5	10	7	12	15	4	8	4	10	3	6	3	4	-	3	-	5	-

Source: Research data, 2009

Where C – Current number of households
P – Number of households in the past 5 years.

Note: Some respondents had multiple answers

Table 4.19 above, shows that 3 resource poor, out of 22 respondents, currently rely on food aid. Remittances from friends have reduced over the past five years while remittances from family members are on the rise. There was an indication from the table above that there was more remittances from non family members in the past than it is today for the resource poor household. This could be confirmed by what one of the resource poor respondent was quoted saying above that she had nothing to support others. The social cohesion in form of support has been disrupted due to the current food crisis. This is in line with other researches that in times of crisis the social networks which once acted as safety nets are disrupted (Ellis, 2000; Loevinsohn, 2003; Bishop-Sambrook, 2004) and people no longer support one another as it was before the crisis. Everyone struggles alone to survive with very little assistance from the society. This increases the chances of risky behavior among the society since the social norms are broken. 100% of the resource poor respondent's households have reduced meals. As observed earlier, they are also the ones that do not produce enough quantity of food. With limited social support and limited remittances, they end up in distress migration increasing the likelihood of engaging in risky situations, behaviors and occupations. Here these increase the chances of infection. On the other hand, the resource rich have strong networks for remittances from family members, friends and borrowings to keep in a position to manage the crisis (ibid). Since they have a strong asset base, they are better placed to access food in required quality and quantities. They are likely to have better livelihood options (Ellis, 2000) hence are less likely to be exposed to the risky situations and occupations.

During the FGDs, probing elaborated that meals were as follows:

- (i) reducing the amount of food eaten at meal time,
- (ii) reducing number of meals taken per day to one 'luhamba lumwenga' or two,

- (iii) reducing access to food by certain household members especially the children and,
- (iv) Skipping entire day without eating.

Only 4 resource rich households were affected by meal reduction. Through further probing in fruits such as mangoes in Malindi sites (unripe since the production was low) and wild food in Kilifi site (long list of local names was provided) were also consumed. This was elaborated in the FGDs. The poor category of households have resulted in selling their assets to obtain money to buy food, taking children out of school for lack of school fees and forced early marriages for young girls. Migrating in search of employment/food was adopted by both household categories. In the FGDs they commented that there was an increase of commercial sex work (locally referred to as '*umalaya*' which means prostitution). This increases the chances of risk to infection hence increasing the risk of being exposed to the virus.

A key informant from MOA said "*Also prostitution is on the rise*" and this confirms the above that there could be high chances of unprotected casual sex, gender violence, multiple partners and similar high-risk activities. Unprotected sex could be as result of lack of women empowerment, through consent under force to intercourse in order to ensure financial support or repay favours (Holden, 2004).

One respondent, name withheld, said "*Mimi ni **gungu**, **mudzini** kahakalika kwa sababu ya **nzala** be **nathathapa** kila siku ili nipate **wari**. Hatha **umalaya** nadima kuhenda na sigoha **vithio** kaheri.*" (I am a widow, I cannot stay at home because we are hungry so I have to struggle everyday in order to get food and since I am despairing I don't care about being a prostitute even if I will contract an STI). This widow has despaired by now and is at the destitute state after having passed through the reversible and irreversible stages already (Holden, 2004; Muller, 2005) in the aim of making food available and accessible (Mutangandura et al, 1999)

During the FGDs it was noted that the resource poor are in despair because they cannot manage, while the resource rich are pro-actively responding to the crisis. This is in line with Rugalema (1999) where he argues that coping is misinterpreted yet 'they don't really manage' the crisis. This is as a result of several underlying factors as per the findings above. The resource poor have low levels of education, less skill for better livelihood opportunities. They therefore are forced to move out 'distress migration' to urban areas in search of food or income. This predisposes them to risk of HIV infection due to the fact that they cannot manage and are stressed already. They also have less asset base and indulge in 'distress sale' of resources to make up for the short-term need (buy food) and not worry about the future. The money received is not enough to buy enough food for the household a state 'referred to as income poverty (Chambers, 2007) so they end up having reduced meals. This has been observed above to lead to malnutrition that weakens the body's immune system. And in the case one is already affected then there is a fast manifestation of opportunistic infestations signifying AIDS.

In Malindi sites some primary schools such as Msabaha primary school had a school feeding programme where the children would gather during lunch time. The discussions revealed that even those from other schools that were not included in the school feeding programme would come for the free meal. It was observed that children scrambled for the free meals during service implying that the ration was not enough. In Kilifi site a programme known as 'food for work' by World Vision Kenya was in place. Beneficiaries had to dig out dams for water harvesting and be provided with food per month. Only a few of the resource poor households benefited from it. Through the FGDs, one beneficiary revealed that it involved hard labour yet the pay was minimal- 1 litre of cooking oil and some few kilos of maize seeds that cannot last a household for a week.

In the FGDs the following was provided to be the risk behaviour, environments and occupational risks were also provided. Factors that lead to high susceptibility to HIV infection for the smallholder farmers either directly or indirectly are:

- Poor food security leading to malnutrition that weaken the body's immune system
- High illiteracy levels for most of them increases chances of risky livelihood options
- Lack of employment for the illiterate
- Misuse of *malu* a traditional and cultural practice.
- Low incomes makes the purchase food difficult hence stress leading to distress sell of assets
- Not using condoms because of lack of money for the resource poor
- Low diversification of income sources causes women to engage in commercial sex work that puts them at risk
- Poor marketing systems of perennials (coconut, cashewnut and, mango) grown for cash yet exploitation by buyers makes them earn less incomes and opting to sell in Taveta market is also a risky activity.
- Lack of access to productive land – mixed cropping food crops with perennial crops in less fertile land or travelling for long distances to Madunguni in search of fertile land for food production.
- Tourism along the beach hotels influences young men (Beach boys in search of tourists) and women into commercial sex work (young ladies in search of tourists) for income
- High mobility- rural to urban, rural to rural migration in search of livelihood opportunities there
- Local palm wine clubs distributed in the countryside where coconut wine is sold and this is a risky environment for having sexual encounters.

The migratory occupations adopted here are related to those that fuel the epidemic. They were confirmed with the seasonal calendar in the FGD.

Seasonal Calendar: The seasonal calendar tool was applied to see the relationship of the different activities of the people during different seasons and food availability so as to identify the periods of risks came up with the following (Refer to Annex 14). It was noted that during months of *kusi* (May – July) there was increased mobility, youth being idle since they are been laid off jobs so may easily engage in risky occupations and behaviours because of stress and peer pressure. These activities coincide with the time of hunger. During *kusi*, the women participants were free to say that men became sexually active. Men agreed to this explain that this was so as to obtain a solace from the stresses carried along this period. If this is that case, distress migration fuels the epidemic because of the high chances of getting multiple partners in the new residences. The resource poor men here are in much more stress because the strategies are not working out for them. The migratory occupations adopted, cause a mix of rural low prevalence and urban high prevalence populations to fuel the spread of AIDS. Even though they are aware of the risks of infection involved, they still end up in this promiscuous behaviour to reduce stress while they get infected. The resource rich on the other hand have reduced risks.

The 'migratory people' are known as 'bridging populations' since they may engage in HIV-risky behaviour in high-risk environments away from home and then carry the virus back into their homes and the community. Their sexual activities 'bridge' high and low prevalence communities. The lack of social cohesion in this setting may encourage people to do things which they would not do if they were at home. Several of these lifestyle activities are

associated with the generation of cash which also increases the opportunity for new sexual liaisons.

Susceptibility to HIV infection, can be summarised to stem from complex, interacting causes that may include the mobility of many smallholder farmers, the length of time spent away from home, their daily access to cash income in the context of poverty, their demographic profile, availability of commercial sex in market locations, the sub cultures of risk taking and hyper-masculine behaviour such as alcohol among sub groups. These factors are violent on the resource poor farming households hence increasing their risks. (Misati, *et al* 2007). As a result of coping to address food insecurity there were some effects on the assets base.

