STRATEGIES FOR COPING WITH HOUSEHOLD FOOD INSECURITY IN CHIPINGE DISTRICT OF ZIMBABWE

By

EPHRAIM CHIFAMBA

(Student Number: 15018557)

A thesis submitted to the Institute for Rural Development in fulfilment of the requirements of the Doctor of Philosophy in Rural Development (PHDRDV) Degree

School of Agriculture

University of Venda

Promoter	Prof J. Francis
Co- Promoter	Prof S. Mago
Co- Promoter	Dr B. Kilonzo

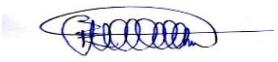
March 2019

© University of Venda

University of Venda
Creating Future Leaders

DECLARATION

I, Ephraim Chifamba hereby declare that this thesis for the Doctor in Philosophy in Rural Development (PhDRDV) submitted to the Institute for Rural Development at the University of Venda has not been submitted previously for any degree at this or another university. It is original in design and in execution, and all reference material contained therein has been duly acknowledged.

Student  **Date** **11/03/2019**

Ephraim Chifamba

Promoter ……..…….. **Date** **13/03/2019**

Prof S. Mago

Co-Promoter …… **Date** **13/O3/2019**

Dr B Kilonzo

© University of Venda

© University of Venda

ABSTRACT

Household food deficit is a serious and prevalent public security issue, especially for people living in the dry areas of Zimbabwe. Yet national welfare surveys usually exclude a large portion of the dry areas. This explains partially why there is inadequate data on household food deficit. Food deficit confronting households living in isolated and inaccessible communities is unique. Studies have focused on the status, determinants and the factors influencing adoption of viable options. The current study was designed to assess the state of food deficit among families and how they survived during lean periods. Several dynamics of food deficit (incidence, determinants, coping strategies and the challenges affecting the adoption of viable coping options) were examined using insights from the Mortimore and Adams model, Actor-oriented model and the sustainable livelihood framework. Four separate studies were carried out.

A sequentially integrated mixed methods design was used, split into interconnected qualitative and quantitative research phases. Results of the first phase informed the second one. A multi-stage sampling procedure was followed leading to the selection of Chipinge district, wards and villages as the study areas. Data were collected from 120 randomly and purposively sampled respondents. A household questionnaire survey, key informant interviews, citizen jury, participatory mapping and focus group discussions were utilised to gather data. A tape recorder was used as an assistive device in data collection. A 7-day food recall method was used to collect data on coping mechanisms that participants preferred. Thematic content analysis was applied to bring meaning to qualitative data and interpreting participatory maps. The quantitative data were captured and analysed using the International Business Machines (IBM) Statistical Package for Social Sciences (SPSS) version 24.0. Descriptive statistics, Household Food Insecurity Access Scale (HFIAS), point score analysis, household food balance model and Coping Strategy Index were used to analyse quantitative data.

Approximately, 81 % of the respondents reported that they were vulnerable to food deficit. Households headed by women, children and the elderly were food insecure. However, those headed by people more than 60 years old and children were the most food insecure. All the households that experienced severe food deficit were concerned that they did not have money to purchase supplies. Respondents reported that they could not afford balanced diets. Highly significant associations ($P < 0.001$) were observed between household food insecurity and livelihood capital factors such as sex, age literacy, marital status, land size, off-farm activities and livestock ownership. Despite this, no significant association existed between food deficit and capitals such as rainfall index, access to extension amenities and distance to the water

© University of Venda

sources and market (P > 0.05). Households applied temporary food intake coping mechanisms to manage deficit situations. Furthermore, less preferred food was consumed as a food deficit coping strategy. Traditional foods such as meat of wild animals and fruits were used to supplement available food Sale of productive assets, changes in diet, withdrawal of food and migration were cited as some of the major strategies for coping with food deficit. The preferred coping measures did not reduce household food deficit adequately.

Key informants perceived demographic, ecological, economic, social and infrastructural issues as factors that limited adoption of viable coping options. Drought, crop diseases, livestock pests, unpredictable rainfall patterns and drought were the major ecological factors affecting preferred coping measures**.** Decrease in land holdings and rapid population growth were some of the demographic factors hindering adoption of sustainable coping options. Poverty features such as lack of draft power and lack of investable excess money limited the adoption of sustainable coping options. Lack of irrigation amenities, reliance on rain-fed smallholder farming, and limited access to veterinary facilities were cited as the infrastructural challenges. Social factors limiting adoption of viable coping strategies included lack of savings and health complications.

Based on the results of the current study, it was concluded that the degraded ecosystem should be rehabilitated and safeguarded from further destruction. Shortage of land, poor accessibility to rural credit and inadequate off-farm employment opportunities should be addressed. While farming played a critical role in reducing food deficit, the challenge in Chipinge district could not be addressed via agriculture only. The results of the current study are important because of their possible influence in agenda setting, informing interventions, advocating for programmes and policies that fortify household food security. Considering the diversity of coping strategies used in Chipinge district, stakeholders should utilise broad-based pro-food security programmes to support beneficial coping options that support household resilience. The expansion of this study to cover other areas with various climatic conditions might be a valuable avenue for a future study. Further research should establish how sustainable indigenous food systems can be developed and be buttressed by state policies in these dry areas.

Keywords: household coping strategies, food deficit, household, sustainable livelihoods, Zimbabwe.

© University of Venda

To my Mother F. Gonese and wife E. Chifamba who had a dream of me accomplishing this academic level since my boyhood. The dream has eventually manifested through their support.

Asante Sana

© University of Venda

ACKNOWLEDGEMENTS

In writing this thesis, I received assistance, guidance and support from various individuals and organizations. This is the chance to acknowledge your contributions. To the Almighty I give my absolute gratefulness for affording me the astuteness, inspiration and strength to proceed with this work despite the challenges I came across. Accomplishment of this study could not have succeeded without the assistance of many individuals over the past three years. I start by acknowledging the backing that I received from my supervisor Prof J. Francis and his co-supervisors Prof S. Mago and Dr B. Kilonzo who encouraged me and supported me until I finished this work. I am indebted for the treasured assistance, support and constructive comments that you gave me.

Without the support provided by Chipinge district Housing and community Service Director, Mr Munodawafa, I would have found it difficult to enter into the community. I thank him immensely for his support and hospitality. Rich qualitative and quantitative data was collected from household heads in the community, whom I acknowledge for generously giving off their precious time without the assurance of any instant benefits. I was also aided through the authorization from the local chief, to move in the community and to administer a questionnaire survey among 120 households who provided invaluable information. I also owe much to my research assistants Mathew Sithole and Lethiwe Mhlanga, who worked with great dedication in the field.

My two children kept me grounded and provided a comfortable interruption from the computer. I cannot adequately thank my wife, best friend and life partner Edlin, who gave me support and help throughout my studies. She continuously assisted with some of the duties I was supposed to carry in the household so that I could concentrate on completing my thesis.

My relatives have also been tremendously supportive of my educational pursuits and I could not have completed this work without their unwavering reassurance during my studies. The financial assistance for data collection for the studies came from University of Venda Research Office and Great Zimbabwe University Higher Degrees Committee. I am also expressly thankful to the Chipinge community for cooperating with me on my numerous requests that sometimes distracted them from the daily activities.

I humbly pray that all relatives, friends and supervisors who have assisted me in this work, both stated and unspecified, may be blessed. Lastly, as I let go of this study, I pray that the findings presented in this thesis will assist in strengthening the determination to lessen the challenges that surround me in this country, which is my birth right.

© University of Venda

University of Venda
Creating Future Leaders

TABLE OF CONTENTS

DECLARATION ..... **i**
ABSTRACT ..... **iii**
ACKNOWLEDGEMENTS ..... **vi**
LIST OF TABLES ..... **xi**
LIST OF FIGURES ..... **xii**
LIST OF APPENDICES ..... **xiii**
ABBREVIATIONS ..... **xiv**
1.1 Background 1
1.2 Statement of the Research Problem 4
1.3 Justification of the Study 5
1.4 Research Objectives 6
1.5 Research Hypotheses 6
1.6 Theoretical and Conceptual Framework 7
1.6.1 Mortimore and Adams model 7
1.6.2 Sustainable livelihood framework (SLF) 8
1.6.3. Actor oriented model 9
1.7 Integration of Models Used to Anchor Current Study 11
1.8 Operational Definitions of Key Terms and Concepts 13
1.9 Organization of the Thesis 13
1.10 REFERENCES **15**
CHAPTER 2 REVIEW OF LITERATURE **19**
2.1 Abstract 19
2.2 The State of Global Food Insecurity 20
2.3 Household/Family Food Deficit as a Managed Process 23
2.4 Determinants of Household Food Insecurity. A Global Overview 25
2.4.1 Household socio-economic features and food deficit 25
2.5 Classification of Coping Strategies 31
2.5.1 Non-erosive coping (Insurance strategies) 31
2.5.2 Erosive coping (Crisis strategies) 32
2.5.3 Distress strategies (Failed coping options) 33
2.6 Strategies for Coping with Household Food Insecurity. A Global Perspective 28
2.7 The Concept of Resilience and Its Link to Household Food Deficit 33
2.8 Obstacles Hindering Viability of Coping Options in Arid Regions 35

© University of Venda

2.9 Measuring Household Food Deficit 37
2.9.1 Context of assessing household food deficit 37
2.9.2 Rationale for assessing coping strategies at the household level 38
2.10 Tools for Assessing Household Food Deficit 38
2.10.1 Determination of Household Food Insecurity Access Scale (HFIAS) 39
2.10.2 Coping strategy index (CSI) 40
2.11 Summary of Literature Review 41
2.12 REFERENCES 43
CHAPTER 3: RESEARCH METHODOLOGY 52
3.1 Introduction 52
3.2 Description of the Study Area 52
3.3 Research Design 54
3.4 Past, Ongoing Research and Community Entry 54
3.5 Sampling Procedures 57
3.6 Data Collection Methods 58
3.6.1 Primary data 58
3.6.2 Secondary data 59
3.7 Data Collection Procedures 62
3.7.1 Procedure followed for focus group discussions 62
3.7.2 Participatory social mapping 62
3.7.3 Procedure used to conduct a citizen jury 65
3.7.4 Procedures used to derive context- specific coping strategies using Coping Strategy Index (CSI) 66
3.7.5 Procedure used to determine the effects of coping strategies 68
3.8 Data Analysis 68
3.8.1 Data analysis for participatory social mapping 69
3.8.2 The Determination of family food deficit using Household Food Insecurity Access Scale (HFIAS) and the Food Security Index 70
3.8.3 Determination of socio-economic dynamics influencing household food deficit 71
3.8.4 Determination of the challenges affecting sustainability of coping strategies 72
3.9 Funding and Ethical Clearance 74
3.10 Conclusions 74
3.11 REFERENCES 75
CHAPTER 4: EXTENT OF HOUSEHOLD FOOD INSECURITY IN CHIPINGE DISTRICT 79
4.1 Abstract 79

© University of Venda

4.2 Introduction....79
4.3 Materials and Methods....81
4.4 Results....81
4.4.1 Household perception on the magnitude of food deficit in Chipinge district....81
4.4.2 Household food deficit status among the surveyed respondents based on HFIAS....82
4.5 The Socio-Economic Determinants of Food Deficit in Chipinge District....83
4.5.1 Human capital factors....85
4.5.2 Financial capital factors....86
4.5.3 Natural capital factors....86
4.5.4 Physical capital factors....87
4.5.5 Social capital factors....88
4.5.6 Access to social services....88
4.6 Perceived Impact of Food Deficit on Households in Chipinge District....90
4.7 Discussion....93
4.8 Conclusions....97
4.9 REFERENCES....98
CHAPTER 5: STRATEGIES FOR COPING WITH HOUSEHOLD FOOD INSECURITY IN CHIPINGE DISTRICT....104
5.1 Abstract....104
5.2 Introduction....104
5.3 Materials and Methods....106
5.4 Results....107
5.4.1 Consumption of less favoured food....107
5.4.2 Skipping day time meals....108
5.4.3 Hunting, gathering and petty trading....109
5.4.4 Food donations....109
5.4.5 Maternal buffering....110
5.4.6 Decreasing the amount of food given to kids in the family....113
5.4.7 Borrowing either food or money....113
5.4.8 Remittances....115
5.4.9 Assets disposal....115
5.5 Discussions....116
5.6 Conclusions....121
5.7 REFERENCES....123

© University of Venda

CHAPTER 6: HOUSEHOLD PERCEPTIONS ON FACTORS INFLUENCING ADOPTION OF SUSTAINABLE COPING STRATEGIES IN CHIPINGE DISTRICT 128

6.1 Abstract 128

6.2 Introduction.....128

6.3 Material and Methods 130

6.4 Results 131

6.4.1 Constraints affecting adoption of viable coping strategies in Chipinge.....131

6.5 Discussion ..... **Error! Bookmark not defined.**

6.6 Conclusions.....135

6.7 REFERENCES 138

CHAPTER 7: PROPOSED INTERVENTIONS FOR COMBATING HOUSEHOLD FOOD DEFICIT IN CHIPINGE DISTRICT 143

7.1 Abstract 143

7.2 Introduction.....143

7.3 Materials and Methods 145

7.4 Results 145

7.4.1 Proposed coping options in Chipinge district 145

7.5 Discussion 151

7.6 Conclusions.....154

7.7 REFERENCES 155

CHAPTER 8: SYNTHESIS OF THE STUDY FINDINGS.....160

8.1 Introduction.....160

8.2 Methodological Imperatives 162

8.3 Summary of the Study Findings.....164

8.4 Key Contributions to the Literature on Strategies for Coping with Food Insecurity 168

8.5 Recommendations for Policy and Practice.....168

8.6 Recommendations for Further Research 169

8.7 Conclusion.....170

8.8 REFERENCES 171

APPENDICES.....175

© University of Venda

LIST OF TABLES

Table 2.1 Food in/security definitions 22

Table 2.2 Comparison of methods of assessing food deficit.....42

Table 3.1: Study objectives, data collection and analysis 61

Table 4.1 Distribution of participants based on HFIA items 84

Table 4.2: Mean scores of the apparent effects of food deficit in Chipinge district 92

Table 5.1 Frequency of distribution of coping strategies in Chipinge district 112

Table 6.1 Constraints affecting adoption of viable coping strategies ..... **Error! Bookmark not defined.**

Table 6.2 Results of the point score analysis of the challenges affecting coping strategies in Chipinge District..... **Error! Bookmark not defined.**

Table 7. 1: Current coping strategies and their level of effectiveness 148

Table 7.2: Proposed coping strategies for combating household food shortfall in Chipinge District.....149

© University of Venda

LIST OF FIGURES

Figure 1.1: Sustainable livelihood framework 10

Figure 1.2: Conceptual framework of the study 12

Figure 3.1 Map of Zimbabwe district map showing the location of Chipinge district.....**Error! Bookmark not defined.**

Figure 3.2: Research design: Sequentially integrated mixed method 60

Figure 5.1. Participatory map showing common coping strategies in Chipinge district……..…112

Figure 8.1: Summary of the study 167

© University of Venda

LIST OF APPENDICES

Appendix 1: Research ethics approval certificate 175

appendix 2: Months of food deficit recounted by participants 176

Appendix 3: Examples of food insecurity metrics, domains, and purpose for which they are usually utilised.....177

Appendix 4: The criteria used for household wealth ranking (Chipinge district) 179

Appendix 5: Letter of Consent.....180

Appendix 6: Roll out plan for community entry and checklist.....182

Appendix 7: Checklist of documents needed for community entry:.....182

Appendix 8: Interview schedule on strategies for coping with household food insecurity in Chipinge district of Zimbabwe 184

Appendix 9: Checklist for fdg on strategies for coping with household food insecurity in Chipinge district of Zimbabwe 206

© University of Venda

ABBREVIATIONS

CFA	Comprehensive Framework for Action
CRDC	Chipinge Rural District Council
CSI	Coping Strategy index
CSO	Central Statistics Office
CSIRS	Coping Strategy Index Raw Score
DFID	Department for International Development
FANTA	Food and Nutrition Technical Assistance
FAO	Food and Agriculture Organization
FGDs	Focus Group Discussions
FGIs	Focus Group Interviews
FIG	Food Insecurity Gap
FSAG	Food Security Assessment Guide
FSI	Food Security Index
GIR	Group Informant Rating
GOZ	Government of Zimbabwe
HFIG	Household Food Insecurity Gap
HIV	Human Immune Deficiency Virus
HSFIG	Household Squared Food Insecurity Gap
IFAD	International Fund for Agricultural Development
KII	Key Informant Interviews
N.G.Os	Non-Governmental Organizations
Ns	Not Significant
PCA	Principal Component Analysis
PRA	Participatory Rural Appraisal
SDGs	Sustainable Development Goals
SADC	Southern Africa Development Cooperation
SFSTL	Seasonal Food Security Time Line
SLF	Sustainable Livelihood Framework
SPSS	Statistical Package for Social Sciences
UN	United Nations
UN-HLTF	United Nations High Level Task Force on Global Food Security Crisis
WFP	World Food Programme

© University of Venda

CHAPTER 1: INTRODUCTION

1.1 Background

Over the past years, the international attention has been fighting to achieve poverty reduction and food security (Wambua, 2013; Kahsay & Mulugeta, 2014; Wabwoba *et al*., 2016). This was in reaction to global rise in poverty and food deficit. The worldwide increase in undernourished people is an indication of the failure of collective coping strategies. Global estimates indicate that 805 million people are chronically undernourished with inadequate food for an active and health well-being (Zakari; 2014; FAO, 2016). Multilateral institutions and governments have sought collective coping mechanisms in order to solve food deficit. This prompted the creation of the United Nations High-Level Task Force on the Global Food Security Crisis (UN-HLTF) and the World Food Programme's (WFP) Global Initiative on social safety nets among other initiatives (Wabwoba *et al*., 2016). Despite the initiatives done by these international institutions in realising global food security, it is clear that food shortfall remains a key and persistent phenomenon world-wide. The coping strategies have been affected by food speculation (Ziaei, 2014; Oyebanjo *et al.*, 2015), export restraints (Krishnal, 2015; Tumaini & Msuya, 2017), supply and demand imbalances (Babatunde *et al*., 2007) and climate induced food shortages (Chifamba, 2011; Mango *et al*., 2014). As food shortage worsen throughout the world, multinational institutions and governments use distress coping mechanisms that are less reversible (Edkins, 2007; Maxwell, 2011; Ziaei, 2014), thereby exposing the rural poor to significant levels of food deficit from a range of idiosyncratic shocks. The coping strategies are frequently detrimental to the sustainability of livelihood and encompass hazards that affect resilience to food deficit.