4.6.2 Livelihood Assets Effects

The presence of shocks such as food insecurity, as in the case with this study undermines the objective of utilising the assets to strengthen their wellbeing. This according to the findings of this study has brought out a clear distinction between the resource poor and the resource rich. This has been compiled from the coping strategies in response to food insecurity by the two household categories. The resource poor smallholder farmers are already in a state that is beyond their control since all the asset types are limited yet with the setting in of food insecurity 'life has to continue but not always as usual'. They end up affecting their assets in the following ways:

Natural Assets Effects

- Distress sale of land
- Gender inequalities in land ownership and control of cultivatable land
- There is decreased biodiversity especially at the Kilifi site, due to increased sale of fuel wood and charcoal for incomes.
- Reduction in soil fertility and lack of productive land.
- Seasonality.

Financial assets Effects

- Low on farm incomes due to low production
- Low agricultural sales
- Exhausting of credit sources due to increased borrowing with no repayments.
- Lack of savings.
- Migratory activities increased so as to find off – farm sources of income.
- Resource rich respondents have more reliable sources of incomes from formal employment. Resource rich are in a position to obtain private income in form of credit and remittances from household members and friends since they have connectedness.
- The resource poor have less financial connectedness at the intra-household level because of lack of trust.
- This may result in increased pledges for future crops in order to get support from the resource poor.

Human assets Effects

- Food insecurity for the poor has resulted to children dropping out of school due to lack of school fees.
- Increased lack of knowledge among the poor household members.

- This leads to lack of skills and skill development opportunities which jeopardises future livelihood of the resource poor.

Physical assets Effects

- Distress sale of physical assets
- Housing condition deteriorating
- Disposal of household goods such as bicycles that is essential in transportation
- Disposal of household goods such as and radio that is essential in information update
- These effects in the long run are felt in the community as well. The nature of these effects depend on how the majority of household are affected by the food insecurity.

Social assets Effects

- The horizontal relationship with extended family members that characterised the rural setting has been disrupted.
 - Lack of support
 - Low observation of societal norms
 - These effects in the long run are felt in the community as well. The nature of these effects depends on how the majority of household are affected by the food insecurity.
 - The effects on these assets results in other effects.
 - The resource poor smallholder farmers are already in a state that is beyond their control due to underlying factors.
- Food insecurity undermines the wellbeing of the resource poor and their households.

According to the findings of this study there is a clear distinction between the resource poor and the resource rich in terms of how they cope and what happens to their asset base. Depletion of the already limited asset base is common for the resource poor and yet this does not meet the food needs. Lack of availability and accessibility of food undermine the wellbeing of the resource poor households. This increases their chances of infection once exposed to the virus. But the fact remains that there are many risky behaviour, situations and environments that they engage in trying to survive. They do engage in them when consciously aware of the risk of getting infected but still go ahead in order to survive today. The resource rich on the other hand are in a better position to manage the crisis.

4.6.3 Conditions in Adopting a Coping Strategy

The major conditions in adopting a coping strategy in the last 5 years were given as presented in the table below because they could not manage the crisis as argued by Rugalema (1999).

The major conditions were provided as limited finances (18 out of 22), bad weather conditions (17 out of 22), and lack of knowledge and skills (16 out of 22) as shown in Table 4.20 below. This is line with the fact that there is high illiteracy and low skills for better livelihood opportunities. Bad weather leading to drought coupled with other factors like inadequate infrastructures was the cause of the food insecurity situation.

Table 4.20: Major constraints in adopting a coping strategy in the last 5 years

Conditions	Number of HHs out of the total number of respondents
Labour shortage due to illness of	8

member/s	
Labour shortage due to death of member/s	2
Limited finances	18
Distress migration of HH members thus reducing labour at household level	3
Lack of knowledge and skills by HH members	16
Crop/L. stock pests and diseases	14
Poor soil fertility	13
Bad weather conditions	17
Lack of productive land	11

Source: Research data, 2009

The coping strategies adapted by the resource poor households are geared for his wellbeing hence are observed to touch with all sectors of life. This therefore calls for a multi-sectoral response that will address not only food production but also strengthen their asset base as well.

4.7 EXISTING SAFETY NETS

The safety nets that exist in the study area were also examined. They include what exists in the community as well the external safety nets. To the study the community safety nets are opportunities for CDA to build up on and the external safety nets are opportunities for CDA to partner with in responding to food insecurity. They are provide as below:

FGDs

Social networks even though most of them have since been disrupted.

Forests and bio-diversity

The MOA key informant

- MOA noted that there is a lead agency , Red Cross Society that is appointed in the district to distribute food aid through an approach called Community Based Food Targeting.
- Food for Assets is a programme that is to be promoted by MOA so that smallholder farmers dig Zay pits communally for an individual farmer and are given assets instead.
- MOA has a programme known as Njaa marufuku that aims at a) providing food aid to pilot primary schools and building their capacities to sustain the programme through start up of IGAs and nutrition monitoring; b) grants to farmer groups at Ksh 120,000 to 150,000 per group as seed money for agricultural enterprises; c) private sector initiatives (CBO).
- Kilimo Biashara loans by Equity Bank in partnership with the government and AGRA for smallholder farmers in farming enterprises.
- Development of market centers like Gede and Msabaha
- NAIAP Ceareal banaking initiatives for seed banking of the farmers that were provided with farm inputs (seeds and fertilizers) through a voucher system.
- DASS
- NALEP

Ukunda Youth Polytechnic

- The development of skills in cocowood for furniture

- Prospects of coconut sector enterprises with the establishment of KCDA

Malindi MP

- Existence of the CDF that is currently embarking on a Rural electrification programme at Jimba, Mbaraka Chembe, and other areas.

4.8 AREAS FOR INTERVENTIONS

The areas of intervention that could be done to help improve the food security situation was provided as upgrading agricultural technologies, micro-credit and food aid as shown in Table 4.21 below.

Table 4.21: Major area for intervening in the food situation

Type of intervention	Number of HH recommending
Food Aid	1
Micro-credit	3
Upgrade agricultural technologies	18
Totals	22

Source: Research report, 2009

From Table 4.21 above the following can be drawn.

Upgrading Agricultural Technologies: 82% (18 out of 22) of the respondents suggested that upgrading of the agricultural technologies would greatly improve the food situation. This implies that the smallholder farmers have acknowledged the food crisis root causes consider the improvement of agricultural technologies as the most important intervention. This would greatly increase food production hence increase the food availability and accessibility. This would greatly reduce cases of malnutrition. This also would help reducing the risky options that the household take in the times of hunger. It would also promote on-farm activities (Ellis, 2000) while reducing off-farm activities.

The MOA officer proposed:

- The promotion of orphaned crops such as cassava, through seed bulking, cow peas, sorghum and indigenous vegetables such as *mchicha* and *mnavu*.
- The promotion of water harvesting technologies like Zay-pits for annuals (eg maize) and V – bands for perennials.
- The promotion of small scale irrigation along the river and using water from sunken boreholes if maintenance cost can be met.
- Promotion of tree crops
- A Go Down construction for cereal banking at a place called Adu is in the pipeline.

CDA officer proposed:

- The bio-diversity project to combine wild fruit trees and annual or perennial crops in agro-forestry
- The promotion of attitude change for the farmers through training
- Gender and HIV trainings

Micro-credit. Second important intervention provided was Micro-credit (14% of respondents). It has been observed by (Pronyk *et al*, 2005) that micro-credit is a potentially powerful tool for development. This would improve access to credit and encourage a saving culture which strengthens the financial asset base of the resource poor. In so doing they can be able to engage in better livelihood opportunities. Micro-credit that will benefit the resource poor is to have low interest rates, and allow for group collateral since most resource poor do not own any forms of tangible security as a result of distress sales. This though should be combined with capacity building for entrepreneurial skills to allow for income generating activities. As Pronyk *et al* (2005) noted, this would greatly improve household and business management as well as increasing productivity and smoothening income flows. With increased income food is easy to access because they have the purchase power. Micro-credit if well planned to provide both income and empowerment for the resource poor, is a way of strengthening their asset base hence they are increase resilience (ability to recover faster) if combined with the upgrading of agricultural technologies (Pronyk *et al*, 2005). In line with this intervention, the Malindi MP proposed rural electrification which would see an emergence of income generating activities that can be supported thorough the micro-credit scheme. CDF has a plan for four rural electrification projects already with Jimba and Mbaraka-chembe included. This will open up the areas for other opportunities as well.

Food Aid: The other option of interventions provided was food aid. Food aid is thought to be a short-term measure in times of food crisis (WHO, n.d; FAO, 2000). This would be a remedy to cause a faster resilience especially for the resource poor households. But this as Bishop-Sambrook (2004) noted, it can easily be misused if proper targeting is not done.

In concluding the above section, this process of interviewing key informants has acted as a self assessment for CDA. CDA now can see whether it is already performing a good practice, whether they might improve, what gaps exists and how they can be overcome through a process of sharing with other actors, interactions and bridging the gap between the organisations and the farm families.

4.9 RESULTS SUMMARIZED

The first and second questions can be consolidating from the above findings as described below. The coping strategies adopted and the influential factors that are observed to be more susceptible to HIV infection as per the category of household are:

- Resource poor men and women together with their households because of the fact that have limited assets (human, financial, physical, natural, social). This makes them have less access to food and lead to malnutrition which unconsciously increases the risk of infection once exposed to the virus. Resource poor women are more at risk than men.
- Resource poor men and women because of low education and limited opportunities to diversify livelihood activities into non-farm employment so they consciously end up in risky situations, environments and occupations.
- Resource poor men and women because they cannot obtain adequate support from intra-household relations for lack of trust when they over borrow without repaying. Hence social networks have been broken this time of food crisis causing stress. These migrate in distress and consciously engage in multiple partners.
- Resource poor men and women because of limited access to external support (remittances, food for work).

- Both resource poor and rich in rural areas because of weak infrastructure in the rural areas which constrains many aspects of rural livelihood diversification. This makes: agricultural production low; rural living very labour intensive, requiring household members to travel considerable distances often on foot on poor roads to collect water and fuel wood where women are subject to rape; poor roads make marketing of agricultural produce difficult; lack of electricity reduces income generation opportunities. They are very much aware of the risks involved but are victims of circumstances beyond their control with the rich being able to manage and reduce their risks.

In answering the second and third questions developed, *both the resource rich and the resource poor* smallholder farmers are *consciously aware of the direct risk of HIV infection*. Limited information was derived to assess whether they are aware of the indirect risk of HIV infection though from the coping strategies adopted the resource rich have acknowledged and are pro-actively escaping the indirect risks due to the fact that they have assets to manage the food crisis. The resource poor on the other hand are unconsciously aware of indirect risk of HIV infection from the survival coping strategies they engage to meet the immediate needs- food. In order to respond to food security as well as reduce susceptibility to HIV infection it is necessary for CDA to target the resource poor of smallholder farmers and their households in the study areas to improve food production and availability while strengthening their livelihoods assets in the long term. This can be done through partnerships with other organisations in various sectors while taking into consideration the 'do no harm' principle so as to reduce undesired effects. These are best implemented in partnership with other stakeholders like MOA, KARI, NACC, CDF, Ukunda Polytechnic, Red Cross Society of Kenya, Donors and Equity Bank for sustainability.

CHAPTER FIVE: CONCLUSION AND RECOMMENDATIONS

This chapter draws conclusion from the findings of the study and recommendations are suggested to guide CDA who are the implementers in the direction which could lead to appropriately respond to food insecurity. This also takes consideration the organisational goals of improved food production, food security, employment opportunities, incomes and wealth creation through sustainable use of the unique resources in the area of jurisdiction.

5.1 CONCLUSION

The household's consistent goal is to improve the well-being of its members with first priority being food and survive given the available household resources. The presence of food insecurity impacts on this objective for the resource poor smallholder farmer's households who adopt coping strategies that undermine their wellbeing. This is because they have limited resource base and low livelihood options to manage (Rugalema, 1999). The food crisis is creating new patterns of poverty and livelihood insecurity, referred to as coping strategies in this study, which exacerbate HIV infections. On the other hand the resource rich can cope better because of their strong asset base and better livelihood options hence have low risks to HIV infection.

In order to come up with an appropriate multi-sectoral response for resource poor smallholder farmers to address food insecurity and reduce the likelihood for fuelling the AIDS epidemic, it is necessary to analyse the Strengths, Weaknesses, Opportunities and Threats. The SWOT analytical framework has been applied as shown in Table 5.1 below to analyse the above scenario so as to lead to concrete conclusion and recommendations. This has been applied in relation to the coping strategies and the organisation.

Table 5.1 SWOT Analysis

Internal Operation		External Operation	
Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> -Urgent responses that can be accomplished timely to fasten resilience of the farmer such as food aid. - Responses that address the factors that have been identified to increase the risk of HIV infection -Livelihood improvement responses like Agricultural technology improvement and assets strengthening that take into 	<ul style="list-style-type: none"> - Responses that will increase the risk of infection for CDA staff and farmers – Stigmatising responses and actions that result in discrimination - Responses that have impact negatively on environmental situation so as to decrease farming enterprises -Responses make the farmers more dependent on food aid - Responses that will 	<ul style="list-style-type: none"> - MOA collaboration in the FFS -Farmers are eager to increase their harvest in order to make food readily available and accessible - The Ministry of Regional Development has signed an MOU to promote public –private sector partnerships in projects Supportive government policy on food security, rural development, rural electrification -CDF projects to promote infrastructure 	<ul style="list-style-type: none"> -Lack of good collaboration for organisations with common interests -Limited government allocations for development projects. - NACC lacking clear programmes that aim to improve indirect AIDS work -Limited donor interest in the country could result from the post-election violence

consideration a realistic targeting criteria in the context of the Coastal culture -Responses that are likely to be carried out with current resources (material, financial, and human) -Responses that “do no harm” to the smallholder farmers - Responses that are well-suited with the customs and traditions	make people switch from important productive activities	in the rural areas -Well defined rainy and dry seasons for different on-farm and off- farm activities - The development of Market centres in rural areas by Municipal council and MOA.	
---	---	--	--

Source: Research Data, 2009.

The appropriate way to respond to food security faced by the resource poor small holder farmers implies taking into consideration the above factors mentioned in the SWOT analysis in order to achieve a multi – sectoral response.

Food security in the study area in terms of availability and access as clearly illustrated in the foregoing discussion has far reaching consequences in fuelling the AIDS epidemic. Many smallholder farmers’ households are struggling to survive in the name of making a living but they cannot really manage. The resource poor households thus face a triple threat to food security as they are confronted with low levels of assets base and capabilities for effective wellbeing. It is clear that food insecurity consequences are coming from multiple fronts and therefore require a multi-sectoral response. Presenting the outputs of the SWOT in a matrix (Annex 17) allows for a comparison across competing options so as to choose appropriate multi – sectoral responses that:

- Pursue opportunities that are good and fit to the resource poor smallholder farmers’ households strengths (Their Strengths –Opportunities responses)
- Identify ways that the resource poor smallholder farmers’ households can use their strengths to reduce their vulnerability to external threats (Their Strengths -Threats responses)
- Overcome weaknesses to pursue opportunities for the resource poor smallholder farmers’ households (The Weaknesses -Opportunity responses).
- Establish a defensive plan to prevent the resource poor smallholder farmers’ household weaknesses from making it highly susceptible to external threats (The Weaknesses - Threats responses)

The appropriate responses are:

- (i) Strategies aimed at improving the resource poor smallholder farmers’ household food production so as to make food readily available while taking into consideration the ‘do no harm’ principle. Food availability is a pillar of food security and food production is

considered as a factor of food security. With enough food they will have good health hence less likely to get infected once exposed to the virus.

- (ii) Strategies aimed at raising the incomes of resource poor smallholder farmers' household while taking into consideration the 'do no harm' principle. Increasing incomes will strengthen the asset base of the resource poor smallholder farmers to enable them to readily access food. Food accessibility is pillar of food security. With alternative sources of incomes they will not engage in risky behaviour or occupations that would otherwise increase their likelihood to infection.

These responses mentioned above are best implemented in partnership with other stakeholders like MOA, KARI, NACC, CDF, Ukunda Polytechnic, Red Cross Society of Kenya, Donors and Equity Bank for sustainability.

The main research question for this study was "How can CDA effectively respond to food insecurity facing smallholder farmers' households so as to reduce their chances of being involved in risky coping strategies thereby indirectly reducing their susceptibility to HIV infection? This question has been successfully answered and the research objective has been met and this leads to the recommendations presented below.