With the recent food crises in Africa, coping strategies have become prominent on the continental development policy agenda (De Stage *et al*., 2012; Ziaei, 2014; Krishnal, 2015). Addressing food insecurity continues to be a key development issue, due to risky coping strategies. Adopted coping strategies in Africa proved useful in the short-term, but failed to bring the desired livelihoods outcomes (Hanyani-Mlambo *et al*., 2002; Hendrix & Brinkman, 2013; Kahsay & Mulugeta, 2014). Food insecurity has compelled nations to employ adverse coping strategies with negative ramifications on the livelihoods of rural poor households (Tumaini & Msuya, 2017; Ziaei *et al*., 2013). Tshediso (2013) and Oyebanjo *et al.* (2015) posit that most countries have shifted from non-erosive coping to erosive (disposal of resources) and failed mechanisms (dependency and food aid). Mango *et al*. (2014) note that preferred coping strategies have failed to take into account participation of households affected by food

© University of Venda

insecurity. Perilous coping strategies have erased the economic gains of the past decades while putting at risk the investments in nutrition and public health (Wabwoba *et al*., 2016), improved health (Omonona *et al.*, 2007; Kahsay & Mulugeta, 2014) and community development (Maxwell, 2011; Krishnal, 2015;). The failure of coping mechanisms in Africa has resulted in the upsurge of underfed people from 140 million in 2000 to 225 million in 2016 (Babatunde *et al*., 2007; FAO, 2016). Thus, preferred coping options affect livelihood sustainability and involve risks that compromise resilience to food deficit in the long term.

In Zimbabwe, preferred coping strategies have failed to address persistent household food insecurity. Nyikahadzoi *et al*. (2012) state that adopted coping strategies have focused on agriculture-based approaches and are usually fixed towards improving household members' access to food. Agriculture centred coping approaches have proved unsustainable due to rural migration (Chambers, 1989; Scoones, 1996), land fragmentation (Ndiweni, 2015; O'brist *et al*., 2010), climate change (Chifamba, 2011) and low investment in agriculture (Manyeruke *et al*., 2013). Almost 4.7 million required emergency food support from June to November 2017 figures (Zimbabwe Vulnerability Assessment Committee (ZimVAC, 2017). In Zimbabwe, above 74 % of the households in remote areas remain poor and exposed to food shortages (Kusena, 2015; ZimVAC, 2016a). Household food output has not risen at the proportion that satisfies food requirements. Adopted coping strategies have resulted in incongruence between the proportion of food output and demand. This has caused increase in food demand and food supply gap, thereby broadening the gap between available food and the overall food requirement. To address the food gap, the government has resorted to food outsourcing, donor assistance and resource utilization, with negative ramifications on household food production (Hanyani-Mlambo *et al*., 2002, ZimVAC, 2016a).

ZimVAC (2016b) posits that the problem has become further germane in view of the fact that Zimbabwe's farming sector is largely dominated by poorly resourced small-scale farmers. Strategies adopted by poor-resourced households failed to solve the causes of the challenge. Some coping approaches such as consumption of less preferred foods and reduction of expenditure on education have proved to be merely customs and practices as they fail to address household food deficit. Thus, most of the adopted coping strategies are associated with food deficit. These coping strategies have been affected by interlinked factors stemming from man-made crises to natural shocks (Mango *et al*., 2012; Ndiweni, 2015). The strategies devised to address these challenges have failed to identify the root causes of these stressors.

© University of Venda

Concern about current coping strategies in Chipinge district is also on the rise due to prevailing climatic conditions (Ndiweni, 2015). Chipinge district is found in agro-ecological zone V (Vincent &Thomas, 1960), which makes it prone to inadequate and erratic rainfall (Watson & van Wambeke, 2013). Manyeruke *et al*. (2013) opine that climatic conditions are shifting towards more extreme events, droughts, floods, erratic rainfall and higher temperatures. Crop production is rain-fed and therefore susceptible to drought. Thus, it was not surprising that droughts, which lead to chronic food insecurity, were common in the district. Mango *et al*. (2014) posit that in most cases, even the preeminent coping strategies have been beset by extended dry seasons. Recurrent droughts made it difficult for households to reliably plan farming activities and successfully cope with food challenges. According to Kusena (2015), harsh climatic conditions compelled households to adopt unsustainable coping strategies. Risky coping strategies further exposed families to food deficit.

In Chipinge, the adoption of coping strategies related to subsistence agriculture debilitated households' capacity to deal with food shortfall. Vincent & Thomas (1960) and Manyeruke (2000) note that weather fluctuations often resulted in agricultural failure and narrowing of coping strategies. According to ZimVAC (2016a), agricultural growth in Chipinge remained stagnant and poverty rates increased from 35 % in 1990 to more than 85 % in 2016. Incidents of stunting and malnutrition, in particular with respect to children, disproportionately affected most households (Ndiweni, 2015). Reported combined cases of anaemia, weight loss and infections among children increased from 17 % in 2000 to more than 42 % in 2016 (ZimVAC, 2016b). This made individual members weaker and less able to produce food that helped households to escape hunger.

Lack of services affected households' capacity to cope with food insecurity. According to ZimVAC (2016a), over 75% of women and child-headed households in Chipinge were deprived of access to extension training, agricultural inputs, water, land, technology, innovation, markets and financial services. Manyeruke *et al*. (2013) also posit that agriculture was carried out extensively on subsistence scale using simple farm implements. Absence of bulk food storage and ineffective food processing amenities also created bottlenecks. As a result, farmers experienced low crop yields and agricultural production. Also, high population growth rate in Chipinge was linked to diminishing land holdings (Chifamba, 2011), poverty (ZimVAC, 2017) and decreasing soil fertility (Nyikahadzoi *et al*., 2012). High population growth pushed farmers to marginal and less fertile areas not suitable for agriculture. Thus, prevailing economic and

© University of Venda

demographic conditions increased household vulnerability and narrowed coping options available for addressing household food insecurity.

In Chipinge district, adopted coping strategies were also affected by lack of assets essential for generating food and income. According to ZimVAC (2017), households deprived of essential resources such as financial, social, physical capital (farm machinery and land); and human capital (household members' health and education) were most affected. ZimVAC (2016a) notes that stakeholders failed to enhance households' capacity to preserve and sustain their assets after a food shock. Preferred coping strategies had severe financial implications that increased the threat of household food deficit in the future. Thus, households experienced ubiquitous food scarcity due to insufficient farming productivity and comparatively inadequate income subsequently resulting in their incapacity to access quantitative and qualitative quantities of food for each member of the family all throughout the year.

In Chipinge district where macro-economic and ecological conditions are unfavourable, households are facing substantial food shortfalls and restricted livelihood options. Work prospects are adversely affected by high food prices and water scarcity (ZimVAC, 2017). As a result, some households are restricted to seasonal agronomic labour and transmittals. This incapacitated households to satisfy their rudimentary dietary requirements. Furthermore, though the income was declining (Omonona *et al*., 2007; Kahsay & Mulugeta, 2014), their expenses increased due to high food costs and cyclical agricultural outlays. The food situation causes high prevalence of starvation associated ailments (ZimVAC, 2016b), which affect the well-being and farming activities in the district.

Available data on the effectiveness of strategies for coping with household food deficit in Chipinge district was insufficient. Despite the glaring evidence of lack of literature on coping strategies, most studies on food insecurity in Chipinge district focused on food insecurity and conflict dynamics (Kusena, 2015), food security and environmental change (Hanyani-Mlambo *et al*., 2002; Chifamba, 2011); food security and HIV/AIDS (ZimVAC, 2017), among other research areas. Proposed strategies that go beyond coping and with greater possibility to strengthen household food security status in Chipinge were raised in this study.

1.2 Statement of the Research Problem

In Zimbabwe food deficit is an issue of a major concern with Chipinge district having the highest prevalence of transitory and chronic food deficit. Despite the existence of an array of strategies

© University of Venda

for coping with household food deficit in the district, more than 87 % of households still face the problem (Kusena, 2015). Moreover, despite the existence of early warning systems, households continue to be ill-prepared and unable to cope with food insecurity. Food insecure families suffer from a fragile subsistence base and rely on perilous and negative consumption coping methods. Strategies adopted at household level involve undesirable but often unavoidable compromises such as selling productive assets (Hanyani-Mlambo *et al*., 2002), eating less (Nyikahadzoi *et al*., 2012), withdrawing children from school (ZimVAC, 2016a), maternal buffering, reducing food expenditure as well as increasing child labour and resorting to social safety nets such as food for work (Manyeruke *et al*., 2013; Ndiweni, 2015). Commonly used coping strategies fail to address household food deficit. Risky coping mechanisms result in mal-adaptation, entrenched poverty and low levels of human development, resource-triggered conflicts and breakdown of environmental services (Serrat, 2010; Mango *et al*., 2014). Thus, in order to ensure household resilience to food deficit, intervention approaches should address these challenges

Food deficit results in the demise of the agricultural sector and negatively affects income generating activities. This erodes the power of the household to procure food. Although there is proof of food deficit in Chipinge (Hanyani-Mlambo *et al*., 2002; ZimVAC, 2017), not much has been documented on the survival options that the local people adopt to address the household food deficit. In addition, there is inadequate literature that explains why Chipinge district continues to be food insecure. This situation motivated the current study that sought to assess the extent of food deficit, uncover local coping strategies and determine the factors inhibiting adoption of sustainable coping measures.

1.3 Justification of the Study

In this study, strategies that households adopted to manage food deficit in Chipinge district were assessed. As already been revealed above, information on mechanisms used to manage persistent food shortages at household level was scanty. Accessed literature showed no evidence of studies conducted on coping strategies in Chipinge district. Among the 132 accessed articles published in various journals from 2000-2017, only 15 focused on food insecurity, with little focus on coping strategies. Similarly, only 2 out of the 21 accessed articles published in the 2012-2015 ZimVAC reports focus on food insecurity themes. None of them dealt with strategies for coping with food insecurity. Also, out of the 38 government and non-governmental reports published in the years 2012 and 2017, only 3 dealt with aspects of household food shortfall. These statistics showed that a research gap existed. In addition to this,

© University of Venda

the inconsistency of contemporary rural development practice, rural livelihood diversification and community participation are rural development issues which this study distilled.

The current research resonates with the ZimASSET development agenda cluster number one which emphasise on food security and nutrition, social services and poverty eradication. This study is also in line with the Sustainable Development Goals (SDGs), goal number two. This goal stresses on the eradication of poverty, improving nutrition and enhancing sustainable farming.

The findings on coping strategies were used to propose interventions for building non-erosive coping strategies that fit into the context of semi-arid regions. Moreover, this work serves as reference for further research on coping strategies at community and household levels. The study provided more pertinent and timely information regarding existing coping strategies and livelihood practices that assured household food security. The study made stakeholders aware of the viability of coping strategies in use and this capacitated households to mitigate food shortages. Finally, this study also provided information to policy makers. Such information was useful in planning, management and improvement of rural livelihoods in Chipinge district. A better appreciation of the household coping strategies in Chipinge district made it possible to generate specific and well informed responses that address the food deficit.

1.4 Research Objectives

The overarching objective of this study was to critically assess strategies used to address household food insecurity in order to realise viable coping options. This study was carried out in order to suggest relevant measures to enhance household coping strategies. In order to achieve this aim, the following were the specific objectives of the study:

a) To determine the level of food deficit among rural households;
b) To assess the coping strategies adopted to mitigate household food deficit;

c) To determine the challenges affecting the adoption of sustainable coping strategies;

d) To explore intervention coping strategies that help to combat household food insecurity.

1.5 Research Hypotheses

Three hypotheses were tested in this study. These are listed below:

© University of Venda

a) Household food availability improve with the level of educational attainment, age, land holding size and aggregate number of assets. These variables are anticipated to be positively associated with household food accessibility, stability and availability.
b) The configuration of coping mechanism that families use depends on nature of the threat and particular household characteristics.
c) Households grapple with periodic food deficit due to failure to produce sufficient crops to cover all year intake necessities due socio-economic constraints.

1.6 Theoretical and Conceptual Framework

In this study, Mortimore & Adam (1999) model, Actor Oriented approach and the Sustainable Livelihood Framework (SLF) were used to build an understanding of household coping strategies.

1.6.1 Mortimore and Adams Model

The Mortimore and Adams (1999) study provides significant understanding on how households manage food deficit in dry regions. This model presents a valuable starting point for the current research. Household coping mechanisms are not static across families, but they differ in relation to specific endogenous and exogenous backgrounds of the households (Mortimore, 1989; Chambers & Conway, 1992). Political, socio-economic, cultural, climatic, ecological and infrastructural amenities signify exogenous issues that configure coping strategies. However, such aspects are beyond the control of the households and communities. The endogenous factors include socio-economic and the demographic physiognomies of the families (Mortimore & Adams, 1999). These factors also determine household coping measures. Furthermore, the effect of a specific catalyst such as food shortfall, and the extent to which it affect households, is determined by both endogenous and exogenous backgrounds of the family**.** In turn, these aspects are influential in determining the array of coping strategies, control and access to assets and the choice about the range, type, and order of coping options that a household uses.

The Mortimore and Adams framework includes a broader interpretation of family coping which cogitates on the economic, political, ecological and social backgrounds in which a household functions. The model also considers specific endogenous features that determine households' coping strategies. Through the logical reflection of the array of endogenous and exogenous factors, the framework offers a conceptual guide to evaluate household food deficit, determinants (Mortimore & Adam, 1999), the context and success of coping measures during food shortfall.

© University of Venda

Mortimore & Adams (1999) posit that twigging household coping in this wider context stresses the diverse character and nature of preferred coping options and their differential purposes, determinants, and usefulness. This model is valuable in guiding policy-appropriate studies that endeavours to assist households affected by food deficit to: assess the relative usefulness of diverse coping mechanisms in satisfying household livelihood objectives, health, status and consumption. The model also assists in determining development mediations appropriate to support household resilience.

1.6.2 Sustainable livelihood framework (SLF)

The Sustainable Livelihood Framework shown on Figure 1.1 was adopted as the theory that guided this study. The framework aims to bring about development that is economically, socially, institutionally and environmentally sustainable (Dervla, 2004). The theory is people-centred, responsive, participatory and dynamic. According to this framework, households follow various strategies as means of livelihood. Rural livelihoods may be derived from on-farm and non-farming activities which are usually natural capital based (Dadabhau & Kisan, 2013). The Sustainable livelihood framework is a conceptual structure that relates and brings out an understanding of the various livelihood options which are pursued by poor households (Department for International Development (DfID), 2000). The framework helps to understand the way the poor derive their livelihoods (Serrat, 2010). The SLF is used to analyse the factors that affect livelihoods and the link among these.

Chambers and Conway (1992) posit that the socio-economic, political and ecological conditions faced by household define the constraints and opportunities that exist at any given period. Political and historical factors, existing policies, climate, macro-economic environment, social differentiation and demography are vital factors of the vulnerability background. In order to create a supportive coping environment, households combine all asset endowments available (Scoones, 1999; Ellis, 2000). These assets comprise tangible assets, personal capabilities and intangible assets. The SLF shows that household capacity to adopt diverse coping strategies depends on the rudimentary social, material, intangible and tangible capitals at their disposal. Household access to diverse kinds of assets is influenced by social norms and institutional regulations Organizations at the micro and meso levels establish the regulations of the game,

The sustainable livelihood framework postulates that a poor household is within a vulnerable context where various shocks, trends and seasonality affect coping outcomes. However, a household responds to the shocks, trends and seasonality by using the livelihood capitals at

© University of Venda

their disposal (Serrat, 2010). These capitals are classified as assets (human and social) and capabilities (natural, physical and financial). Usage and ownership of these assets is affected by the various institutions and processes within which the household is situated. Assets inter-influence each other with the livelihood strategy opted for by a household. This all culminates to livelihood outcomes. Considering the complex and multiple dimensions which are presented by the sustainable livelihood framework, various study focal areas can be developed. As such, this study focused on the livelihood assets, outcomes and household coping measures and their outcomes. According to the sustainable livelihood framework, there is a two-way link between the livelihood capitals and strategies. A household decides on a livelihood strategy depending on the level and combination of capitals at their disposal. On the other hand, adopting a specific coping strategy produces outcomes which can be viewed through the lenses of household capitals. Thus, the identification of suitable nature and type of mediations for addressing food deficit needs an understanding of household capitals, their inter-relations and significance to specific groups of people. Nevertheless, this research concentrated on household factors that determine household food deficit. Figure 1.1 shows the Sustainable Livelihood Framework used in this current study.

1.6.3. Actor oriented model

This model shows how people's (social actors') actions differ within an identified background or context. Scoones (1996) posits that interpretation and social action is contextually generated and context specific. Moreover, actor oriented model assists in illustrating the varied situation at which social action manifests and can be utilised to comprehend imperative issues that determine the adoption of particular coping mechanisms.

The actor oriented approach is utilised to assess how the changes are shaped and combined over time. Also, the model classifies social procedures and the consequences which are involved. From this viewpoint, the family background is regarded as an arena in which individuals within the family pursue temporary and enduring strategies and objectives in order to manage food shortfall. Thus, household members respond to a particular historical and geographical context (Tumaini & Msuya, 2017). There is necessity to discover how food anxious actors select coping and the challenges they grapple with. Furthermore, it is important to identify how households strategize in their transactions with other actors outside and within the family since diverse actors apportion resources to various choices and activities centred on some explicit reasons. Household level food assessment determines the association between food deficit coping mechanisms and family resilience to food shortages.

© University of Venda

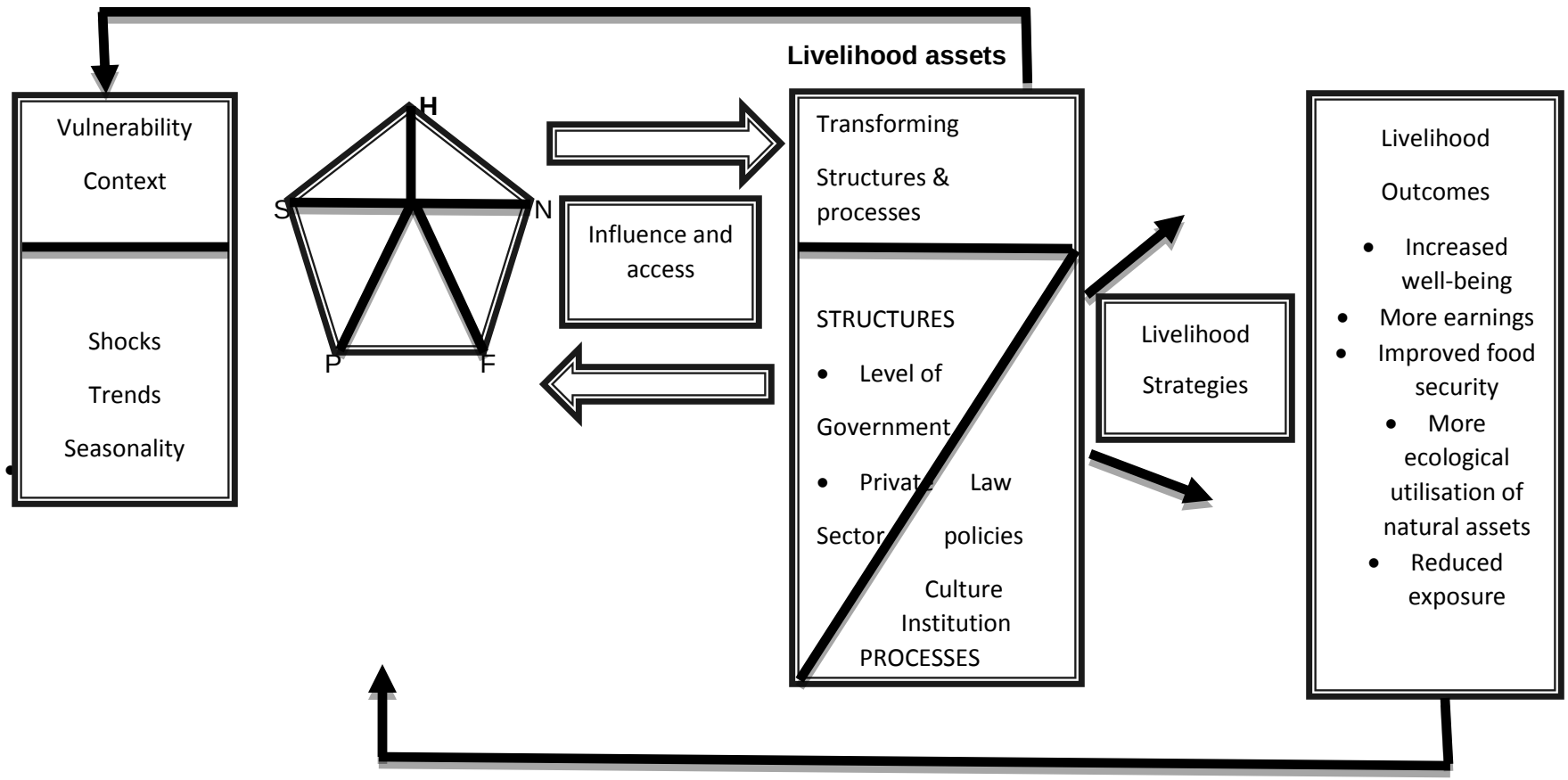


Figure 1.1: Sustainable livelihood framework (DfID, 2000)

© University of Venda

1.7 Integration of Models Used to Anchor Current Study

The actor oriented and the DfID models compliment Mortimore and Adam's model in that they both focus not only on endogenous and exogenous factors but also on the social relations and how these determine the adoption of certain coping strategies. These models guide the formulation of concrete premise when addressing explicit contexts and actors in dry areas of Chipinge district. This study refined further the suggested conceptual models into precise coping options.

It is essential to note that the proposed conceptual framework was utilised just as an entry-point. This current study modified the existing conceptual frameworks into a consolidated framework that assisted in analysing household coping strategies. Therefore, the conceptual framework for this current study builds from the DFID (2000) framework, Mortimore and Adams (1999) and the Actor Oriented model. This study used an integrated modified model as shown on figure 1.2 below to assess the coping mechanisms in Chipinge district. The models show that household food security statuses are determined by background variables and independent variables. Households which select non-erosive coping measures guarantee future food consumption and asset building.

The framework assists in the understanding of coping strategies adopted by poor and vulnerable households. It considers household as rational units, which weighs available coping options in order to minimise losses. Thus, the framework assumes that households choose reduction of food utilization in order to minimise extended predudice in other elements of their wellbeing (Mortimore and Adams, 1999; DfID, 2000). Among poor households, food status is one of the aspects that influence the choice of coping options. In light of this, Scoones (1996) and Tumaini & Msuya (2017) posit that in times of food shortfall, the fortitude to safeguard available capitals also influences household coping strategies.

The important assumptions in designing the conceptual framework used in this current research (Figure. 1.2) encompassed the following: coping strategies in Chipinge district are configured by interfaces between food deficit households and their setting (human, cultural, social, political and economic factors). Furthermore, households are rational units that do not just use a coping option but act on convinced reasons. Household choice of coping strategies is determined by its previous knowledge and practices of what has not and what has worked. Existing prospects as well as the challenges related to the adoption of particular coping option also determine household choices. Figure 1.2 shows the conceptual framework used in this study.

© University of Venda

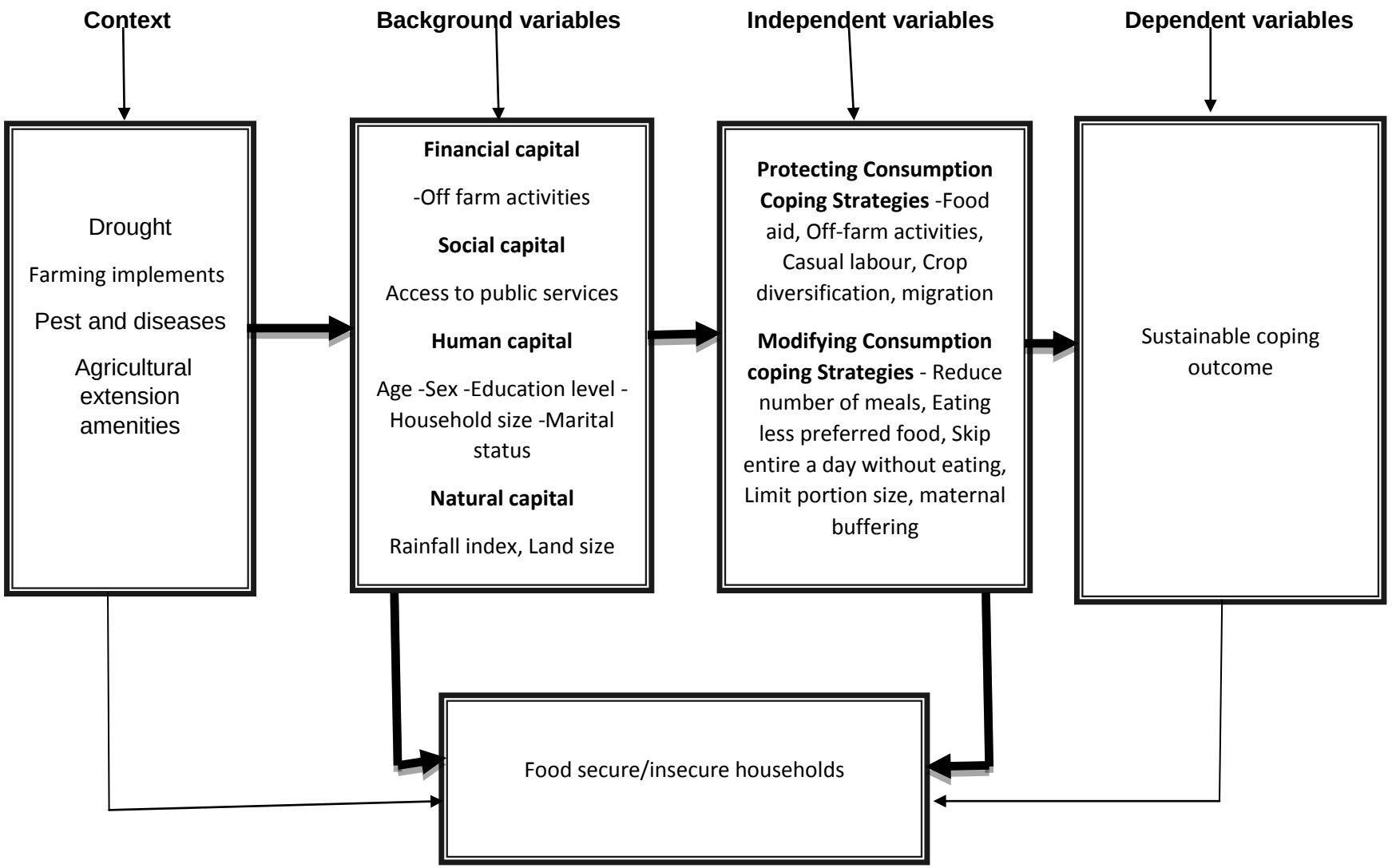


Figure 1.2: Conceptual framework of the study on strategies for coping with household food insecurity

© University of Venda

1.8 Operational Definitions of Key Terms and Concepts

In this study, *food insecurity* is conceptualised as uncertain or limited availability of nutritionally adequate and safe foods or uncertain or limited ability to acquire acceptable foods in socially acceptable ways. This definition was adopted because it addresses future household food availability, nutritional adequacy, means used to access it and social acceptability of acquired food.

Food deficit refers to the inability of a nation or a household to satisfy target consumption levels in the face of changing incomes, prices and production. Thus, in this study food insecurity and food deficit are used interchangeably because they are both utilised within the context of inability to acquire acceptable amount of food.

In this study, *coping strategies* encompass the array and mixture of activities and choice that families do to realize their livelihood objectives.

Household means a domestic unit that consists of people living together within the same homestead, including extended family members and domestic workers, who pool and share resources as well as cooking and sharing a meal.

Livelihood is a term used collectively to refer to capabilities (educational, skills, health, and networks), assets (material resources) and activities that a rural household requires to earn a living.

In this study, *contribution* refers to the role that coping strategies play towards enhancing or negating the livelihoods of households.

Livelihood capital refers to a specific classification of capabilities and assets from which a household earn a living from. These are classified as financial, human, physical, social and natural capital.

1.9 Organization of the Thesis

This thesis comprises nine chapters. The first chapter presents the contextual narrative of the study, which provides the summary of the thesis. The overarching aims and assumptions that buttress this study are incorporated in the first chapter. The literature linked to this study is reviewed in Chapter two. The reviewed literature comprises of global, regional and local standpoints. Literature on the methodologies used in similar studies is also reviewed. The third chapter of this thesis provides the procedural and methodological approaches employed in the entire research. Thus, the description of the study design, methods and techniques, analysis

© University of Venda

tools and ethical concerns applied in this study are presented. Chapter four to seven are written in a paper format, comprising an abstract, introduction, materials and methods, presentation of findings, discussion, conclusion, recommendations and references. The results and discussion on the status of household food insecurity are covered in Chapter four. Chapter five is a paper focusing on the analysis of coping measures adopted to address household food deficit. The challenges affecting the adoption of viable coping options are presented in chapter six. Proposed interventions are presented in Chapter seven. Chapter eight provides a summary of the main results and associated outcome of the entire research. Conclusions and recommendations are distilled in this chapter. The list of appendices is included after Chapter eight.

© University of Venda

1.10 REFERENCES

Babatunde, R., Omotesho, O., & Sholotan, O. 2007. Socio-economic characteristics and food security of farming households in Kwara State, North-Central Nigeria. *Pakistan Journal of Nutrition,* **6(1)**: 41-58.

Chambers, R. 1989. *Editorial Introduction: Vulnerability, Coping and Policy*. IDS Discussion Paper No. 311, Brighton, Institute of Development Studies.

Chambers, R. & Conway, R. 1992. *Sustainable Rural Livelihoods: Practical Concepts for the 21st Century*, IDS Discussion Paper No. 296; Brighton, Institute of Development Studies.

Chifamba, E. 2011. Adaption and mitigation strategies in sustainable land management to combat the effects of climate change in Chipinge. *Sustainable Development*, **13(2)**:14 – 27.

Dadabhau, A., & Kisan, S. 2013. Sustainable rural livelihood security through integrated farming systems - A review*. Agricultural Reviews*, **34(3)**: 207-215.

Dervla, C. 2004. People-Centred Approaches in Different Cultural Contexts. FAO, Livelihood Support Programme (LSP). Retrieved 03 23, 2015, from ftp://ftp.fao.org/docrep

De Stage, Holloway, A, Mullins, D, Nchabaleng, L & Ward, P. 2012. *Learning about Livelihoods Insights from Southern Africa,* 431p, Oxfam Publishing., Oxford: UK.

DfID. 2000. *Sustainable Livelihoods Guidance Sheets,* 26p, Department for International Development, London.

Edkins, J. 2007. The Criminalization of Mass Starvations: From Natural Disaster to Crime Against Humanity, 564p, In S. Devereux (Editor). *The New Famines: Why Famines Persist in an Era of Globalization*. Rutledge, London, UK.

Ellis, F. 2000. *Rural Livelihood and Diversity in Developing Countries*, *p*279, Oxford: Oxford University Press.

© University of Venda

FAO. 2016. *The State of Food Insecurity in the World. How Does International Price Volatility Affect Domestic Economies and Food Security?* 67p, FAO, Rome, Italy.

Hanyani-Mlambo, B., Mhazo, N., Proctor, S., & Henson, S. 2002. Facilitating the effective production and marketing of processed food products by small-scale producers in Zimbabwe. *Sustainable Development in Africa,* **17(2)**: 14-24

Hendrix, S, C. & Brinkman, H. 2013. Food insecurity and conflict dynamics: casual linkages and complex feedbacks. *Stability: International Journal of Security and Development,* **2(2)**: 26, 1-18.

Kahsay, S. & Mulugeta, M. 2014. Determinants of rural household food insecurity in Laelay Maichew Woreda Tigray, Ethiopia. *Agriculture and Food Security*, **2(1):**106-112.

Krishnal, T. 2015. Determinants of household food security of paddy farmers in Batticaloa district, Sri Lanka. *Tropical Agricultural Research & Extension,* 17**(3 & 4)**: 20- 27.

Kusena, B. 2015. Coping with new challenges: The case of food shortage affecting displaced villagers following diamond mining activity at Chiadzwa, Zimbabwe. *Sustainable Development in Africa,* **15:** 1-14.

Mango, N., Zamasiya, B., Makate, C., Nyikahadzoi, K., & Siziba, S. 2014. Factors influencing household food security among smallholder farmers in Mudzi district of Zimbabwe. *Development Southern Africa*, **31(4)**:625-640.

Manyeruke, C., Hamauswa, S. & Mhandara, L. 2013. The effects of climate change and variability on food security in Zimbabwe. A Socio-economic and political analysis. *Humanities and Science*, **3(2)**: 270-286.

Maxwell, S. 2011. Agricultural Food Security. In Devereux, S &S. Maxwell (Eds) *Food Security in Sub-Saharan Africa*. Intermediate Technology Development Group (ITDG): London, UK.

© University of Venda

Mortimore, M. J. (1989). Adapting to drought. Farmers, famines and desertification in West Africa, p305, Cambridge University Press, Cambridge. London.

Mortimore, M. J. and Adams, W. M. (1999). Working the Sahel: Environment and Society in Northern Nigeria. P157, Rutledge, London.

Ndiweni, N. 2015. Food insecurity vulnerability in south western Zimbabwe: A case of rural households in Matobo district. *Sustainable Development in Africa,* **17(2)**: 38- 51.

Nyikahadzoi, K., Siziba, S., Mango, N., Mapfumo. P., Adekunle, A. & Oluwole, B. 2012. Creating food self-reliance among smallholder farmers of eastern Zimbabwe: Exploring the role of integrated agricultural research and development. *Food Security,* **4**: 647-656.

O'brist, B., Pfeiffer, C. & Henley, R. 2010. Multi-layered social resilience: a new approach in mitigation research. *Progress in Development Studies,* **10(4)**: 283–293.

Omonona, B., Agoi, T. & Adetokumbo, G., 2007. An analysis of food security situation among Nigerian Urban Households: Evidence from Lagos State, Nigeria. *Central European Agriculture*, **8**: 399-406.

Oyebanjo, O., Ambali O. I., & Akerele, E. O. 2015. Determinants of food security status and incidence of food insecurity among rural farming households in Ijebu Division of Ogun state Nigeria. *Agricultural Science and Environment*, **13**: 92-103.

Scoones, I. 1996. Environmental entitlements: dynamics and institutions in community-based natural resource management. *World Development*, **27(2)**: 225-247.

Scoones, I. 1996. *Sustainable Rural Livelihoods. A Framework for Analysis*. P22, IDS Working Paper 72

Serrat, O. 2010. The Sustainable Livelihoods Approach. Washington, DC: Asian Development Bank. Retrieved 01 20, 2015, from http://digitalcommons.ilr.cornell.edu/intl

Tshediso, J. S. 2013. Determinants of food security status of households receiving government

© University of Venda

grants in Kwakwatsi, South Africa. *Social Sciences,* **4(1)**: 147-153.