5.2 RECOMMENDATIONS TO COAST DEVELOPMENT AUTHORITY

Based on the above conclusion, this section provides the good practices in multi-sectoral response to food insecurity with an aim of reducing risks to HIV infection for the rural smallholder farmers. Below are various recommendations of good practices proposed to respond to the food insecurity burden for the rural smallholder farmers with an aim of reducing risks to HIV infection. The responses should aim to address these areas specified below, keeping in mind the "do no harm" principle by having respect for human rights, prevention of stigma and discrimination as well as addressing the existing gender-specific needs and gaps.

THE PROPOSED RESPONSES

- i. Strategies aimed at improving smallholder farmers household food security (food security is considered as a factor of food production)**

Rationale: Strengthening the household agricultural production ability will make food readily available and accessible to the members. It will also improve the nutrition security and strengthen the body's immune system which reduces risks of infection. This will increase agricultural produce as a future security if stored or sale of the excess will improve on on-farm income activities. This would reduce on migration to urban areas to find alternative livelihoods to supplement income while taking into consideration the 'Do no harm' principle.

Activities:

- Targeting farmer groups appropriately through group profiling preventing stigma and discrimination of the resource poor households.
- Improving the agricultural technology delivery while reducing barriers to access by the resource poor households and promote equity
- Partnerships and multi-sectoral collaborations which ensure programmes minimize the risk of new infections through HIV/AIDS mainstreaming
- Strengthening practitioners research on interactions between other sectors and HIV/AIDS

- Improving household nutrition security through training and supplementary feeding for the malnourished whose immune system has been compromised
- Gender empowerment and HIV/ AIDS training to promote building morals within the community so as to prevent harm.

(ii) Strategies aimed at raising smallholder farmers household incomes

Rationale: Raising household incomes implies strengthening the asset base and building back resilience of the rural smallholder farmers. Increase in incomes strengthens the households' safety nets since it improves other assets as well: human, physical, natural and social hence improving the wellbeing of the household. This prevents the distress sale of assets.

Activities:

- Identification of micro-credit partners with conditions favourable to the rural resource poor smallholder farmers to reducing barriers to access
- Instilling a saving culture in the farmers and encourage accumulation of assets
- Capacity building in household and business management
- Loan disbursement and monitoring of repayments system put in place

5.3 AREAS FOR FURTHER RESEARCH

This section provides recommendations for future studies and these include:

- Feasibility study: Towards Food security and HIV/AIDS response
- The Coconut and HIV/AIDS: Towards a food and livelihood security response.
- The FFS and HIV/AIDS: Towards enhancing technology adoption.

6 REFERENCES

- Barany M, Hammett A.L, Sene A and Amichev B, (2001). Nontimber Forest Benefits and HIV/AIDS in Sub-Saharan Africa. December 2001 • Journal of Forestry. Available at <http://www.woodscience.vt.edu/news/ForestryandAIDSinAfrica.pdf>. Accessed on 18/08/2009.
- Barnett T and Whiteside A, (2006). AIDS in the Twenty-first century: *Disease and Globalization*. Macmillan, Great Britain.
- Barnett T and Topouzis D, (n.d). FAO AND HIV/AIDS, Towards a food and livelihoods security based strategic response, Rome; FAO,2003 in Bishop-Sambrook, (2004). Available at http://www.fao.org/sd/dim_pel/docs/pel_050103dl_en.pdf
- Care USA, (n.d). NGO Code of good practice. Available at: www.hivcode.org. Accessed on 06/04/09. (Article on: Self- Assessment Checklist: Mainstreaming HIV).
- Chambers R, (2007). Poverty Research: Methodologies, mindsets and multidimensionality. Working paper 293. Institute of Development Studies. England.
- Curry J, Wiegiers E, Garbero A, Stokes S and Hourihan J, (2006). Gender, HIV/ AIDS and Rural livelihoods; Micro-level investigations in three African countries. Research paper No. 2006/110. UNU-WIDER
- De Waal A and Whiteside A, (2003) New variant famine: AIDS and food crisis in southern Africa. THE LANCET • Vol 362 • October 11, 2003 Available at: www.thelancet.com. Accessed on 18th August 2009.
- ECA. (2006). "Mitigating the impact of HIV/AIDS on smallholder agriculture, food security and rural livelihoods in Southern Africa: *Challenges and action plan*" Economic Commission for Africa.
- EPOS Health consultants. (2004). "Impact of HIV/AIDS on Smallholder Farmers' Economy in Kenya". A consultancy report commissioned by the Ministries of Agriculture and Livestock Development.
- Ekaas S, (2003). HIV/AIDS and agriculture; Impacts and responses. Case studies from Namibia, Uganda and Zambia. IP.
- Ellis, F (2000). Rural livelihoods and Diversity in developing countries. Oxford university press, New York. (Bk on:Ch 2: Framework for livelihood analysis; Ch 3,4,5,6,7- determinants of livelihood diversification, poverty and income distribution, agriculture, sustainability, gender..; Research methodology – Ch 9 & 10: Case study in rural Tanzania).
- FAO. 1999. HIV/AIDS and the commercial agricultural sector of Kenya – impact, vulnerability, susceptibility and coping strategies, by G. Rugalema with S. Weigang and J. Mbwika. FAO/UNDP.
- FAO, (2000). Food and Agriculture Organization of the United Nations. HIV/AIDS: a threat to food security and rural development, Rome.

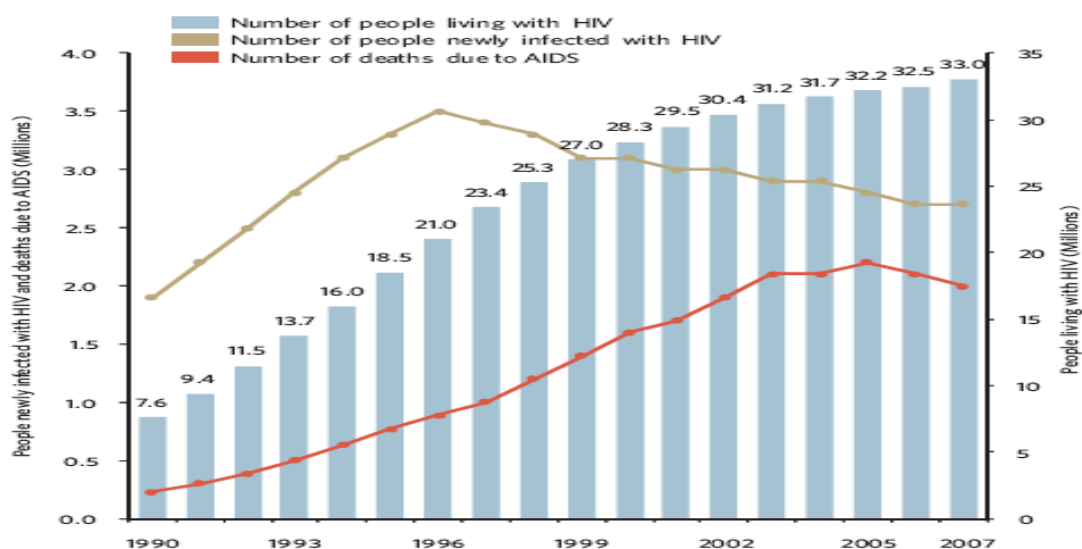
- Fournier A.M, and Carmicheal C, (1998). 'Socio-economic influences on transmission of Human Immunodeficiency Virus infection: Hidden risk,' *Arch Fam Med* 7 (3):214-217
- Gillespie S, Kadiyala S, Greener, (2007). Is poverty or Wealth driving HIV transmission?: HIV, livelihoods, food and nutrition security findings from RENEWAL research, 200-2008.
- Gillespie S and Haddad L, (n.d). Food security as a response to AIDS
- Gillespie S, (2006). "Agriculture and HIV/AIDS" in Corinna Hawkes and Marie T. Ruel eds *Understanding the links between agriculture and health for food, agriculture, and the environment: Agriculture and HIV/AIDS*. IFRI Publication.
- Gillespie S and Kadiyala S, (2005). "HIV/AIDS and Food and Nutrition Security: From Evidence to Action", International Food Policy Research Institute. Food Policy Review 7. Washington, DC: International Food Policy Research Institute.
- Gillies P, Tolley K. and Wolsenholme J, (1996). Is AIDS a disease of poverty? *AIDS Care*, 8(3): 351-363.
- Hadjipateras A, (2006). Addressing stigma in implementing HIV/AIDS workplace policy: The ACORD experience in Uganda. Praxis Paper No. 21. INTRAC
- Chartier M, (2002). HIV/AIDS and human rights: Promoting human rights through the ILO Code of Practice on HIV/AIDS and the world of work. Geneva.
- Hemrich G and Topouzis D, (2000). Multi-sectoral responses to HIV/AIDS: Constraints and Opportunities for Technical Co-operation. *Journal of International Development*, 2000, pp 85-99. Rome Italy.
- Hilhorst T, Liere M, Ode A and Koning K, (2006). Impact of AIDS on rural livelihoods in Benue state, Nigeria. *Journal for Social aspects of HIV/AIDS*. Vol 3 May 2006.
- Holden S, (2002). AIDS on the agenda of development. Oxfam.
- Hoden S, (2004). Mainstreaming HIV/AIDS in Development and Humanitarian Programmes. Oxfam GB, UK.
- IFPRI, (2006). Aids, poverty, and hunger challenges and responses. IFPRI Publications, Food Policy Statement Number 43, JULY 2006. Available at <http://www.ifpri.org/pubs/fps/ps43.pdf> Accessed on 27th Dec 2008
- James R, (2005). Building organizational resilience to HIV/AIDS. Implications for capacity building. Praxis Paper No. 4. INTRAC.
- James R and Katundu B, (2006). Counting the organizational cost of HIV/AIDS to civil society organizations: Pilot research study, Malawi. Praxis Paper No. 11. INTRAC
- James R and Cabungo, (2005). Building capacity to mainstream HIV/AIDS internally: Reflecting on Cabungo's experiences with NGO'S in Malawi. Praxis Paper No. 13. INTRAC
- Loevinsohn M and Gillespie S, (2003). HIV/AIDS, Food Security, and Rural Livelihoods: Understanding and Responding. IFPRI, September, 2003.