Tumaini U. J & Msuya, J. M. 2017. Coping strategies and resilience to food insecurity in Urban-rural continuum of Morogoro Iringa, Tanzania. *Business Education,* **1(3)**:1- 9.

Vincent, V. & Thomas, R.G. 1960. *An Agriculture Survey of Southern Rhodesia: Part 1: Agro-Ecological Survey*, 217p, Government Printers, Salisbury, Rhodesia.

Wabwoba, M.S., Wakhungu, J.W. & Omuterema, S. 2016. Household food insecurity coping strategies in Bungoma Country, Kenya. *Nutrition and Food Sciences*, **4(6)**: 713-716.

Wambua, B. N. 2013. The status and effects of food insecurity on the households and option in semi-arid parts of Makueni District. *Agriculture and Food Sciences*, **1(4)**: 171-175.

Watson, J. P. & van Wambeke, A. 2013. Soil moisture and soil temperature regimes in Zimbabwe. *Zambezia, **XX***: 41-47.

Zakari, S. 2014. Factors Affecting Niger Food Security: An Analysis at National and Household Levels. PhD Dissertation, College of Economics and Management, Huazhong Agricultural University, Wuhan, China.

Ziaei, M., F.S. Bidabadi, F. S., Eshraghi, F. & Keramatzadeh, A. 2013. Food security and coping strategies case study of rural areas of Gorgan. *Agriculture Crop Science,* **6 (4)**: 225-230.

ZimVAC. 2016a. 'Zimbabwe rural food security assessment, June 2016.' ZimVAC, Report No. 5, Harare.

ZimVAC. 2016b. 'Zimbabwe rural food security assessment, November 2016.' ZimVAC, Report No. 5, Harare.

ZimVAC. 2017. 'Zimbabwe rural food security assessment, June 2017.' ZimVAC, Report No. 5, Harare.

© University of Venda

CHAPTER 2 REVIEW OF LITERATURE

2.1 Abstract

The predominant way of thinking about coping strategies has transformed significantly over the past decade. Household coping strategies have become more complex and holistic. In this chapter, an analysis of the contemporary literature on strategies adopted to cope with household food deficit is presented. Secondary data on coping mechanisms were gathered through document analysis. Sources of secondary data comprised ZimASSET document, ZimVAC reports, Ministry of Agriculture and Mechanisation reports, journal articles and books. The data provided critical background on the global and local household livelihoods and food deficit status. Basing on the literature review, food deficit is a concept whose use is varied. This is a result of the multi-disciplinary nature of the concept. Food insecurity has evolved from concentrating on food availability to adequacy and utilisation. Thus, the measurement of food deficit comprises assessing the present and future food accessibility, availability, stability, nutritional adequacy and issues of social acceptability. There is no 'one-size fits all' standard method of measuring food deficit. However, Household Food Insecurity Access Scale (HFIAS) represents a less costly, timely and simple technique for measuring food deficit at the household level. Each analytical method and tool presents different merits and weaknesses. Thus, an integrative approach embraces the multi-dimensionality of food deficit and coping strategies. Furthermore, the complexity of analysing food insecurity stems from the level of measurement. Although food deficit was previously analysed at the international level, contemporary discourse has narrowed the discussion to the household and individual level. This stems from the belief that households are affected differently and thus, respond inversely to covariant threats. The choice of coping mechanisms is a dynamic practise in which households combine different strategies in order to satisfy their varying wants. One conclusion which can be easily pulled out of the discussions in this chapter is that there are very few empirical studies that describe the coping measures utilised by rural families. This makes it imperative to examine the mechanisms used to address household food deficit. This information assists responsible agencies and organs in designing suitable programmes and policies that are dedicated towards alleviating food deficit.

Key words: Document analysis, food insecurity, coping strategies, food security measurement, determinants

© University of Venda

2.2 The State of Global Food Insecurity

Food security is a central human right (the right to food). Food deficit is a worldwide health challenge (Rukundo *et al*., 2016; WHO, 2017). It is a community health problem in most rural areas, where households experience food deficit on a regular basis. Food security has been considered as an element of well-being and people facing food deficit are at a threat of numerous undesirable health concerns (McIntyre & Tarasuk, 2002; Ehebhamen *et al*., 2017). Bashir *et al*. (2012) posit that household income has a strong link with food deficit. The rising disparities in developing economies have caused worrying and growing levels of food deficit (McIntyre & Tarasuk, 2002; Fahmida *et al*., 2017; WHO, 2017). Without the adoption of viable coping options, households in rural economies continue to grapple with food shortfalls.

The most broadly recognised meaning of food security was suggested at the World Food Summit (FAO, 2010). The conceptualisation was recognized by state and non-state actors. Agwu & Ogbonnaya (2014) defines food security as:

> *…when all people, at all times, have financial and physical access to adequate, nutritious and safe diet to satisfy their dietary requirements for a well-being and active life.*

Food deficit occurs when a household is deprived of adequate social, physical and economic access to foodstuff. Numerous terms are frequently utilised to define the notion of food insecurity. These terms include food deficit (Ellis & Allison, 2009; Maxwell, 2011), food poverty (Tarasuk, 2001; Fahmida *et al*., 2017), hunger (Ellis, 2000; Maxwell, 2011) and food insufficiency (Edkins, 2007; Abur, 2014). This study uses the terms food insecurity, food deficit and food security. Other terms are only used if they are appropriate to the literature being discussed.

According to WHO (2017), food security is premised upon three rudimentary components namely food availability**,** food access and food utilisation. These three basic components have two main domains namely food quality and food quantity (McIntyre & Tarasuk, 2002; Adugna & Fikadu, 2015). De Stage *et al*. (2012) suggest that food security is more than just accessibility and availability. Food should be appropriate (Radimer *et al*., 1992; McIntyre & Tarasuk, 2002) and suitable (Mengistu & Haji, 2015). Abu & Soom (2016) emphasise that food should be acquired using correct and socially acceptable means.

Food security has numerous definitions, scales and determinants. Food security discussions are normally done at three distinct levels namely individual (Peng *et al.*, 2017), household (Radimer

© University of Venda

et al., 1992; Mengistu & Haji, 2015) and communal (Ellis, 2000; Maxwell, 1996; 2011). Individual insecurity is categorised by insufficient intake (Ziaei *et al*., 2013), dietary inadequacy (Demetre & Zandile, 2009; Lawson *et al*., 2017), feelings of deprivation (Radimer *et al*., 1992; Maxwell, 1996), lack of food options (Mjonono, 2008; Abu & Soom, 2016; Fahmida *et al*., 2017) and interrupted consumption patterns (O'Brien & Cook, 2016). Household food insecurity involves the referencing of the food deficit idea to the domestic or household level, with persons within families considered as the unit of analysis (Ehebhamen *et al*., 2017). Household food insecurity is characterized by food depletion (Ahmed *et al*., 2015; Lawson *et al.*, 2017), food anxiety (Mjonono, 2008; Oyebanjo *et al.*, 2015) and inappropriate food (Barrett, 2010; Rukundo *et al*., 2016). Jonker & Pennick (2010) point out that household food deficit includes worries about both food production and food intake. Practical and policy implications differ among the three categories of food security.

Household and individual food security considers social policy while communal food systems are more concerned with food policy (FAO *et al*., 2014; Ehebhamen *et al*., 2017). To acknowledge the exceptional food deficit concerns of people living in arid environments, FAO (2010) suggests "cultural food security" as additional stage beyond individual and community food security. Thus, family food security is a highly composite and integral multi-sectorial issue, which needs an interdisciplinary approach and involvement of diverse players.

Based on most recent approximations, 805 million people worldwide are undernourished (Ehebhamen *et al*., 2017). Over 2 in every 5 people in the globe are unable to access adequate food to survive a health and an active life (Lawson *et al.*, 2017). Although the number is decreasing due to improvement in production (FAO, 2011; Hendrix & Brinkman, 2013), the development towards enhanced food security continues to be uneven across countries. While some countries (Central Asia, North Africa and Latin America) have made quick progress in addressing hunger (Dhur, 2006), considerable incidence of food deficit remain widespread in a number of developing nations. The abandonment of household food production due to lack of assets was considered the main cause of food deficit. Lack of agricultural resources (Kahsay & Mulugeta, 2014), poverty (Edkins, 2007), hostile weather and climatic conditions (Maxwell, 2011), unstable markets (Hanyani-Mlambo *et al*., 2002; Krishnal, 2015) and food wastage (Babatunde *et al*., 2007) are some of the major causes of food deficit in the world. These facts reveal that food insecurity is a challenge in many countries. Thus, existing literature show that preferred coping mechanisms are helpful for food anxious families to maintain their food consumption requirements rather than making them food secure.

© University of Venda

Table 2.1 Summary of definitions of food in/security

Organisation/Author	Definition
a) Individual and household food security/insecurity	
Campbell, 1991; Radimer *et al*. (1992)	Food insecurity comprises challenges in accessing nutritionally acceptable foods as a result of absence of cash to buy food. It can also be a result of inability to access sufficient foods due to deprivation and weather associated conditions.
Davis & Tarasuk, 1994; Ezeama *et al.* (2015)	Food deficit is the incapacity to obtain or eat an acceptable food quality or adequate quantity of diet in a socially acceptable way.
World Food Summit (1996); WHO (2006)	Food security, at the global, regional, nationwide and individual levels is attained when there is adequate economic, physical, and social access to non-toxic, satisfactory and healthy diet to satisfy people's food necessities for a health life.
Indian and Northern Affairs Canada (2001)	Food deficit is the restricted or unclear accessibility to nutritionally satisfactory and suitable diets or uncertain/limited ability to obtain suitable diets in a socially suitable way.
Mengistu & Haji (2015); Uzokwe *et al*. (2016)	Food security is the affirmation that family members have pecuniary and physical access to the diet they want at all times. It means that the diet is nontoxic, nutritionally adequate and socially acceptable and it is acquired through means that espouses rudimentary human self-respect.
b) Community food security	
Ontario Public Health Association (2002)	Communal food security is an approach for safeguarding safe and protected access to acceptable, safe, nourishing, traditionally appropriate food for all, produced in an ecologically viable manner.
Hamm & Bellows (2003)	Communal food security is a situation when residents get a non-toxic, customarily suitable and nutritionally acceptable food through a viable food system that capitalize on self-sufficiency and societal integrity.
Anderson & Cook (1999); Akhtar *et al*., 2015	Advocates and practitioners of food security envisage food structures that are ecologically all-encompassing, devolved and supportive of communal rather than distinct individual requirements.

© University of Venda

Key coping strategies that have been effective in achieving nutritional goals include improvement in agricultural productivity (Omonona *et al*, 2007; Tumaini & Msuya, 2017), pecuniary growth (Grobber, 2014; Krishnal, 2015), improvement of food markets (Greer & Thorbecke, 1986; Babatunde *et al*., 2007) and rise in social security (FAO, 2010). Kolmar & Gamper (2012) note that although some nations in Southern Asia, Oceania, and the southern and eastern Africa reported some achievements in decreasing the incidence of hunger, other forms of malnourishment persist at high levels in these areas. In many nations, well-being challenges linked to nutritional shortfalls are an ever growing challenge (Krishnal, 2015; Oyebanjo *et al.*, 2015). Wabwoba *et al*. (2016) posit that deaths caused by food deficit far exceed mortality directly caused by violence. Undernourishment is linked to half of all juvenile mortality (O'Brien & Cook, 2016, Fahmida *et al*., 2017), and those children who endure undernourishment are smaller and more likely to witness constrained brain development (IFAD, 2010; FAO *et al*., 2014). These facts provide sufficient evidence that alternative coping options should emphasise production based options. Consumption coping strategies do not result in food security among the households.

The UN (2011) and WHO (2017) posit that adults living in food anxious families reported mental problems and poor health than adults who stayed in food secure households. Notwithstanding the new indication that food deficit exist among communities in dry areas, scanty information exist about the physiognomies of food insecure households in these dry regions (Omonona *et al*., 2007; Kabui, 2012, Fahmida *et al*., 2017). The well-being results for food insecure individuals in these areas appear to be concealed. Studies indicate that numerous health concerns encountered by people staying in dry areas are linked to food shortfall. These challenges include anaemia (WFP, 2011; FAO *et al.*, 2014); stunted growth (Ivolga, 2014) and high blood pressure (FAO, 2011). It is therefore important to screen the coping options in order to generate appropriate information that aid formulation of context specific intervention measures.

2.3 Household/Family Food Deficit as a Managed Process

Though theoretically household food deficit is studied as a constituent of complex and distinct levels, experientially it is a process. Abu & Soom (2016) posit that the managed feature of household food deficit means that household members experience diverse components of food shortage at different periods and at diverse magnitude. Faced with food deficit, household members adopt both unorthodox and socially accepted means to secure household food. Within this context, household food insecurity is assumed to be a managed process.

© University of Venda

This study used family and household as substitutable descriptors, supposing that the precincts between these descriptors are fluid. These words refer to a tangibly classifiable residence that is structured through affinity rules and lines. In the setting of Chipinge district, a household is a complex economic, cultural, political and social unit comprising of people who stay in the same dwelling, sharing both the 'the pot' and 'the roof' (Abu & Soom, 2016), labour and income. This study selected the household and individual as an economic and social unit of enquiry. Thus, a household as a unit adopt a number of coping measures, either individually or collectively in order to address food shortfall.

In recounting the lived experiences of household food deficit among poor households, Adugna & Fikadu (2015) posit that concern about the sufficiency of food provision starts, followed by reduction in the food quality (Amaza *et al*., 2009; Wabwoba *et al*., 2016), quantity (Abu & Soom, 2016) and then withdrawal of food intake among adult members. Oyebanjo *et al*. (2015) suggest that household food deficit infrequently affect children's consumption patterns. In most cases, the amount of food consumed is preserved at the expense of quality, and young members of the household are protected from compromise (Tshediso, 2013; Ahmed *et al*., 2015). The differences in withdrawal of children and adults' food consumption among resource poor households are presented in a number of comparable studies (Barret, 2010; Bashir *et al*., 2012; FAO *et al*., 2014). Whilst these facts exist intervention approaches have endeavoured to promote these consumption strategies, with severe ramifications on livelihood sustainability in the long run.

Household members adjust depending on the food situation. Ellis (2000) and Akhtar *et al*. (2015) posit that adult household members quickly withdraw food consumption. However, Kahsay & Mulugeta (2014) narrate a different situation in Ethiopia during the great famine, where adults sacrificed their children's consumption for their sake. In other comparable studies (Edkins, 2007; De Stage *et al*., 2012; FAO, 2014) practices of food withdrawal are common among children and adults in poor households. Morello (2012) and Wabwoba *et al*. (2016) point out that children living in families with a bigger adult-children ratio are expected to experience diet withdrawal. Thus, in most cases household food deficit is a managed process, where members can devise mechanisms to reduce the impact of food shortfall.

Kabui (2012) in a qualitative research on coping strategies among the aged, exposed a rather diverse development of household vulnerability with increasing anxiety. Consumption of poor quality food set first (Kabui, 2010) followed by food worry (Mjonono, 2008), intake of undesirable food (Akhtar *et al*., 2015), the utilization of emergency food procurement methods (Kusena,

© University of Venda

2015), selling of productive resources (Wambua, 2013) and lastly starvation (Sen, 1981). Scones (2009) and Kahsay & Mulugeta (2014) suggest that household food quality anxieties among the aged reveal their greater supposed need for high quality diets. In comparable studies (UN, 2011; WFP, 2013; Abu & Soom, 2016), aged household heads were found to be food insecure. However, there are limited case studies where aged household heads were found to be secure. Cases of security among aged households were recorded in South Africa (Mjonono, 2008; Mjonono *et al*., 2009; Tshediso, 2013) and Nigeria (Oyebanjo *et al*., 2015). The differences in these results lie in the variations in the functionality of social safety nets directed towards the aged in these distinct countries.

Coping strategies adopted during severe household resource constraints (such as instructing children to go and feed at a relative's or friend's household and the utilisation of charitable food support programmes) are recognized as managed process of food insecurity (Kahsay & Mulugeta, 2014; Ehebhamen *et al*., 2017). However, Oyebanjo *et al*. (2015) suggest that their unpredictability and diversity have made their categorisation practicality questionable. Differences among households were identified in terms of phases of austerity at which specific coping strategies were used and whether or not the coping strategies were used altogether (Sen, 1981; Radimer *et al*., 1992; Ziaei *et al*., 2013). Thus, the existing knowledge on household food severity stages should guide interventions. This assists in mapping how and when intervention is required.

2.4 Determinants of Household Food Insecurity. A Global Overview

Determinants of food deficit in several emerging economies particularly in Africa are documented in existing literature. These factors are frequently than not context-specific (Anderson & Cook, 1999; Birara *et al.*, 2015). Literature that link family features to food deficit has received greater consideration during the previous few years. This is an outcome of the appreciation that constituents of economic and social statuses that differentiate and describe household are important indicators of food deficit (Babatunde *et al*., 2007). The differences in factors that determine household food insecurity within various geographical locations demands the assessment of the factors in Chipinge district. This assists in identifying appropriate strategies that address food security challenges.

2.4.1 Household socio-economic features and food deficit

Food deficit is a multifaceted and composite matter that needs numerous integrative methods and theories to describe it (Agwu & Ogbonnaya, 2014; Ehebhamen *et al*., 2017). Grobber (2014) argues that family characteristics are vital and that household food deficit should be

© University of Venda

considered as a multi-objective occurrence that is best described by people affected. Earlier studies (FAO, 2010; Kuwenyi *et al*., 2014; Krishnal, 2015) identified social physiognomies such as age, sex, literacy and marital status, livestock possession, land size and household size that determine household food deficit.

Food deficit and Household head's age

The age of the household head determine food deficit of the family he/she controls through technology adoption, asset-building, or threat aversion choices**.** Family heads become more knowledgeable with increase in age and also get more acquaintance (Kahsay & Mulugeta, 2014) and capital (Maxwell, 2011), thereby determining household food deficit. On the other hand, numerous studies (Ellis, 2000; De Stage *et al*., 2012; Kuwenyi *et al*., 2014) discovered that as the household head's age rises, his/her effectiveness in executing agricultural tasks weakens ensuing in truncated farm productivity.

Relationship between sex of the head of household and food deficit

Female-headed families are anticipated to experience severe food deficit statuses than male-headed families. Ndiweni (2015) posits that a significant number of female-headed families in the Zimbabwean rural structure exist due to death or divorce. This condition leaves female headed households with inadequate assets such as livestock, land, and other fecund resources. Furthermore, female heads encounter numerous challenges in the labour market as employers shun recruitment of female employees in the agricultural sector in Zimbabwe (Scoones, 2009; Ndiweni, 2015). Female heads are accountable for sustaining the family including child care and household farm duties in addition to work schedules performed outdoor. They also face greater dependency ratio because their households rely on a sole income breadwinner (Birara *et al*., 2015). Thus sustainable interventions should address the needs of deprived households.

Numerous researches have maintained that female headed families are susceptible to deprivation as compared to male-headed families (Scoones, 2009; Zakari *et al*., 2014; Gichuhi, 2015). Incidences of food deficit are greater in female headed compared to male-headed families. This increases the problem of providing the family with adequate daily food requirements. A research done by Kuwenyi *et al*. (2014) in Swaziland also found out those male-headed families were more secure than women-headed families. The research cited above reveals that nearly 57 % of male-headed families were secured compared to 43 % of female-headed families. From the literature reviewed, it is clear that sex of the household head determine food deficit. However, this factor is context specific and unique depending on the

© University of Venda

geographic characteristics of the area. Thus, the existing literature validates the necessity to unravel the determinants of food shortfall from diverse viewpoints.

Marital statuses and food deficit

The household head's marital status determine household food deficit (Babatunde *et al*., 2007). Earlier studies (Bashir *et al*., 2012; Agwu & Ogbonnaya, 2014; Ehebhamen *et al*., 2017) discovered that family head's marital status has both positive and negative ramifications on food security. In a comparable research, Birara *et al*. (2015) note that single heads of households were affected more than their married counterparts. While approving the importance of connubial statuses on food deficit in Bangladesh, Fahmida *et al*. (2017) posit that families headed by married couples were more food insecure than their counterparts. This was a result of the fact that families with married couples usually have more household members.

Educational attainment of the family head and food deficit

Educational attainment affects farming production and therefore food deficit at the family level. Various studies (Radimer *et al*., 1992; Agwu & 0gbonnaya., 2014; Peng *et al*., 2017) established that low education attainment among household heads make the introduction of better farming skills, tools and knowledge use difficult.

Family size and food deficit

Family size influence labour capital and food intake in the household. This therefore determines the family food deficit status (Scoones, 1999; Oyebanjo *et al*, 2013; Peng *et al*., 2017). Household size affect food deficit, although its impact cannot be recognized earlier. A number of studies (Wambua, 2013; Tshediso, 2013; Uzokwe *et al*., 2016) established that bigger sized families are positively associated with food deficit. The explanation behind these findings is that bigger families require more capitals to meet their food needs. However, other studies (Shanner, 1982; Wabwoba *et al*., 2016) discovered that bigger households possess a large pool of labour force, thereby ensuring increase in agricultural production. The availability of human capital assists in the execution of smallholding tasks timely. Household members also participate in diverse non-farm and farm work, thereby, increasing and diversifying income sources. This in turn determine food deficit in a positive way.

Livestock possession and food deficit

Livestock are vital assets that perform a critical role as security against food deficit (Maxwell, 1996; Maude & James, 2010; Lawson *et al*., 2017)**.** Proprietorship of livestock assets is a cornerstone in the survival options and defence against bankruptcy of several forms. Cattle, goats and sheep were the rudimentary worth units both in economic and social terms (Maxwell,

© University of Venda

2011; Morello, 2012; O'Brien & Cook, 2016). Cattle measure the worth of anything from children to wives, and the amount of food borrowed during food scarce seasons (Mjonono *et al*., 2009; Kahsay & Mulugeta, 2014; Rukundo *et al*., 2016). Thus, without critical assets deprived households find it difficult to procure food. Intervention approaches that fail to address the asset requirements of poor household may not be appropriate within rural contexts.

Farming land size and food deficit

Farming land is a critical factor that determines household productivity (Maxwell, 2011; Hendrix & Brickman, 2013; Lawson *et al.*, 2017). Access to farm land permits production of both cash crops and food for households as well as for individuals. The extent of land possessed by a family is an imperative indicator of food deficit status. Kahsay & Mulugeta (2014) reveal that the extent of land possessed by families had negative or positive effect on food deficit in Ethiopia. Kabui (2012) also discovered that farm land size was negatively and significantly associated with household food deficit in Kenya.

2.5 Strategies for Coping with Household Food Insecurity. A Global Perspective

Many reviewed research work on food insecurity use 'risk aversion' (Bashir *et al*., 2012; Lawson *et al.*, 2017), 'adaption to' (Maxwell, 1996; 2011; Kahsay & Mulugeta, 2014), 'surviving mechanisms' (Maxwell & Caldwell, 2008; Krishnal, 2015) and 'coping with' (Barrett, 2010; Omonona *et al*., 2007; Oyebanjo *et al*., 2015) to describe the strategies used to address household food shortfall. These numerous concepts are usually used by different authors, applying them to certain circumstances. Ellis (2000) provides the definition of coping strategies as:

> *…involuntary methods used after a severe decline in regular sources of food to respond to a adversity or unforeseen failure in key sources of subsistence*

Devereux (2001) also conceptualizes coping strategies as a reaction to negating shocks or events. Also, Chambers (2001) defines coping strategies as all the selected mechanisms that households utilise to control their costs or generate earnings for payment of basic requirements. All these definitions imply that household coping strategies comprise of a conscious judgement of available alternative strategies. Omonona *et al*. (2007) and WFP (2014) emphasise that the adoption of alternative coping strategies hardly means that the options always succeed in realizing the envisioned goals. Numerous studies (Ellis, 2000; Maxwell, 2011; Kahsay & Mulugeta, 2014) record cases where preferred coping strategies had inadvertent undesirable impacts.

© University of Venda

In his seminal work, Morello (2012) maintains that although coping options are used after a perturbation, their invocation cause a rise of novel livelihood options. The invoking of coping strategies at an early phase may comprise the pursuit of other sources of income that completely change the coping pattern of a household at a future period. Numerous researches (Morello, 2012; Ndiweni, 2015; Wabwoba *et al*., 2016) used the concept "coping strategies" to include short term, inadvertent and carefully considered household risk avoiding strategies and lasting adjustment to food deficit. Concerning the conceptual boundaries of the notion 'coping', this research goes beyond the limited concept to include the broader concepts borrowed from the term 'livelihood strategies'. Maxwell (1996) defines livelihood as

> *…capabilities, resources and undertakings essential for a means of living. A livelihood is viable when it can manage and recuperate from stress and shocks, preserve or improve assets and capabilities, and offer viable livelihood prospects for the subsequent generation; and which contribute to the livelihoods benefits at the global, national and local levels and in transitory and projected basis.*

The term "coping strategies", as conceptualized in this research, took into account a number of aspects that determine the configuration of livelihood approaches over a long period of time. This study also stresses how adopted coping strategies eventually evolve into livelihood strategies that are included in households' seasonal calendars.

Households rely on a diverse of coping strategies to counter the effects of production deficit and food market uncertainties. Hendrix and Brickman (2013) and Peng *et al*. (2017) suggest that coping mechanisms are not always efficient or effective due to lack of assets and inadequate institutional aid. The degree of a household susceptibility to food deficit is affected by the assets that it possesses (Maxwell, 2011). The resilience of a household depends on how well it can reorganize and adapt (Ellis, 2000; Altman *et al.*, 2009; O'Brien & Cook, 2016). Demographic characteristics are also important in determining household food shortfall (Mengistu & Haji, 2015; Wabwoba *et al*., 2016; Peng *et al*., 2017). Small-scale farmers aim to maximize household's utility (FAO, 2011; Ehebhamen *et al*., 2017) and therefore have to take account of the risks. This is a vital factor given the characteristics of agricultural production in rural areas. The coping strategies employed by various households may be different from place to place.

Affected by adverse seasonal conditions, households develop mechanisms to manage these problems. Families rely on minimal crop and livestock farming (Scoones, 1996; Krishnal, 2015) and petty trade (Mjonono *et al*., 2009; Wabwoba *et al*., 2016). Beside, Barrett (2010) and Akhtar

© University of Venda

et al. (2015) deliberate on the capacity of households to address the constrictions of food production practices, including famine incidents. De Stage *et al*. (2012) also point out that food insecure households adopt short-term coping strategies which do not provide solutions to food deficit challenge in the long term. Scoones (2009) notes that the failure to address food insecurity in the SADC region lies in the lack of institutional capacity to address long term impacts of adopted coping strategies. While the above findings are important at the national level, little information exists on the effects of preferred coping mechanisms at the family level.

Studies in West Africa reveal that the major influence on household's choices of coping strategies lies in their access to assets (FAO, 2011). The choice of coping options is a procedure in which families select coping options to satisfy their varying requirements (Peng *et al*., 2017). For instance, among rural families, activities are not essentially restricted to farming, but comprise other coping options in order to spread income and risks. However, while access to assets is critical, seminal work on food shortfall fails to address the major determinants of deficit (Ellis, 2000; Silverman, 2011; Abu & Soom, 2016); role of institutions (Grobber, 2014; Cheema & Abbas, 2016) and procedures (Irohibe & Agwu, 2014; Johnson *et al*., 2015) that affect households' capacity to utilize assets in an endeavour to realize realistic coping outcomes. In the same vein, this study is critical because these essential elements are addressed adequately in proceeding chapters.

In Mali and Senegal, there is evidence of coping options developed to cushion against the uncertainties induced by droughts (FAO, 2012; Ehebhamen *et al*., 2017). Mengistu & Haji (2015) also indicate that there is evidence that coping strategies have evolved among pastoral communities in famine prone areas in the Sahel region. FAO (2011) narrates how pastoral communities in North and West Africa make changes in their selection of technologies, production and consumption choices. Scoones (1999) grouped these coping strategies into *ex-ante* (in season adjustment of resources and pastures) and *ex-post* risk management (distress sale of livestock, borrowing and cutting of expenditure). While these studies shed more light on the coping strategies in the Sahel region, little is known on coping strategy matrix and the spatial scale at which the numerous approaches function in Zimbabwe. Environmental differences make it difficult to overlay the Sahel findings on the Zimbabwean case studies.

In drier environments, coping strategies are important, although they are less varied owing to more constrained resource base (Ellis, 2000; Fahmida *et al*., 2017). Where the prospects exist, being employed as salary labourer, trader, merchandiser or as a farmer are also common practices (Scoones, 1999). However, due to the limitations which exist in these drier

© University of Venda

environments, whether employed or not, people continue to survive on the margins. Also, the challenges related to animal production in arid locations reduce the motivation to invest. However, FAO (2010) notes that since livestock are the major store of wealth, households hold more in order to insure that they remain sustainable after the disaster. In many cases, farmers lost their livestock due to speculation tendencies. Kolmar and Gamper (2012) conclude that in the Sahel region, coping comes at significant costs to the poor households. The costs remain to be felt even after the disasters recede. The impact of reduced food consumption, sale of assets, foregone health care and education and the stress incurred by household heads struggling to cope reverberate for a long time.

A research conducted in South Africa reveals that households adopt various strategies and also rely on existing support structures to cope with food shortfall (Altiman *et al*., 2009). These included gathering of wild foods (Mjonono *et al*., 2009) support from relatives and friends (Altiman *et al*.,2009), market purchases, sale of productive assets, remittances, decrease in daily meals, cut in food rations and intake of less favoured diets (Tshediso, 2013). Despite the existence of literature on coping strategies in many parts of the world, there is little known about coping strategies in Chipinge district. This situation hinders the establishment of appropriate interventions in the study area.

2.6 Classification of Coping Strategies

Coping mechanisms are characterised into 3 phases that show the progressive stages of dealing with food deficit (Ellis, 2000; Maxwell *et al.*, 2003; Bartlett, 2010). Nevertheless, most families do not use the coping options in the order reflected below (Devereux, 1993; Amaza *et al*., 2009; Krishnal, 2015). These coping strategies are categorised in order of their severity. The continuum starts from insurance, crises to failed coping measures. When food shortfall sets, households are preoccupied with the need to save available food, even though future food intake is compromised (Ellis, 2000; Ehebhamen *et al*., 2017). Household assets important for future subsistence are abandoned or sold to starve off hunger at a future stage, when all other options are exhausted (Ellis, 2000; Ellis & Allison, 2009; Maxwell, 2011). This shows that households are rational units which weigh options before settling on preferred strategies. However, there are certain cases when opted strategies can further drive the household into deprivation. The 3 classifications of coping options are presented below.

2.6.1 Non-erosive coping (Insurance strategies)

The initial phase of managing food deficit is characterised by lack of food, or incapacity to afford satisfactory amounts of food for household consumption (Maxwell & Caldwell, 2003; Kolmar &

© University of Venda

Gamper, 2012; Krishnal, 2015). During this period, households survive by borrowing from neighbours, friends and relatives (Maxwell, 1996; Ahmed, 2015). Fall in food consumption (Birara *et al*., 2015; Ehebhamen *et al*., 2017), intake of inexpensive diet (Maxwell, 1996; Babatunde *et al*., 2007) and decrease in the regularity of meal time (Mjonono *et al*., 2009; Oyebanjo *et al*., 2015) are some of the coping options which follow. When available food or capital diminishes, the preferred coping options are dietary modification (Zakari, 2014; Ahmed *et al.*, 2015), decrease in the total number of mealtimes (Abur, 2014; Abu and Soom, 2016), depending on wild foods (Mjonono, 2008; Birara *et al.,* 2015), looking for salaried work (Ellis, 2000; De Stage *et al.*, 2012) and getting money or food from the lineage (Lovendal *et al*., 2004; Maxwell & Caldwell, 2008b). These coping measures are used as initial phase approaches (Maxwell, 1996). During this initial phase, household interventions are rescindable and do not destroy prospective productive capability and livelihoods. The primarily goal is to avoid impoverishment (Bashir *et al*., 2012; Ehebhamen *et al*., 2017). Maxwell & Caldwell (2008a) define these mechanisms as adaptation and accumulation coping strategies.

2.6.2 Erosive coping (Crisis strategies)

The crisis stage is categorised by the auction of household resources (productive and non-productive assets) (Maxwell, 1996; Bashir *et al*., 2012; Ndiweni, 2015). The coping options at this phase are irreversible since households are compelled to utilise mechanisms that deplete their fecund resources and threaten their future livelihoods (Hassan & Baby, 1991; Ehebhamen *et al*., 2017). During this stage, the food deficit starts to curtail asset protection (Grobber, 2014; Birara *et al*., 2015). The resources peddled at this phase are those linked to income creation, such as land, agricultural tools and cattle. Abu & Soom (2016) posit that this phase is characterised by change of concern from resource preservation to food intake. The auction of fecund resources has austere consequences for the future household productive capacity and security. Crisis coping activities result in reduction of household resources. Marketing of household resources in reaction to shocks depresses impending food intake (Birara *et al*., 2015; Ehebhamen *et al*., 2017). Households that rely on inappropriate coping mechanisms such as auctioning of useful household assets or use of credit signify a fundamental issue of apprehension for stakeholders working with deprived households (Kolmar & Gamper, 2012). The frequency of resource disposal demonstrates susceptibility to food deficit (Maxwell, 1996; Rukundo *et al*., 2016; Ehebhamen *et al*., 2017). Programmes and interventions that assist poor household to build their asset portfolios create appropriate conditions for livelihood resilience.

© University of Venda

2.6.3 Distress strategies (Failed coping options)

The last phase is experienced when food deficit persist, resulting in a desperate condition. Dependency on food aid, out migration and destitution are symptomatic reflection of this phase (Maxwell & Caldwell, 2008a; Oyebanjo *et al*., 2015). Although the sale of household resources guarantees subsistence, it severely threatens household well-being in the future. At this phase all coping options are exhausted and household members migrate or rely on food donations for subsistence (Ellis, 2000; Rukundo *et al*., 2016; Ehebhamen *et al*., 2017). Thus, such households lack critical resources that help them to make informed choices.

2.7 The Concept of Resilience and Its Link to Household Food Deficit

2.7.1 The concept of resilience

Resilience refers to the capacity of families, communities and countries to cope, by transforming or maintaining acceptable living standards in the face of shocks and anxieties. Households maintain their standards of living without compromising their future food security requirements (DFID, 2011). Building community or household resilience needs assisting members cope with transformation, adjust to novel and varying conditions, and facilitate institutional and governance changes that encourage virtuous plans, policies and programmes to aid broader development at appropriate scale and over protracted period. (Frankenberger & Nelson, 2013). This ultimately results in sustainable benefits.

Natural capital-based coping mechanisms such as farming, livestock production, firewood and wild-foods gathering and fishing are extremely susceptible to the impact of deforestation, infringement into and ruin of fragile environments, unsuitable land utilisation and overgrazing. All these challenges weaken community and household resilience. This hinges on household access to and utilisation of resource, how families endeavour to cope with risks and how their attitudes influence such choices. Resilience includes both temporary coping activities that have protracted effects. Alinovi *et al*. (2010) state that empirical application emphases on how to assess household resilience to food deficit as a support to susceptibility measurement. Monitoring and evaluation systems for assessing the effect of resilience should emphasise on the use of methods that involve local players and deprived groups.

2.7.2 Principles for resilience measurement

Resilience is a process that involves variations over time. Thus, there are a number of ways that are utilised to measure resilience. It is possible to reach agreement on how to determine the effect of explicit types of interventions on resilience of particular populations to types of stresses and shocks (Oyebanjo *et al*., 2015). Certain measurement principles are broadly applicable.