- Loevinsohn M, (2008). Innovation in agriculture and NRM in communities confronting HIV/AIDS: A review of international experience. Applied Ecology Associates, Wageningen, Netherlands.
- Lundberg M, Over M and Mujinja P, (2000). 'Sources of Financial Assistance for Households suffering an Adult Death in Kagera, Tanzania', The South African Journal of Economics 68, pp. 947-984..... cited in Muller T, 2005.
- Misati R.N.A, Ombwori F.M, Onsomu E.N, Oyugi L.N and Wasala W.O, (2007). "Impact of HIV/AIDS on Fisheries Sector: A case of Lake Victoria Region in Nyanza Province, Kenya". A Codestria/UAP report.
- Muller T, (2004). HIV/AIDS and Agriculture in Sub-Saharan Africa. AWLAE Series No. 1. Wageningen Academic Publishers, The Netherlands. (Bk on: Impact on farming systems, agricultural practices and rural livelihoods)
- Muller T, (2005a). HIV/AIDS, gender and rural livelihoods in Sub-Saharan Africa. AWLAE Series No. 2. Wageningen Academic Publishers, Wageningen, The Netherlands. (Bk on: Gender specific, intensified and imposed constraints for food and livelihood security in rural settings)
- Muller T, (2005b). HIV/AIDS and Human development in Sub-Saharan Africa. AWLAE Series No. 3. Wageningen Academic Publishers, The Netherlands. (Bk on: Impact mitigation through agricultural interventions)
- Mutangadura G, Mukurazita D and Jackson H, (1999). A review of household and community coping responses to the HIV/AIDS epidemic in the rural areas of sub-Saharan Africa, UNAIDS Best Practice Paper, 1999
- Mutangadura G, (2000). Household Welfare Impacts of Mortality of Adult Females in Zimbabwe: Implications for Policy and Programme Development. Paper presented at the AIDS and Economics Symposium organized by the IAEC Network, Durban, July 2000.
- Ndirangu L and Kimalu P, (2004). The Effects of HIV/Aids on Agricultural Production and Poverty in Kenya. African Association of Agricultural Economists. Proceedings of the Inaugural Symposium, 6 to 8 December 2004, Grand Regency Hotel, Nairobi, Kenya *Shaping the Future of African Agriculture for Development: The Role of Social Scientists*.
- O'Donnell M, (2004). Food Security, Livelihoods and HIV/AIDS. A guide to linkages, Measurements and Programming Implications. London: Save the Children UK..... cited in Muller T, 2005
- Rau, (2006). Too Poor to be Sick: Linkages between Agriculture and Health. FAO, Rome.
- ROK, (2001). Republic of Kenya, Coast Development Authority Act 449.
- ROK, (2004). Republic of Kenya, Coast Development Authority Strategic plan. Ministry of Regional Development Authorities, Kenya.
- ROK, (2005a). Republic of Kenya, The Kenya National HIV/AIDS Strategic plan, 2005/6 -2009/10, A call to action. Office of the president. NACC. Kenya.
- ROK, (2005b). Republic of Kenya, National HIV/AIDS monitoring and evaluation framework, NACC.

- ROK, (2005c). Republic of Kenya, Strategy for Revitalising Agriculture, 2004 -2014. Ministry of Agriculture, Ministry of Livestock, Ministry of Co-operative Development and Marketing.
- ROK, (2005/2006). Republic of Kenya, Kenya National Bureau of Statistics: *Kenya Integrated Budget Household Survey 2005/2006, Basic Report*
- ROK, (2006). Republic of Kenya, Ministry of Agriculture Annual report, 2005: In Coast Development Authority Annual report.
- ROK, (2007). Republic of Kenya, Vision 2030: *A competitive and prosperous nation*. NESC. July 2007, Kenya.
- ROK, (2008). Republic of Kenya, FACTS AND FIGURES on Health Related Indicators, Ministry of Health, Kenya. 2008.
- ROK, (2008). NASCOP. National AIDS and STI Control Programme, Ministry of Health, Kenya. July 2008. *Kenya AIDS Indicator Survey 2007: Preliminary Report*. Nairobi, Kenya.
- Rugalema, G (1999) 'Coping or struggling? A journey into the impact of HIV/AIDS on rural livelihood in Southern Africa', unpublished paper.
- Topouzis D, (1994) Uganda: *The Socio-economic Impact of HIV-AIDS on Rural Families with Particular Emphasis on Rural Youth*, Paper prepared for the UN Food and Agricultural Organization, Rome.
- Topouzis D, (1999). The Implications of HIV/AIDS for Household Food Security in Africa.
- UNAIDS, (1999). A review of household and community responses to the HIV/AIDS epidemic in the rural areas of Sub-Saharan Africa, UNAIDS, Geneva, Switzerland
- UNAIDS, (2004) "Support to Mainstreaming AIDS in Development," UNAIDS Secretariat Strategy Note and Action Framework, 2004-2005. United Nations programme for HIV/AIDS.
- UNAIDS and KIT, (2004). Techniques and practices for local responses to HIV/AIDS. Joint United Nations Programme on HIV/AIDS –KIT Publishers, Amsterdam, The Netherlands.
- Verheijen J and Minde I (2007), Agricultural Innovations: A Potential Tool to HIV Mitigation. Journal of SAT Agricultural Research 5(1).
- Verschuren P and Doorewaard H, (2005). Designing a Research Project. LEMMA, Utrecht.
- Villarreal M, (n.d). Measuring impacts of HIV/AIDS on rural livelihoods and food security. FAO.
- WHO, (n.d). World Health Organisation Programmes and projects, Trade foreign policy, diplomacy and health. Available at: <http://www.who.int/trade/glossary/story028/en/>. Accessed on 21st August 2009
- Wekesa E, Mwangi W, Verkuijl H, Danda K and De Groote H, (2003). Adoption of Maize Production Technologies in the Coastal Lowlands of Kenya, October 2003. Available at: http://www.cimmyt.org/english/docs/eco_wpaper/coastalKenya.pdf. Accessed on 28th Aug 2009
- Yamano T and Jayne T.S, (2004). "Measuring the impacts of prime-age adult death on rural households in Kenya." *World Development* 32(1):91-119.