© University of Venda

2.7.2.1 Tipping points/Thresholds

Resilience measurement involves assessing community and household trajectories in addressing shocks and how these trajectories vary on the basis of community and household coping strategies. Nevertheless, a change is not invariable over a period of time, nor is it essentially gradual; rather, it includes significant thresholds or tipping points, beyond which alterations either negative or positive happens (Rukundo *et al*., 2016). Thresholds lead to noticeable changes in performance and behaviour. It is imperative to categorize the possible thresholds in order to establish the existing well-being and trajectory outcomes of households. It is also vital to establish whether such changes are transitory or structural.

2.7.2.2 Community level measurement

More studies are required on measuring resilience at the higher systems or community levels. This is due to the fact that families may achieve some level of positive coping outcomes on their own but may be hindered if national and local governance systems and institutions fail to promote appropriate coping policies and programmes.

2.7.2.3 Ecosystem health/natural resources

Ecological-based coping measures such as livestock, wood gathering, agriculture, fishing, wild gathering of medicinal plants and foods are highly susceptible to the effects of environmental degradation. This weakens community and household resilience.

2.7.2.4 Motivations/Aspirations

Aspirations or attitudes, determine the choices, preferences and behaviour of households as well as affiliations they establish within a particular community. These affiliations are shaped, in part, by socio-cultural norms and attitudes. Thus motivations and aspirations have both a community and household level component. Household coping depends not only on access to and utilisation of assets, but also on how they manage risks. It is also determined by how household attitudes impact on such decisions.

2.7.2.5 Inter-scalar relationships

Communities, households and individuals from an inter-linked ladder of scalar dependencies; individual members exist within families, which operate within communities, which function within territorial or governance units (Scoones, 1999). Determining the level of resilience must take cognisance of the functional interactions and affiliations that one unit (for example a household) to influence negatively or positively another unit (for example community) as well as

© University of Venda

relations between units. Furthermore, variability is not static over time and tends to change according to scale (such as wider ecosystem, community, and household).

2.7.2.6 Culturally-relevant

Evaluation systems for assessing the effect of reliance programming should prioritise strategies that allow affected communities to participate. Monitoring and evaluation systems should encompass measures of success that are relevant to the community. Measurement approaches should be culturally relevant and use benchmarks for success that are contextually appropriate.

2.7.2.6 Context-specific

Resilience is defined by the type of shock or change experienced, as well as by ecological, political and socio-economic context within which the change or shock occurred and the response adopted. Thus, resilience is context specific. Also, context changes according to how households or individuals respond to shocks and risks (DfID, 2011). Frankenberger *et al*. (2010) posit that the response results in a novel set of contextual factors that need to be factored into resilience-building measures of impact and methods.

2.7.2.7 Temporary consideration

The determination of resilience should be premised on panel data gathered from the same households over a period of time (Alinovi *et al*., 2008). Panel studies data in rural areas are rarely available and can be difficult to get. As a result, cross-sectional data have been utilised to approximate empirical theories of resilience. However, the estimations have failed to shed more light on household risk management coping strategies (Frankenberger *et al*., 2012).

2.8 Obstacles Hindering Viability of Coping Options in Arid Regions

Studies on factors that inhibit sustainability of coping strategies in the arid regions were reviewed in this current study. The major challenge of food scarcity in Sub-Saharan Africa lies in its underdeveloped agricultural sector (Hanyani-Mlambo *et al*., 2002). The farming sector is affected by over reliance on primary production systems (Tshediso, 2013; WFP, 2011), soil infertility (Mango *et al*., 2014), trifling utilization of external farm inputs (Scoones, 1996; Barrett, 2010), nominal value addition (Ellis, 2000; Kolmar & Gamper, 2012), product differentiation (Kahsay & Mulugeta, 2014) and commodity price fluctuations (Maxwell, 1996; Mango *et al*., 2014). Scoones (1996) posits that there is a general waning in farming investment, including fertilizer and seed use and technology adoption. Exorbitant prices prevent use of fertilizer and chemicals with negative effects on household food security (WFP, 2010; Fahmida *et al*., 2017; Peng *et al*., 2017). Without access to appropriate technology and inputs, households find it

© University of Venda

difficult to increase crop production. This situation makes household food deficit inevitable in dry areas.

The UN (2011) estimates that nearly three quarters of families living in poverty zones reside in the countryside. These areas lack extension services (WFP, 2010; Grobber, 2014), processing capability, roads, credit (Mengistu & Haji; 2015; Lawson *et al*., 2017), transportation infrastructure (Ellis, 2000; Ehebhamen *et al*., 2017), power and storage structures (Birara *et al*., 2015; Carmody, 2016). Furthermore, in a number of comparable studies (ZimVAC, 2014b; Wabwoba *et al*., 2016) inadequate incomes is considered one of the factors that hinder viability of coping strategies in the Sub-Saharan Africa. The building of resilience communities should devise ways that ensure that households participate in income raising projects.

Ivolga (2014) posits that nutrition shortage is not simply a subject of insufficient food; but it is also related to food access. In the 1980's, Zimbabwe exported food worth millions of tons of grain, but over 11 % of people were undernourished (Ndiweni, 2015). Thus, it is currently not clear whether increasing agricultural production ensure food access, availability and utilization. Within the hunger-production nexus, the influence of food access, availability and poverty is not clarified adequately.

Furthermore, institutions play a central role in facilitating access and utilization of food. Ahmed *et al.* (2015) and Selepe *et al* (2015) posit that institutions put mechanisms in place to reduce the barriers to trade. However, it is critical to note that misdirected policies have negative ramifications on households' access to food items. For instance, studies show that the projected gains of liberalization were shared disproportionately between the rich and the poor in emerging nations (Maude & James, 2010; Birara *et al*., 2015). Faced by such a situation, Ivolga, (2014) raises a contentious issue that perhaps it is time that rural communities produce food to feed people in rural areas and increase their 'periphery to periphery' trading and consolidate their efforts on comparative advantage for shared benefits.

Oyebanjo *et al*. (2015) suggests that insufficient resources have been channelled towards the understanding of the factors which inhibit the adoption of sustainable coping strategies. Grounded on available literature, household food insecurity and survival strategies in Chipinge remain ineffectively implicit. The limited researches conducted do not expose comprehensive information on the understanding of this matter (Maude & James, 2010; Nyikahadzoi *et al*., 2014). Therefore, this research proposes to contribute critical information on coping strategies devised to address household food shortfall.

© University of Venda

2.9 Measuring Household Food Deficit

Altiman *et al*. (2009) posit that food deficit is a multi-dimensional issue. There is no good standard or exclusive method of measuring food deficit (Bashir *et al*., 2012; FAO *et al*., 2014). Each technique and tool has diverse advantages and flaws. It is thus, vital to be conscious of the advantages and disadvantages in order to select the most suitable technique or a mixture of tools and techniques appropriate in assessing household food deficit. Gathering data for a thorough examination of food deficit prove to be an unbearable task in circumstances where family arrangement is variable (Maxwell, 1996; FAO, 2011). Furthermore, Radimer *et al*. (1990; 1992; Anderson & Cook, 1999) also posit that household food deficit is also difficult to measure where the notion of a family is predisposed to changing meaning and construal**.**

Numerous techniques have been utilised to assess food deficit from nationwide food stability sheets (Radimer *et al*., 1992; Maxwell, 2011), family level measures (Radimer *et al*., 1990; 1992; Maxwell, 1996) to anthropometric measurement (FAO, 2011). UN (2011) equates four result pointers of food security, that is, an index of household coping strategies, individual food consumption, family energy procurement, and nutritional diversity through contingency tables, regression prediction and correlations models. Table 2.3 illustrates contrasts between the numerous techniques used to assess food shortfall.

Maxwell (2011) states the fundamental reasons for measuring household food deficit. Household food shortfall is measured in order to: distinguish between food insecure and secure households; to enable cheap and efficient targeting of development resources and aid; avoid the security condition from worsening further after a shock; and design and implement nutrition and food security protection or enhancement programmes that are appropriate to the needs and requirements of the targeted households.

2.9.1 Context of assessing household food deficit

The complication of investigating food deficit does not arise merely from its setting, but it also stems from the scale and level of assessment. Though assessments were initially done at the community or national scale, recent assessments are being done at the individual and household levels. The main reason for this change in attention is that there are numerous aspects, at all levels, which affect a household or an individual's capacity to access adequate diet. These factors include market failure, income, policy, and environmental issues. For these reasons, this study assessed the coping strategies adopted by people at the household level.

© University of Venda

2.9.2 Rationale for assessing coping strategies at the household level

Maxwell (1999) posits that household-level assessment of food deficit concentrate on deficit dynamics within and among families. These strategies depend on data from surveys; they gather more precisely access element of nutrition deficit than do methods that depend on countrywide combined information. Food access denotes economic and physical availability of diet; although, several methods utilised to measure food access really measure food consumption and acquisition (Bashir *et al*., 2012; Irohibe & Agwu, 2014). Again, the advantage of computing household food deficit at the family level arise from the fact that families at diverse stages of food deficit are influenced inversely, and therefore, respond differently to covariant threats. It is recognised that families are vital agents to consider when clarifying livelihood concerns and when developing the analyses of precise food deficit challenges. It is presumed that the choice making process on household socio-economic problems (i.e. household food insecurity) in emerging nations is less a separate inquiry than a procedure whereby family members discuss on a combined approach.

2.10 Tools for Assessing Household Food Deficit

Assessing food deficit is an exciting but difficult task as indicated earlier. A varied range of methodological methods are applied to food deficit researches. These methods are influenced by the availability of data, aim of the analysis, the preferences and background of analysts (Radimer *et al*., 1992). Household food shortfall is measured using indirect and direct measurements. Communal Infancy Starvation Identification Scheme Tool, Radimer/Cornell Hunger and Food Insecurity Tool (Radimer *et al*., 1992), Food Sufficiency Status Question (Briefel and Woteki, 1992), Food Security Core Model (Bickel *et al*., 2000), Coping Strategy Index (CSI) (Maxwell, 1996) and Household Food Insecurity Access Scale (HFIAS) (FANTA, 2005) are some of the questionnaire-based instruments used to measure food deficit. These tools can be utilised to gather data from the individual accountable for food delivery in the family. The indirect tools of measuring household food shortfall comprise the use of food security-related programmes, revenue-related measures of food shortage, indicators of economic privation, anthropometric measurements, nutritional consumption, and other nutrition parameters that specify the stage of vulnerability (Radimer *et al*., 1990). Among emerging nations, the indirect indicators are usually utilised to measure the severity, incidence, frequency of food deficit; though, the utilisation of direct indicators is restricted to numerous situations.

Experience-based food deficit tools like the Coping strategies Index and the HFIAS embody a timely, simple and less expensive technique for assessing household food deficit centred on

© University of Venda

data gathered at the family stage. In light of the objectives of this research, background and preference of the investigator, the study used the HFIAS and the CSI to assess family food statuses and the coping mechanisms respectively.

2.10.1 Determination of Household Food Insecurity Access Scale (HFIAS)

This current research used the HFIAS to evaluate household food deficit statuses in Chipinge district**.** Webb *et al*. (2006) posit that the HFIAS was designed to address the requirement of using simpler food security assessment questionnaire as alternative measures of household food access. The HFIAS measure consists of nine items requesting participants to define their attitude and behaviour that recount numerous domains of food deficit familiarity (Hamilton *et al*., 1997). The HFIAS ask respondents to provide answers on the following key domains: a) the feeling of anxiety or insecurity over food availability in the household; b) the view that household food is of inadequate amount; c) the insight that the diet is of inadequate nutritional value; d) recounted decrease of food consumption; e) and the effects of food withdrawal. The contents of the items are linked to the indicators of food intake and poverty. The HFIAS is utilised among numerous nations and seems to differentiate the food insecure from secure families across diverse cultural backgrounds.

Household Food Insecurity Access score is a continuous assessment of the extent of household food deficit in the preceding 30 days. The score variable is measured for each family by summarising the codes for individual incidence items. Before summarising the incidence of occurrence codes, the incidence of occurrence was given a ‘0’ code for all circumstances where the response to the equivalent incidence inquiries was “No”. The highest tally for a family was twenty-seven (the family which replied affirmatively to all the 9 incidences of occurrence items was coded with reply code of three) and the lowest tally was 0 (the family responded “No” to all items). The greater the tally, the more food shortfall the family was experiencing and the lesser tallies revealed that the household was less affected by food deficit.

The Household Food Insecurity Access Score gauge classifies families into four basic ranks of food deficit, that is, severely food insecure, mild, moderate, and food secure. Families were classified as food anxious whenever they answered affirmatively to more austere circumstances and/or faced such circumstances more often. FANTA, (2005) posits that a food secure household faces no incidences of food deficit circumstances, or just faces anxiety, but hardly with a total tally equivalent or less than ten. A mild family fears about not having sufficient diet occasionally or frequently, and fails to consume favoured diets, and/or consume monotonous food than preferred or some undesirable diets, but infrequently. However, a household

© University of Venda

experiencing mild food deficit does not compromise on amount of food consumed nor face any of the austere circumstances (such as food withdrawal, sleeping without eating food, or spending the whole 24 hours without consuming food) with a tally ranging between 11 and 16. A moderately affected household compromises food value more often by consuming a repetitious food or portion of food or sum of mealtimes, infrequently or occasionally. However, a food secure household does not face the three most austere circumstances. The tallies range between 17 and 22. A severely insecure family reduces the portion size or total of meals frequently, and/or face the most austere circumstances (such as depletion of food stock, running out of food, sleeping without consuming food, or spending 24 hours without consuming food), even as rarely as infrequently. Thus, a family that faces one of these circumstances even on one occasion in past week is regarded as severely food insecure. Such households score between 23 and 27 points (FANTA, 2005). Thus, HFIAS addresses the necessity for using less expensive and simpler food security assessment items as alternative measures of household food access.

2.10.2 Coping strategy index (CSI)

The CSI as an indicator of food deficit is easy to utilise (Maxwell, 2011), produces precise data (FAO, 2010) and is rather fast to examine (Radimer *et al*., 1990)**.** This tool was premeditated as a quick food security analysis tool for utilisation in disaster situations (Maxwell, 1996). The CSI was designed to circumvent the complications of gathering domestic food procurement statistics and the exorbitant data gathering expenses of at least one day recall (Radimer *et al.*, 1990; Mjonono, 2008; Maxwell, 2011). Thus, the CSI is used to gather sufficient data over a short period of time, without compromising data outcome.

Maxwell (1996) explicates that CSI measures household response to food deficit. These are activities that households do when they face food shortfall. Deprived households utilise a combination of coping mechanisms when faced by a food shortfall. Some of the coping strategies are non-erosive while some are failed strategies. Households which utilise austere coping options are more susceptible to food deficit. Household coping mechanisms are simpler, easy and quicker to observe. Therefore, the CSI is a suitable tool in circumstances where other approaches are not practical and appropriate.

The CSI comprises four classifications namely temporary strategies meant to increase food accessibility (gifts, consuming seed stock, borrowing), temporary strategies adopted to reduce family members in the household who consume food (seasonal movement), limiting, food withdrawal or handling the deficit (regulating food ration size, maternal buffering women

© University of Venda

prioritizing men's interest, avoiding mealtimes and avoiding consumption for entire day) and dietary changes (examples include consumption of less favoured food). The data acquired is then weighted in relation to the incidence and apparent austerity of respective coping strategy (Maxwell *et al.*, 1996). The weighted totals are summarised to provide an index that shows existing and supposed prospective diet security position (Maxwell, 1996). CSI is one of the data collection tools which can be used with limited resources.

According to Sognigbe *et al*. (2017), the CSI was employed by UN to assess changes in food deficit among immigrants from Burundi, Kenya, Uganda and Tanzania. In the Kenyan case study, the coping strategy index revealed up-to-date food security situation and it proved to be a perfect forecaster of prospective food security situation (Maxwell *et al*, 2003). Maxwell (1996) suggests that the coping strategy index is a reasonable technique which can be understood by both non-specialists and policy makers. According to Radimer *et al*. (1992), household coping strategies can be utilised as an indicator in evaluating food deficit. CSI are cheap, simple and offers valuable and timely data on diet status and coping strategies at the family level.

2.11 Summary of Literature Review

A broad review of literature on food deficit concepts, determinants of food deficit, coping strategies and the challenges affecting adoption of viable coping measures are presented in this Chapter. The state of global food security shows that it is a challenge in many developing countries. However, numerous studies done so far assess food deficit challenges at the national level. Thus, there are very few studies carried out to determine food security challenges at the family level. Thus, it is difficult to address food deficit challenges without such local specific data. Reviewed literature shows that in a number of countries, numerous coping measures were adopted to address the challenge. However, very few studies attempted to analyse the effectiveness of preferred coping strategies. Furthermore, existing literature is not clear on the stages at which households prefer to use erosive or distress coping measures. Little information also exists on the effects of various capitals on household food deficit. The literature review also discussed the appropriateness of various data gathering tools and techniques. Numerous studies used CSI and HFIAS because the tools are cheap, simple and offer valuable and timely data on diet status and coping strategies at the family level. The procedures used in this current study are presented in the next chapter. Table 2.2 shows the contrast of various methods used to measure household food deficit.

© University of Venda

Table 2.2 Comparison of methods of assessing food deficit

Technique/Method	Narrative	Means of gathering data	Benefits	Shortcomings
Individual consumption data	This technique calculates the total of nutrients consumed by a household member in a particular time.	The technique is based on 30 days recall period.	It measures household energy consumption. Food deficit variations within a family can be assessed using individual consumption data.	Ideally the measurement of food consumption should be done constantly for seven days. It requires expert knowledge on assessing food consumed on a daily basis.
Household nutrients acquisition	It is the nutrients or energy accessible to a household for food intake over a certain period.	The key family member accountable for food preparation is probed concerning the food served over a certain period.	The level of ability needed by researchers is less than that one needs to get data on distinct household members' consumption. It takes 30 minutes to obtain the data from households.	The approach produces a large volume of statistical facts that should be cautiously tested. The requirements for data processing are also greater
4. Indices of Household Coping Strategies	This is a measurement of how families manage food deficit.	The person who prepares and distributes food in a family is probed about food deficit.	It is easy to use. It captures concepts of vulnerability, suitability and sufficiency of food.	It is a subjective. Diverse individuals have dissimilar thoughts. Also comparison across families or areas is difficult.
3. Dietary diversity	Total of the quantity of diverse foodstuffs eaten by a household member over a defined time.	One or two individuals within the family are examined about diverse food they eat over a certain period.	It is simple to use. Participants usually find questions simple to respond to. Interview process takes short period (about 10 minutes per participant).	This technique does not measure quantities of food consumed by a respondent

© University of Venda

2.12 REFERENCES

Abu, G, A. & Soom, A. 2016. Analysis of factors affecting food security in rural and urban households of Benue, State, Nigeria. *Food and Agricultural Economics,* **4(1)**: 55-68.

Abur, C. C. 2014. Assessment of food security status among rural farming households in Guma local government area of Benue State, Nigeria. *Research in Humanities and Social Studies*, **1(2)**: 34-42.

Adenyi, O. R. & Ojo, A. O. 2013. Food security status of rural farming households in two Ayadire and Ayedaade local Government areas of Osun State South West Nigeria. *Food, Agriculture, Nutritional and Development*, **13(5)**: 8209-8223.

Adugna E. B. & Fikadu, M. A. 2015. Vulnerability to food insecurity and households' coping strategies. *Rural Development*, **34(4)**: 529 -542.

Ahmed, M. A. 2015. Determinants of household food security and coping strategies: The case of Bule-hora District, Borana Zone, Oromia, Ethiopia. *Food Science and Technology*, **3 (3)**: 30-44.

Ahmed, U. I., Ying, L. & Bashir, M. K. 2015. Food insecurity and coping strategies by micro growers in Punjab, Pakistan. *Environmental and Agricultural Sciences*, **3:** 31-34.

Akhtar, S. M., Hussain, S., & Igbal, N. 2015. Economics and dependence of wheat productivity on farm size in Southern Punjab. *Environmental and Agricultural Science*, **2**:4-13.

Altiman, M., Hart, T. G. B. & Jacobs, P. T. 2009. Household food security status in South Africa. *Agrekon,* **48(4)**: 345-361.

Amaza, P.S., Adejobi, A.O. & Fregene, T. 2009. Measurement and determinants of food Insecurity Northeast Nigeria: Some empirical policy guidelines. *Food, Agriculture and Environment,* **6(2)**: 92-96.

© University of Venda

Anderson, M. D., & Cook, J. T. (1999). Community food security: Practice in need of theory? *Agriculture and Human Values*, **16,** 141-150.

Agwu, N. M. & Ogbonnaya, U. O. 2014. Management, economic engineering in agriculture and rural development. *Scientific Papers*, **14(3)**: 2014.

Babatunde, R., Omotesho, O., & Sholotan, O. 2007. Socio-economic characteristics and food security of farming households in Kwara State, North-Central Nigeria. *Pakistan Journal of Nutrition,* **6(1)**, 41-58.

Barrett, C. B. 2010. Measuring food security. *Science*, **327**: 825-828

Bartlett, J., Kotrlik, J. & Higgins, C. 2001. *Organizational Research: Determining Appropriate Sample Size in Survey Research*. 278p Spring, Washington. D.C: United States of America.

Bashir, M.K., Schilizzi, S. & Pandit, R. 2012. The determinants of rural household food security in the Punjab, Pakistan: An econometric analysis, 18p Working Paper 1203, School of Agricultural and Resource Economics, University of Western Australia, Crawley, Australia.

Birara, E., Muche, M. & Tadesse, S. 2015. Assessment of food security situation in Ethiopia. *Agricultural Research*, **9(2)**: 55-68.

Breisinger C.T; Van Rheenen, C; Ringer, A. Pratt, N., Minot C., Aragon, O., Ecker B.; Yu T & Zhu, Y. 2010. *Food Security and Economic Development in the Middle East and North Africa. Current State and Future Perspectives.76p,* IFPRI Discussion Paper 00982. IFPRI:

International Food Policy Research Institute, Washington. D.C: United States of America.

Chifamba, E. 2013. Community participation in integrated water resources management in the Save Catchment, Zimbabwe. *Environmental Sciences and Water Resources*, **2(10):**

© University of Venda

360-374.

Chifamba, E. 2011. Adaption and mitigation strategies in sustainable land management to combat the effects of climate change in Chipinge. *Sustainable Development*, **13**:14-27.

Demetre, L. & Zandile, M. 2009. *The Assessment of Food Insecurity in South Africa* (Online). Available At Www.Hsrc.Ac.Za (Accessed 2015-03-15).

De Stage, A.; Holloway, A; Mullins, D.; Nchabaleng, L & Ward, P. 2012. Learning about Livelihoods Insights from Southern Africa, 431p, Oxfam Publishing., Oxford: UK.

Dhur, A. 2006.*Rwanda: Emergency Food Security Assessment*, *p*108, WFP, Rome, Italy.

Dietitians of Canada. (2007). Community food security: position of Dietitians of Canada. Retrieve from http://vancouver.ca/COMMSVCS/socialplanning/initiatives/foodpolicy/pdf DC_CFS _pos_paper.pdf.

Edkins, J. 2007. *The Criminalization of Mass Starvations: From Natural Disaster to Crime Against Humanity,* 564p, In S. Devereux (Editor). *The New Famines: Why Famines Persist in an Era of Globalization*. Rutledge, London, UK.

Ehebhamen, O. G., Obayelu, A. E., Vaughan, I. O. & Afolabi, W. A. O. 2017. Rural households' food security status and coping strategies in Edo State, Nigeria. *International Food Research* **24**(**1**): 333-340.

Ellis, F. 2000. *Rural Livelihoods and Diversity in Developing Countries,* Oxford University Press.

Ellis, F & Allison, E. 2009. *Livelihood Diversification and Natural Resource Access: Overseas Development Group Working Paper 9. University of East Anglia, UK.*

Fahmida, D. F., Ahmed, S. R., Sabiha S., Mohammad, J. R., M., Ahshanul H., Jillian L. W., Nuzhat C., Ahmed. T. 2017. Coping strategies related to food insecurity at the household level in Bangladesh. PLoS ONE 12(4): Retrieved from: https://doi.org/10.1371/journal. pone.0171411.

Hanyani-Mlambo, B., Mhazo, N., Proctor, S., & Henson, S. 2002. Facilitating the effective

© University of Venda

production and marketing of processed food products by small-scale producers in Zimbabwe. *Sustainable Development in Africa,* **17(2)**: 14-24.

Hassan, R. M. & Baby, S. C. 1991. Measurement and determinants of rural poverty: household consumption patterns and food poverty in rural Sudan. *Food Policy,* **16(6)**: 21-37.

Hendrix, S, C. & Brinkman, H. 2013. Food insecurity and conflict dynamics: casual linkages and complex feedbacks. *Security and Development,* **2(2)**: 26, 1-18.

International Fund for Agricultural Development, (IFAD). 2010. *Rural Poverty Report 2010, 49p,* IFAD. Rome, Italy.

Indian and Northern Affairs Canada [INAC]. 2001. Change in nutrition and food security in two Inuit communities. Ottawa: Indian Affairs and Northern Development Canada. Retrieved from http://www.ainc-inac.gc.ca/nth/fon/pubs/nutfoosec/nutfoosec-eng.asp.

Ivolga, A. 2014. Overview of contemporary issues of sustainable rural development in Russia in terms of existing differences between regions. *Agriculture*, **2(1)**: 213-226.

Jonker, J & Pennick, B. 2010.*The Essence of Research Methodology: A Concise Guide for Master and PhD Students in Management Science*, 234p, Springer, London, Britain.

Kabui, I.B. 2012. Household Food Insecurity and Coping Strategies among Small Scale Farmers in Tharaka Central Division, Kenya. A Thesis Submitted In Fulfilment Of Requirements for the Award of the Degree of Master of Science. School of Applied Human Sciences, Kenyatta University.

Kahsay, S. & Mulugeta, M. 2014. Determinants of rural household food insecurity in Laelay Maichew Woreda Tigray, Ethiopia. *Agriculture and Food Security*, **2(1)**:106-112.

Kolmar, M. & Gamper, S. 2012. *The Sustainable Livelihood Approach. Input Paper for the Integrated Training Course of NCCR North-South*, 71p, Zurich: Development Study

© University of Venda

Group University of Zurich, Germany.

Krishnal, T. 2015. Determinants of household food security of paddy farmers in Batticaloa District, Sri Lanka. *Tropical Agricultural Research & Extension* **17(3 & 4)**: 20- 27.

Kothari C. R. & Garg G. 2014.*Research Methodology: Methods and Techniques, 342p,* New Age International (P) Limited Publishers.

Kusena, B. 2015. Coping with New Challenges: The Case of Food Shortage Affecting Displaced Villagers Following Diamond Mining Activity at Chiadzwa, Zimbabwe. *Sustainable Development in Africa,* **15:** 1-14.

Kuwenyi, S., Kabuya, F. I. & Masuku, M. B. 2014. Determinants of Rural Households' Food Security in Shiselweni Region, Swaziland: Implications for Agricultural Policy. *Agriculture and Veterinary Science*, **7**(**11**): 44-50.

Lawson, D., Ado-Kofie, L., & Hulme, D. 2017. What Works for Africa's Poorest? Programs and policies for the extreme poor. England: Practical Action Publishing Ltd.

Lovendal, R.C., Knowles, R. & Horri, B. 2004. Understanding vulnerability to food insecurity: Lessons from vulnerable household profiling, ESA, Working paper, No. 04-18, FAO, Rome, Italy.

Makinde, K. O. 2000. Determinants of Food Security in Bauchi Area of Northern Guinea Savanna of Nigeria. Unpublished PhD Thesis. Department of Agricultural Economics, University of Ibadan.

Mango, N., Zamasiya, B., Makate, C., Nyikahadzoi, K. & Siziba, S. 2014. Factors influencing household food security among smallholder farmers in Mudzi District of Zimbabwe. *Development Southern Africa*, **31(4)**:625-640.

Maxwell D.G.1996. Measuring food insecurity: the frequency and severity of coping strategy. *Food Policy*, **21(3)**: 291-303.

© University of Venda

Maxwell, S. 2011. Agricultural Food Security. In Devereux, S. & S. Maxwell (Eds) *Food Security in Sub-Saharan Africa*, p321- 349, Intermediate Technology Development Group (ITDG): London, UK.

Maxwell, D. G. & Caldwell, R. 2008a. *The Coping Strategy Index,* 176p, Field Methods, Manuel Delhi, India.

Maxwell, D. & Caldwell, R. 2008b. The Coping Strategies Index. A tool for rapid measurement of Household Food Security and the impact of food aid programmes in humanitarian emergencies. Field methods Manual. Second Edition, January 2008.

Maude C. B. & James D. F. 2010. Food insecurity among Inuit women exacerbated by socio-economic stresses and climate change, *Canadian Public Health Association*, **3**(**1**): 196-201.

Mengistu, D. & Haji, J. 2015. Factors affecting the choices of coping strategies for climate extremes: The case of Yabello district, Borana Zone, Oromia National Regional State, Ethiopia. *Science Research,* **3**(**4**): 129-136.

Mjonono, M. 2008. An Investigation of Households Food Insecurity Coping Strategies in Umbumbulu. Submitted in partial fulfilment of the degree of MSc Agriculture (Food Security), African Centre for Food Security, University of KwaZulu-Natal, Pietermaritzburg.

Mjonono, M., Ngidi, M. & Hendriks, S. L. 2009. Investigating household food insecurity coping strategies and the impact of crop production on food insecurity using coping strategy index (CSI). 17th international farm Management Congress, July 2009. Illinois, USA.

Morello C. 2012. *Food Shortages in Syria Send Prices Soaring*, p7, The Washington Post, December 7, 2012.

McIntyre, L., & Tarasuk, V. 2002. Food security as a determinant of health. Public Health.

© University of Venda

Retrieved from http://www.phac-aspc.gc.ca/ph-sp/oi-ar/pdf/08foode.pdf.

Ndiweni, N. 2015. Food insecurity vulnerability in south western Zimbabwe: A case of rural households in Matobo District. *Sustainable Development in Africa,* **17(2)**: 38-51.

Nyikahadzoi, K., Siziba, S., Mango, N., Mapfumo. P., Adekunle, A. & Oluwole, B. 2012. Creating food self-reliance among smallholder farmers of Eastern Zimbabwe: Exploring the role of integrated agricultural research and development. *Food Security,* **4**: 647-656.

O'Brien, D., & Cook, M. 2016. *Smallholder dairy entities in East Africa: Challenges and Opportunities.* In J. Bijman, R. Muradian, & J. Schuurman (eds.), Cooperatives, Economic Democratization and Rural Development, p, 226-254. Cheltenham, UK: Edward Elgar Publishing.

Ontario Public Health Association. 2002. A Systemic Approach to Community Food Security: A Role for Public Health. OPHA Food Security Working Group. Retrieved on the 11 11. 17, from http://www.opha.on.ca/foodnet/cfs.html.

Oyebanjo, O., Ambali O. I., & Akerele, E. O. 2015. Determinants of food security status and incidence of food insecurity among rural farming households in Ijebu Division of Ogun State Nigeria. *Agricultural Science and Environment*, **13**: 92-103.

Omonona, B., Agoi, T. & Adetokumbo, G. 2007. An analysis of food security situation among Nigerian urban households: Evidence from Lagos State, Nigeria. *Central European Agriculture*, **8**: 399-406.

Peng, W., Zheng, H., Robinson, B., Li, C., & Wang, F. 2017. Household livelihood strategy choices, impact factors, and environmental consequences in Miyun Reservoir watershed, China. *Sustainability*, **9(1)**: 1-12.

Radimer, K. L., Olson, C, M., Greener, J. C., Cambell, C. C. & Habicht, J. P. 1992. Understanding hunger and developing indicators to assess it in women and children.

© University of Venda

Nutrition Education, **24**: 36-45.

Radimer, K. L., Olson, C. M., & Campbell, C. C. 1990. Development of indicators to assess hunger. *Nutrition Education*, **11**: 1544-1548.

Rukundo, P. M., Oshaug, A. Bård, A. A., Kikafunda, J., Rukooko, B. and Iversen, P. O. 2016. Food variety consumption and household food insecurity coping strategies after the 2010 land slide disaster – The case of Uganda. *Public Health Nutrition*, **19(17)**: 3197–3209.

Scoones, I. 1996. *Hazards and Opportunities: Farming Livelihoods in Dry land Africa. Lessons from Zimbabwe*, 324p, Zed Books, London, Britain.

Scoones, I. 1999. Environmental entitlements: Dynamics and institutions in community-based natural resource management. *World Development*, **27(2)**: 225-247.

Scoones, I. 2009. Livelihoods perspectives in rural development, *Peasant Studies,* **36(1)**: 171-196.

Sen, A. 1981.*Poverty and Famines in the World*, 258p, FAO, Rome: Italy.

Shanner, W., Phillip, W.W. & Schemehl, W. R. 1982. *Farming Systems Researcher and Development. Guidelines for Developing Countries*.178p, West view Press, Inc., Delhi, India.

Sognigbe, N., Vodouhe, R. S., Bellon, R. M., Amadou, S. & Coulibaly, H. 2017. Foraging is determinant to improve smallholder's food security in rural areas in Maly West Africa. *Sustainability*, **9(11)**: 2014-2086.

Tshediso, J. S. 2013. Determinants of food security status of households receiving government grants in Kwakwatsi, South Africa. *Social Sciences*, **4(1)**: 147-153.

United Nations, 2011. *Millennium Development Goals Report 2011*, United Nations, New York, United States of America.

Uzokwe, U. N., Giweze, E. A & Ofuoku, A. U. 2016. Contribution of home gardening to family

© University of Venda

food security in Delta North Agricultural Zone, Delta State, Nigeria. *Agricultural Extension and Rural Development Studies*, **3(2)**: 26-33.

Wabwoba, M.S., Wakhungu, J.W., Omuterema, S. 2016. Household food insecurity coping strategies in Bungoma Country, Kenya. *Nutrition and Food Sciences*, **4(6)**: 713-716.

Wambua, B. N. 2013. The status and effects of food insecurity on the households and option in semi-arid parts of Makueni District. *Agriculture and Food Sciences*, **1(4)**: 171-175.

Watson, J. P. & van Wambeke, A. 2013. Soil moisture and soil temperature regimes in Zimbabwe. *Zambezia, **XX***: 41-47.

World Food Program. 2010. *Emergency Food Security Assessment: South Kordofan, Sudan*, 47p, WFP. Rome, Italy.

World Food Program. 2011. *WFP Food Assistance Reaches 26, 500 People Caught in Conflict in South Kordofan,* 37p, WFP, Kordofan, Sudan.

World Food Program. 2013. *The Market*, 57p, WFP, Rome, Italy.

World Food Program. 2014. Emergency *Food Security Assessment: South Kordofan, Sudan*, 47p, WFP. Rome, Italy.

WHO. 2017. School policy framework: implementation of the WHO global strategy on diet. Retrieved on the 15. 02.17, from http://www.who.int/dietphysicalactivity/schools/en/.

Zakari, S. 2014. Factors Affecting Niger Food Security: An Analysis at National and Household Levels. PhD Dissertation, College of Economics and Management, Huazhong Agricultural University, Wuhan, China.

Ziaei, M., Bidabadi, F. S., Eshraghi, F. & Keramatzadeh, A. 2013. Food security and coping strategies case study of rural areas of Gorgan. *Agriculture Crop Science,* **6 (4)**:225-230.