7 ANNEXES

Annex 1: Evolution of AIDS 1990-2007: number of people living with HIV, people newly infected with HIV and number of AIDS deaths in the world (millions)



Source: UNAIDS/WHO (2008)

Annex 2: Summary of the global HIV/AIDS figures by 2007

	<i>Estimate</i>	<i>Range</i>
<i>Number of people living with HIV in 2007</i>		
Total	33.0 million	[30.0–36.0 million]
Adults (15-49)	30.8 million	[28.2–34.0 million]
Women	15.5 million	[14.2–16.9 million]
Children under 15 years	2.0 million	[1.9–2.3 million]
<i>People newly infected with HIV in 2007</i>		
Total	2.7 million	[2.2–3.2 million]
Adults	1.7 million	[1.6–2.1 million]
Children under 15 years	370 000	[330 000–410 000]
<i>AIDS deaths (in 2007)</i>		
Total	2.0 million	[1.8–2.3 million]
Adults	1.8 million	[1.6–2.1 million]
Children under 15 years	270 000	[250 000–290 000]
Deaths since the epidemic began	25 million	[32 million]
Total n°. of orphans since the epidemic began	15 million	
People in need of ARTs (in developing and transitional countries):	<i>Estimated:</i> 9.7 million	<i>In treatment:</i> 2.99 million (31%)

Source: UNAIDS (2008). Report on the global HIV/AIDS epidemic 2008

Annex 3: The Global Response to HIV and AIDS

Global efforts to combat HIV and AIDS began in the first decade of the epidemic (a). Along with endorsement of a number of policies, programmes and campaigns, numerous international funds have been set up to address global health challenges:

- In 1987 the WHO's Global Programme on AIDS was launched, closed down in 1996 and replaced by the Joint UN Programme on HIV/AIDS (UNAIDS), with a mandate to lead an expanded, coordinated, multi-sectoral global response. UNAIDS brings together the efforts and resources of ten United Nations system agencies (b).
- In 2000, all nations agreed to global HIV targets to halt and begin to reverse the spread of HIV by 2015, as part of the UN Millennium Development Goals (MDGs). In the same year the World Bank launched its Multi-Country AIDS Programme (MAP).
- In 2001, a United Nations General Assembly Special Session on HIV/AIDS (UNGASS) was convened and the Global Fund to Fight AIDS, Tuberculosis and Malaria was created with aim to tackle prevention, treatment and care programmes and in broad development initiatives, receiving funds from diverse donors (countries, organisations/foundations (c) and individuals).
- In 2003, UNAIDS and WHO launched the "3 by 5" initiative, a global target to provide life-prolonging antiretroviral treatment (ART) for three million people living with HIV/AIDS in low and middle-income countries by the end of 2005; renewed in 2006 by the "All by 2010" initiative, the Universal Access Campaign to reach universal treatment access by 2010, including provision of prevention and care.

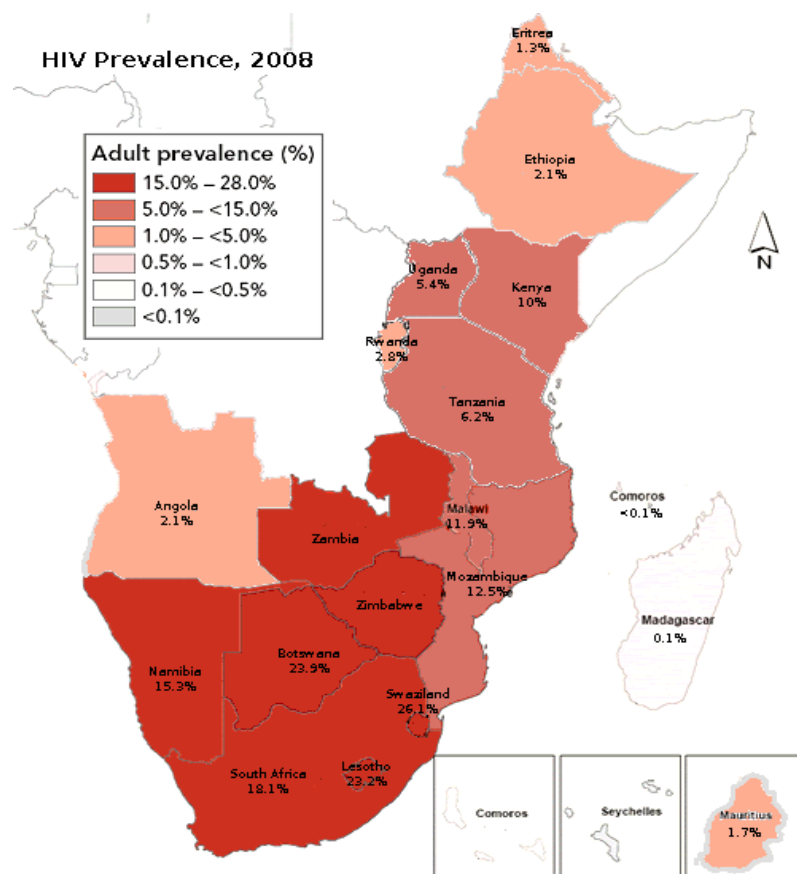
(a) *U.S. global health policy (2009). The Global HIV/AIDS Epidemic. Fact sheet, April 2009*

(b) *UNHCR, UNICEF, WFP, UNDP, UNFPA, UNODC, ILO, UNESCO, WHO, World Bank*

(c) *The Bill & Melinda Gates Foundation has committed \$2.3 billion for HIV to date, with additional funding provided to the Global Fund.*

Source: Research data, 2009.

Annex 4: HIV prevalence mapping in East and Southern Africa, by 2007



Source: UNAIDS, (2008)

Annex 5: Typologies of the Epidemic at Country Level

Level of Epidemic	Characteristics
Low level	Although HIV infection may have existed for many years, it has not spread to significant levels (more than 5%) in any sub-population
Concentrated	HIV has spread rapidly within a defined sub-population (greater than 5%) but is not well established in the general population
Generalised	HIV is firmly established in the general population (HIV prevalence consistently over 1% in pregnant women); sexual liaisons in the general population are sufficient to sustain an epidemic independent of sub-populations at higher risk of infection

Source: UNAIDS/WHO²⁰

²⁰ UNAIDS/WHO, *Guidelines for Second Generation HIV Surveillance*, in *Second generation surveillance for HIV: The next decade*, Geneva: UNAIDS in Bishop-Sambrook (2004). Available at http://www.fao.org/sd/dm/pel/doc/pel_050103dl_en.pdf and WHO Second Generation Surveillance for HIV/AIDS. Available at <http://www.who.int/hiv/topics/surveillance/2ndgen/en/>.

Annex 6: Status of the Epidemic at National or Community Level

Status of the Epidemic	Characteristics
AIDS-initiating	Very low HIV prevalence rates and no AIDS
AIDS-impending	HIV prevalence rates are rising but the majority of infected people are still in the asymptomatic phase before becoming sick from AIDS-related illnesses (this may take up to eight years)
AIDS-impacted	Households and communities feel the impact of AIDS as infected people succumb to AIDS-related illnesses and eventual death; due the time lag between infection, illness, and death, communities will remain heavily AIDS-impacted for several years even after HIV prevalence rates begin to decline.

Source: Barnnet T and Topouzis D²¹

²¹ Barnnet T and Topouzis D. FAO AND HIV/AIDS, Towards a food and livelihoods security based strategic response, Rome;FAO,2003 in Bishop-Sambrook, (2004). Available at http://www.fao.org/sd/dim_pel/docs/pel_050103dl_en.pdf

Annex 7: Population and Maize production, Coast Province, Kenya.

District	Population	Acreage	Maize production 1998-2000 ‡			
			Production (t)	Yield in (1999)† (ha)	Production (t/ha) first season (%)	Food security (kg/person)
Kilifi	544,303	15,448	15,760	1.02	95	29.0
Kwale	496,133	10,450	11,962	1.15	190	24.1
Lamu	72,686	4,484	4,591	1.02	97	63.2
Malindi	281,552	10,730	11,081	1.03	99	39.4
Mombasa	665,018	315	355	1.02	86	0.5
Tana River	180,901	734	821	1.11	83	4.5
Taita Taveta	246,671	6,221	5,709	1.09	62	23.1
Total:	2,487,264	48,381	50,279	1.06	91	20.2

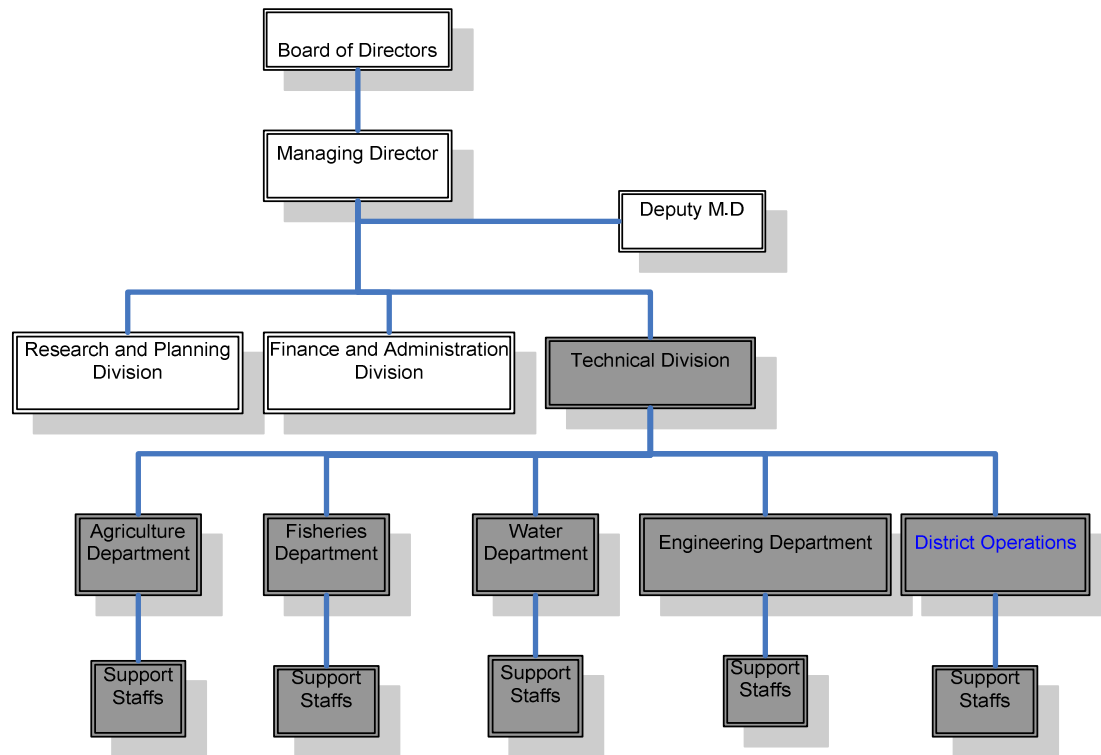
Note: †Central Bureau of Statistics (2001).

‡ Ministry of Agriculture, unpublished data.

3 1 acre = 0.405 ha.

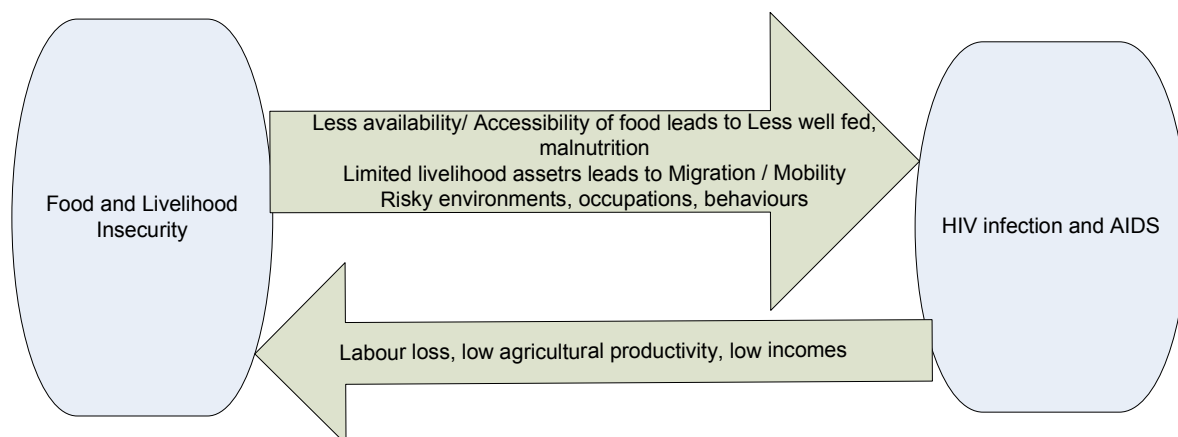
Source: Wekesa et al, (2003).

Annex 8: Coast Development Authority Organisational Structure



Source: ROK, (2004)

Annex 9: Relationship between Food and livelihood insecurity and HIV/AIDS



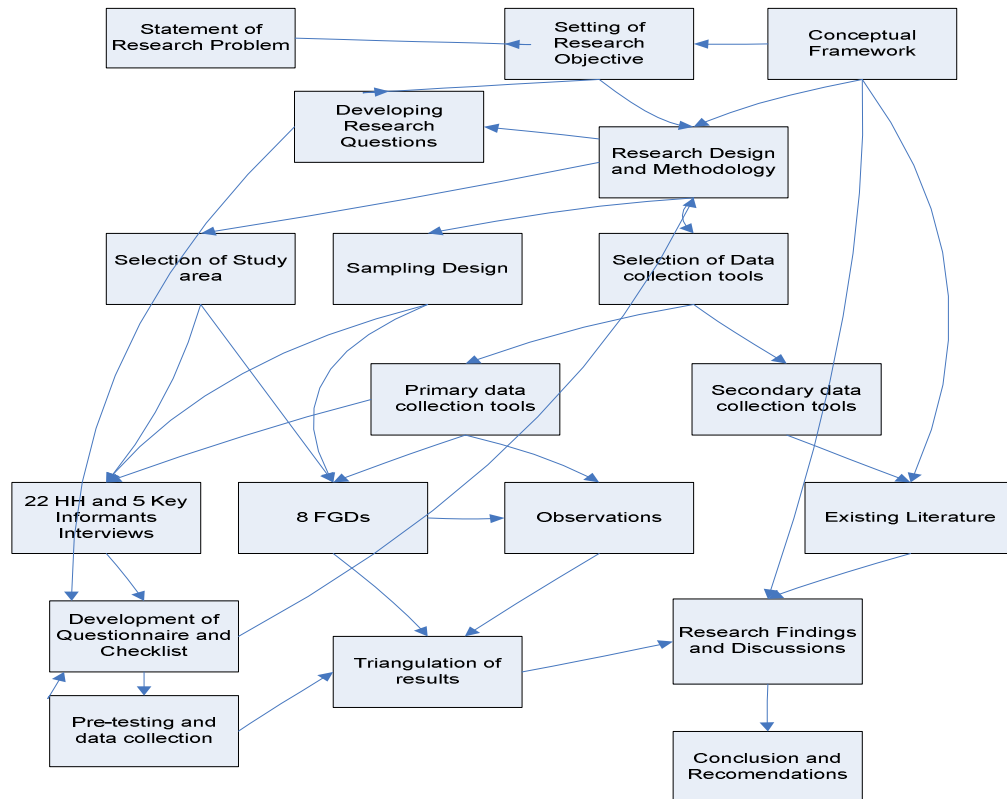
Source: Adopted from Loevinsohn et al, (2003).

Annex 10: Research Plan

Timeline Activity	Jul	Jul	Aug	Aug	Sept	Sept
	Week 1/2	Week 3/4	Week 5/6	Week 7/8	Week 9/10	Week 11/12
Literature review:						
Proposal writing and Literature Review						
Sampling / Clustering						
Data Collection and Processing						
Analysing the results:						
Writing the report						

Source: Research 2009.

Annex 11: Outline of steps of the methods used during this research.



Source: Adopted from Verschuren and Doorewaard, (2005).

Annex 12: Household Questionnaire

Questionnaire serial no:
Location:

Date of Interview:.....
Village:.....

DEMOGRAPHIC INFORMATION

Q1 Household Composition and Characteristics

Parameters	Values
Sex of Respondent	0=male, 1=female
Respondent marital status	1=married, 2=widow (er), 3=divorced, 4=single
Highest education level of respondent	1=illiterate, 2=primary, 3=secondary, 4=tertiary
Total Household size for the last 5 years	Current Past 5 years.....
# of males >15 years for the last 5 years	Current Past 5 years.....
# of females > 15 years for the last 5 years	Current Past 5 years.....
# of children < 15 years for the last 5 years	Current Past 5 years.....
# of children in school by sex for the last 5 years	Current Past 5 years.....

LIVELIHOOD OF ASSETS

Q2 What major assets / implements do you have?

Assets type	Ownership (M / F)	Current Number	Number 5 years ago	Reason for change in number of assets 1=bought more, 2=sold, 3=gift, 4=inheritance, 5=exchanged for other goods, 6=property grabbing, 7=others
a. Land (i) Total owned (ii) Cultivated land				
b. Livestock (i) Cattle (ii) Goats/ Sheep (iii) Poultry				
c. Tree crops (specify).....				

.....				
d. Bicycle, radio				
h. Other (specify)				
.....				

FOOD AVAILABILITY AND ACCESSIBILITY

Q3 What is the number of meals consumed by the household per day?

- 0= At times no meal at all 1 = One meal
2 = Two meals 3= Three meals

Q4 Where do you get most of the food your household consumes?

- 0= Own harvest 1= purchased
2= Food aid 3= Provided by relatives/friends

Q5 Compare the trend of number of meals in the household for the past 5 years?

- 0= Increasing, 1= Constant, 2= Decreasing

Q6 If the trend is decreasing, what is the reason?

- 0= Seasonality, 1= Labour shortage due to illness or deaths
2= Lack of money, 3= Others (specify)

Q7 What do you do in order to obtain income to meet your basic needs in the household?

- 0= Sale of agricultural produce (specify) 1= Formal employment
2= In Formal employment (specify) 3= Others (specify)

Q8 In what ways do you spend most of your household incomes on?

- 0= Purchase food 4=Care and support of relatives
1= Purchase clothing 5=Medicines for HH
2= Shelter construction or repairs 6=Funeral expenses
3= School fees 7= Weddings/ Leisure

Q9 Food production across the year (focus on a one year period assuming that food produced is consumed in the current and subsequent period but this will be cross checked with food sold to obtain incomes)

Major crops	Number of months farm produce feeds family, score using criteria below: 0 = available in abundance, 1 = available, 2 = not available (run out)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Maize												
Cowpeas												
Cassava												
Others (specify)...												
.....												

HOUSEHOLD COPING STRATEGIES

Q10 Household coping strategies by gender in months of food deficit

Response mechanism in months of food deficit	Are you currently using this? Yes/ No 0 = no, 1 = yes	Were you using it 5 yrs ago? 0 = no, 1 = yes	Who (gender)? (M/F)	Where?	Why/ How? (Reason or process)
Rely on Food aid / Food for work					
Get remittances from family members in another area					
Get remittances from non-family member					
Borrow money from friends and relatives					
Reduce meals (amount of food eaten at meal times, number of meals eaten per day, access to food by some members in the household or skip entire days without eating)					
Sold or traded physical assets to get food					
Take children out of school due to lack of funds					
Migrate in search of food or employment					
Commercial sex work (survival sex) for female and male					
Forced early marriage for girl child					
Stress leading to household dissolution					
Others (specify).....					

Q 11 What have been your major constraints in adopting a coping strategy in the last 5 years? (Tick appropriate responses in table below)

Type of constraints	0=No, 1=Yes
Labour shortage due to death of household member (s)	
Labour shortage due to illness of household member (s)	
Limited finances	
Distress migration of household members (for economic gain, e.g. seeking employment)	
Lack of knowledge and skills (specify)	
Crop /livestock pests and diseases	
Poor soil fertility	
Bad weather conditions (drought, floods)	
Lack of productive land	
Others (specify).....	

AREAS FOR INTERVENTIONS

Q12 What are the areas where interventions could be done to help improve the food security situation?

Annex 13: Focused Group Discussion Tools

Seasonal calendar:

This participatory technique was applied in a time lapse of between 1 to 2 hours to show the changes in activities of the people during the different seasons in a given calendar year. These activities have been compared with the season for food availability in relation to what it means to susceptibility to HIV infection. This is used to gain insight of people's time spending, movements away and back and compare with food availability so as to identify the specific periods of risk. This will also be essential to integrate the outcomes into planning for interventions that will address food insecurity.

The participants were asked community life and activities changes during different times of the year eg rainy and dry season according to the months of the year. Life changes is in terms of migration in search of employment or food, availability of money, celebrations, sexual activity, agricultural activities, labour requirements, availability of free time, incidence of illness were all recorded. A time line (baseline) from January to December was drawn for each of them. Other lines were then drawn above the timeline for each activity. They were then compared to show how they are interrelated. Even though both male and female were present in the group, extraction of data was done according to gender taking consideration that they have different activities at different times. This was very challenging. Another limitation with this tool was that it combined ideas of both the rich and the poor and yet critical issues of the rich and poor may have different aspects, perceptions and these may be very important for planning and developing interventions.

Below are a combination of tools that were used to complement each other in facilitating participants to identify the risks of HIV infection through the adopted coping strategies.

Appraisal of risk behaviour:

This is a participatory technique that was used within a 1 hour period to help participants identify different types of risky behaviour or conditions that may lead to risk behaviour predispose them to HIV infection. It was purposely selected to increase awareness that there are different risk behaviours and that many people are at risk to become infected with HIV. This was used to see the order of importance by ranking these risks in terms of the numbers of people thought to be at risk of HIV infection.

The group was divided into two, male and female. These groups were asked to consider what behaviour in the community leads to contracting HIV. These behaviours were listed on the left side of the paper. Each group discussed the numbers of people practicing each risk behaviour whereby objects like seeds and stones were used in terms of 1- 10 and each was divided into few, medium and many.

They were facilitated by asking them: What group of people?
Which sex is involved?

Solutions were also discussed to address the different risky behaviour and which people.

Mapping of risk areas: This tool was used within 1 hour to compliment the above tool and it was instrumental to identify places and analyse situations of risk for contracting HIV in the community and map them. The purpose of this tool was to identify where sexual risk behaviour takes place, where it is negotiated or people feel at risk of contracting HIV.

Occupational risk: This tool was applied in less than 1 hour in combination with the above tool to compliment and to help participants to discover the risks for HIV infection of different people in different occupations.

Annex 14: Key informants list

- i. The two area chiefs from Gede and Watamu locations who are local administrators in the grassroots level of the locations. They interact with the people and oversee operations with the assistance of assistant chiefs and village elders. Only the Chief for Gede location was interviewed to avoid duplication.
- ii. Malindi District Agriculture Office as the Ministry of Agriculture representation in Malindi district.
- iii. The CDA Kilifi District Co-ordinator as the only informant based in Kilifi
- iv. The Member of Parliament for Malindi constituency was added for his contribution through the Constituency Development Fund (CDF).
- v. Coconut sector representative, Manager, Ukunda Polytechnic

Annex 15: Checklist for Key Informants

- **COPING STRATEGIES**

What are they?
Where do they take place?
Who does what? Male-
 Female-
How is it done?

- **DECISION MAKING INSTITUTION**

Culture, norms, beliefs, myths
Routines, local knowledge
Stakeholders influence

- **SAFETY NETS IN THE COMMUNITY**

What are they?
Existing strengths
Existing limitations

- **AREAS FOR INTERVENTIONS**

What are they?
Where can they be done?
Who (stakeholders) is responsible for what?

Annex 16: Photographs of the study sites.

Photograph 1- Social asset



A signpost of a CDA –World Vision partnership project for addressing household food security using the FFS approach, Shononeka, in Kilifi. Most of the FGD participants at Kilifi were members of *Jeza Ulole* FFS (which means Try and See FFS).

Source: Research study, 2009.

Photograph 2 – FGD, Petty trade



The researcher facilitating a FGD session at Shononeka, Kilifi site. More women than men participated. Also in the photo is a representation of petty trade of oranges which the women took on credit from the owner (farmer with irrigation facilities) and return owner's money after sale.

Source: Research study, 2009.

Photograph 3- Improved food production to be achieved by multi-sectoral response



A critical incidence: Improved Maize variety grown under irrigation for demonstration at the Mombasa Agricultural Show 2009, Photo taken courtesy of Seminis Seed Company.

Source: Research study, 2009