© University of Venda

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the data gathering procedure followed is presented and expounded. A description of Chipinge district is presented first. The research design, techniques, tools, population and sample used in this study are explained. Subsequently, the data gathering approaches and tools applied in this study are covered. Measures used to ensure reliability and validity of the data gathered are outlined in this chapter. Respondent validation approaches, funding and ethical measures followed in this research are also delineated.

3.2 Description of the Study Area

This research covered the rural part of the Chipinge district located in Manicaland Province of Zimbabwe. The study area is found in agro-ecological zone V (ZimVAC, 2017) which is characterized by low rainfall. Chipinge district is situated in the chronically food-insecure part of south-eastern Zimbabwe. It is located between 20^0 30 '0'S N, and 32^0 30 '0'E (in Degrees Minutes Seconds) at an elevation of 1128 meters above the sea level. The area covers a total of 13 478 km^2. The district is divided into 30 administrative wards. The total population of the district exceeds about 270 860, about 82 % of whom live in rural areas (Census, 2013). The selection of Chipinge district was motivated by numerous factors. Chipinge district is mostly a rural area characterized by semi-arid climate, insignificant production levels, unemployment and poverty (Chifamba, 2011). A pilot study administered in Chipinge district identified local concerns regarding the inadequacies of coping strategies resulting in high level of poverty. Feasibility for research and satisfied risk assessment criteria (for example, required databases were freely available and there was also a low risk of researcher-respondent conflict) were other factors which influenced the selection of Chipinge district.

Like most parts of Zimbabwe, Chipinge household economy revolves around two major sectors namely subsistence agriculture and the off-farm sectors. ZimVAC (2017) suggests that the farming systems are rain-fed, dominated by subsistence farming. On average, households own between 0.25 to 2.5 hectares. Household capital input is composed mainly of hand tools and seeds from the previous crop. Traditional techniques of production are still in use, and technical change occurs so slowly in the smallholding sector that it is hardly noticeable. Kusena (2015) posits that nearly, every year, Chipinge district experiences localized food shortages, causing food crises and endangering development initiatives. Table 3.1 below shows the map of the study area.

© University of Venda

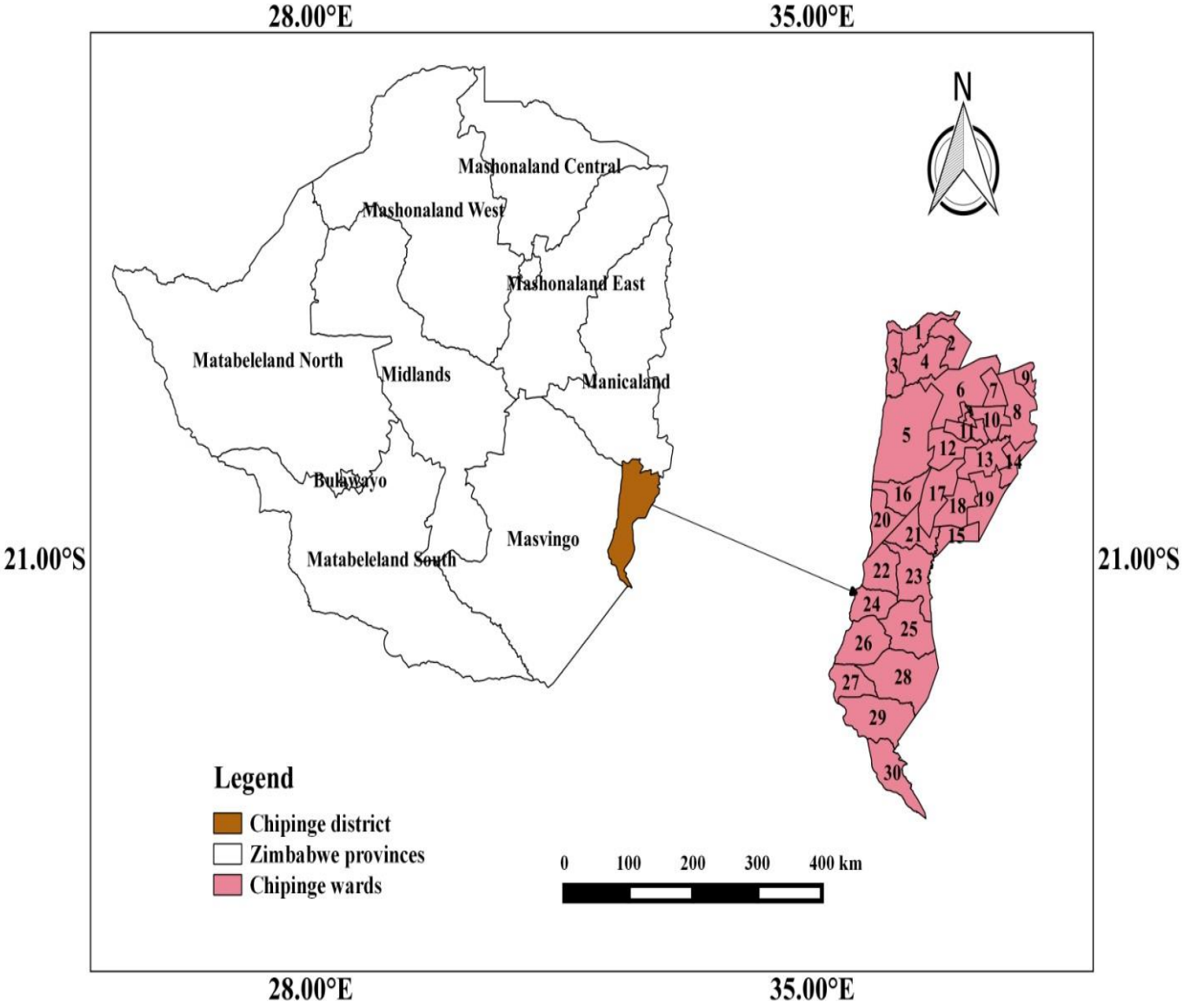


Figure 3.1 Zimbabwe district map showing the location of Chipinge district

© University of Venda

3.3 Research Design

Cross-sectional designs combined with mapping survey were used to generate the data. Babbie (1993) describes a cross-sectional study as a type of a research that uses diverse informants who may vary in numerous aspects but share physiognomies such as educational qualifications, socio-economic statuses, ethnicity and livelihood options. Cross-sectional research is observational in nature. Ardichvili *et al*. (2013) posit that it is also descriptive in nature because researchers record data that is contemporary among participants. The study provides a snapshot of preferred coping measures at the time of data collection. This research design allowed the investigation of current statuses of backgrounds, attitudes, past experience and behaviour. The design facilitated the production of statistical data on the prevalent statuses of food deficit and coping options for analysis. Mugenda & Mugenda (2003) posit that this research design permits the utilisation of face to face interviews and also produces statistical data for examination. Babbie (1993) also notes that this design is suitable for a descriptive research like the current study.

A sequentially combined mixed method approach was integrated in this design. The mixed design was employed because of its integral strength of guaranteeing an enhanced appreciation of issues through mixing the merits of each approach (Wittink *et al*., 2006). The sequentially mixed method allowed qualitative and quantitative stages to be carried out sequentially. The data collection tools for the subsequent phase were considered in appreciation of the framework which was adopted in the initial phase. Two distinct phases were considered and carried out (Figure 3.2). The initial phase was mainly qualitative in nature in order to get insights on household food insecurity statuses and preferred coping options. During this phase, focus group discussion and key informant interviews were carried out. After the qualitative stage, data were sorted out, analysed and utilized to update the development of a comprehensive structured and semi-structured questionnaire. The second stage was mainly quantitative and confirmatory in nature. During the second phase household interviews and food consumption records were gathered and analysed.

3.4 Past, On-going Research and Community Entry

The study of household coping strategies, food insecurity and their interrelated aspects can be sensitive topics for discussion, which may leave participants nursing ‘research wounds’. This study required a comprehensive appreciation of the background in which households survived. Thus, it is imperative to clarify this researcher’s earlier experience with communities and the rapport that was established in the study area. A community-researcher partnership was built

© University of Venda

since 2008 between Chipinge community and this researcher in a different study on climate change. The early attention in assessing the coping strategies was community-driven and arose out of anxieties about environmental degradation in the study area. This contact culminated in a research paper published in the Journal of Sustainable Development in Africa in 2013. Coping strategies and food insecurity were two themes that arose from the previous study and developed into a theme that participants and this researcher decided to further investigate.

The community was visited several times in the past 9 years and kept in contact with the local people through social media and the telephone. The understanding of the unique culture of the local people was done and affiliations of shared trust with the local authorities and community members were developed. Ardichvili *et al*. (2013) posit that without these prerequisite relationships with local communities, it is difficult to gather information on sensitive issues such as household coping strategies and food insecurity.

Community admission activities and authorization were the preliminary phases adopted on rolling out the research. Community entry for the current study was done in July 2017 and the process of qualitative data collection commenced end of August 2017. This was attained through a triangulation of entry activities. Ardichvili *et al*. (2013) suggest that community entry activities are critical for the active participation of participants through creating cordial working relationships and trust. In this research, the initial stage in community entry involved the phoning of some prominent individuals in the community. One research assistant helped to make conduct with the study participants. This initiative provided an initial interaction point with the community in Chipinge.

An exploration tour was done in order to have an appreciation of the realities in Chipinge district. The data gathered during the tour assisted to design the study activities. During the initial trip, an informal consultation with four traditional leaders in the area namely chief Mapungwana, Mupungu, Musikavanhu and Mutema was carried out. Strategies and procedures for conducting the study were shared with the aforementioned chiefs who conveyed their readiness to participate in this study. This initial engagement also allowed consultation with stakeholders who provided information on coping strategies used in the study area. After this initial visit, the research emphasis was redefined and accustomed to capture some of the perceptions and insights which were detected during the initial interaction.

Another community visit was conducted after refining the research focus. This procedure was intended to formally explain the research focus and request for authorization to work with

© University of Venda

household heads. During this stage, a meeting with the community leaders was held. Community leaders were quick to authorize the study in their areas of jurisdiction. Local community leaders also invited the researcher and his assistants to attend their monthly scheduled community meetings. At the first monthly meeting attended by the researcher, time was secured for presenting the research to community members present. Furthermore, this occasion was exploited to request for further consent to conduct the research from the household heads and also to clarify ethical concerns (consent, confidentiality, harm and privacy). The household heads present were enthusiastic about the study and accepted that it was pertinent considering the challenges they were facing.

A total 218 household heads attended the initial meeting. Projected timelines for the research were agreed upon with the household heads who assisted in adjusting the plans according to their own work schedules. The traditional chief who chaired the meeting allowed the researcher and his assistants to sit and listen to their discussions. Their deliberations on challenges they were facing gave more insights into this study. The aforementioned contact with the community improved trust and encouraged households to participate in this current research. Ardichvili *et al.* (2013) note that community access prevents research participants from shying away from the study as a result of anxiety and not being certain about their significance to the study. Ochocka *et al*. (2013) also posit that community access procedures are beyond getting admission and enrolment of research respondents, but involve the creation of continuous engagement all the way through the study process.

After receiving the permission to conduct the research, assistants were enlisted and taught how to gather qualitative and quantitative data. They were also reminded about research ethics governing this current study. Training was conducted to guarantee that the study assistants adhered to the basic principles of empirical research. The assistants included two youth who were undergraduate students at Great Zimbabwe University. These students were better placed because they had gone through their undergraduate research method modules.

Data gathering tools were presented to promoters for scrutiny and appropriate amendments were done. This procedure was followed in order to make sure that suitable research questions were included in the questionnaire. Few alterations were also done to the household questionnaire after pilot testing. This process resulted in the commencement of data gathering. Qualitative data gathering phase preceded the quantitative phase. Qualitative stage utilized participatory rural appraisal (PRA) methodologies such as key informant interviews, focus group discussions and observation. Participatory Rural Appraisal describes a number of approaches

© University of Venda

and procedures that allow residents to share and examine their understanding of conditions and life (Bickel *et al*., 2000; Claire, 2014). The use of PRA methods was guided by principles such as capacity building, utilization of results, and the use of multiple methods. The PRA method was flexible and responsive to household differences and situational changes. Furthermore, the PRA techniques assisted the researchers to gather data in a reasonably short period.

The data gathered from the qualitative stage was captured, examined and results utilized in the crafting of a questionnaire utilized during the quantitative phase. Enquiry from the two data gathering stages was carried out distinctly, though results were combined to give an inclusive report of the results. During the data mixing process, comparisons were made and additional inquiry was conducted to address data inconsistence, where it was discovered. Figure 3.2 shows the study design employed in this current study.

3.5 Sampling Procedures

A multistage sampling method was used in choosing wards and villages in Chipinge district. This sampling method assisted in selecting few geographical areas and reduced the costs and time required to conduct the study. Furthermore, Kothari & Garg (2014) posit that this method is suitable for large sampling elements. The sampling method led to administrative efficiency by permitting the field work to be concentrated and yet covering a geographical large area. Under this method, purposive sampling technique was utilised to choose 5 wards out of the 9 rural wards in the district. These wards were selected on the basis of the agro-ecological conditions prevailing in the respective wards. Out of the 5 wards, five villages were chosen (1 village per ward). Household heads were chosen from the list of families from each village. Considering the uniformity of preferred coping strategies in Chipinge district, only 5% of the households from respective villages were included in this study. Bickel *et al.* (2000) state that due to situations such as time and resource constraints; a sample of 5% of the population is acceptable in food security research. The data were gathered from a sample of 125 respondents. The sample was further classified into 101 (58 males and 43 females) from the food insecure households and 24 (18 males and 6 females) from food secure households using HFIAS. For the food insecure households, an average of 20 household heads were drawn per each ward. Furthermore, about 5 household heads were drawn from each ward. This sample comprised of 120 family heads, and 5 extension officers who worked at the ward level. The household heads and extension officers participated in several focus group discussions and interviews carried out between August and September 2017.

© University of Venda

3.6 Data Collection Methods

This study gathered data through methodological pluralism. Creswell (2014a) defines methodological pluralism as the utilisation of both qualitative and quantitative techniques embraced from several social science disciplines. The use of mixed methods in the study of coping strategies is encouraged (Bickel *et al*., 2000; Afuhaire *et al*., 2014). Abu & Soom (2016) posit that the approach is also emerging in food security and nutrition studies. Mixed methods enhanced the reliability and validity of the data gathered. Furthermore, it ensured that a broader scope of participants provided the data which informed the results of the current study.

3.6.1 Primary data

In this current research, primary data collected comprised household socio-economic features, food accessibility and availability, determinants of food deficit, coping mechanisms and challenges bedevilling the adoption of sustainable coping options. Primary data were also collected on strategies essential for enhancing household coping measures in the district. A focus group discussion, observation and key informant interviews were used to gather primary data. The data was gathered between August and September 2017. Focus group discussions, citizen jury and key informant interviews involved household heads and extension workers. A checklist (Appendix 9) was used to follow track of the discussions and interviews. Data collected using key informant interviews provided clear understanding of the current state of household food deficit statuses and coping mechanisms used to address food deficit in the study area.

3.6.1.1 Quantitative data collection methods

Interview schedule containing closed ended questions (Appendix 8) was used to provide specific answers to themes addressed in this study. The subsequent quantitative data gathered in this current study include: educational level, sex, age, farm size, family size, farming experience, total area cultivated during the previous cropping season, the total income from diverse sources, variety of crops cultivated, the number of livestock owned, crop productivity, income used to purchase food and the sum of several non-agricultural and agricultural assets owned (Appendix 8). Initially, the pilot-testing of the schedule was conducted before carrying out the main study in order to guarantee validity and reliability of the questions.

3.6.1.2 Qualitative data collection methods

Qualitative data gathering methods comprised of Participatory Rural Appraisal (PRA) methods (such as wealth ranking, seasonal calendar, observation and transect walks), citizen jury, focus group discussions and direct observations. A checklist (Appendix 9) was employed during FGDs. Respondents for FGDs were purposively chosen guided by their skills, experience and

© University of Venda

influence in community development issues. About four to six participants took part in the FGDs in each ward. Key informants were chosen based on the individual coping strategies preferred.

3.6.1.3 Pre-testing of the instruments

Pilot-testing was done to identify and correct wrongly worded or vague questions before the actual data collection stage. Pretesting was done in two ways. Firstly, after construction of the data collection tools, subject matter experts in the form of thesis promoters critically examined them. This was done to guarantee that only appropriate questions were asked in a way that did not exhibit emotions and biases of the researcher. This exercise was done to check for ambiguities in the phrasing of questions. This ensured that the time needed for completing the discussions was not too much. After pilot-testing, it was discovered that no significant item alterations were required, save for the fact that there were few items that were vague and repetitive. Pilot study was followed by the roll out of data collection phases. Qualitative data collection preceded quantitative one. Qualitative phase used participatory social mapping, key informant interviews and citizen jury. In quantitative data collection, individual household level questionnaires were used.

Twenty respondents participated in the pilot study. These respondents were not involved in the actual study. Few question errors and ambiguities were discovered. Some of such items were altered while others were removed. After the alteration and exclusion of vague and repetitive items, the maximum time for questioning one respondent was reduced to forty-five minutes. The interview schedule was reviewed and later utilised for data gathering. Analysis from the two data collection phases was done separately though results were merged to give a comprehensive report on the findings. During the merging process, similarities and differences were identified and further analysis was done to resolve the anomalies.

3.6.2 Secondary data

Secondary data on household food deficit, coping strategies and the challenges inhibiting adoption of sustainable coping options were gathered by going through pertinent booklets and documents available at Chipinge Districts Council. Information was also obtained from the ZimVAC reports. These sources provided material on food deficit status and preferred coping options. Important background material on characteristics of the families in Chipinge district was also derived from these sources. Other relevant secondary data were obtained from journal articles, NGO pamphlets and the Ministry of Lands and Agriculture. Figure 3.2 shows the sequentially integrated pluralist design used in this study. Also subsequent to Figure 3.2, Table 3.1 shows objectives, data collected and the analysis methods used in this study.

© University of Venda

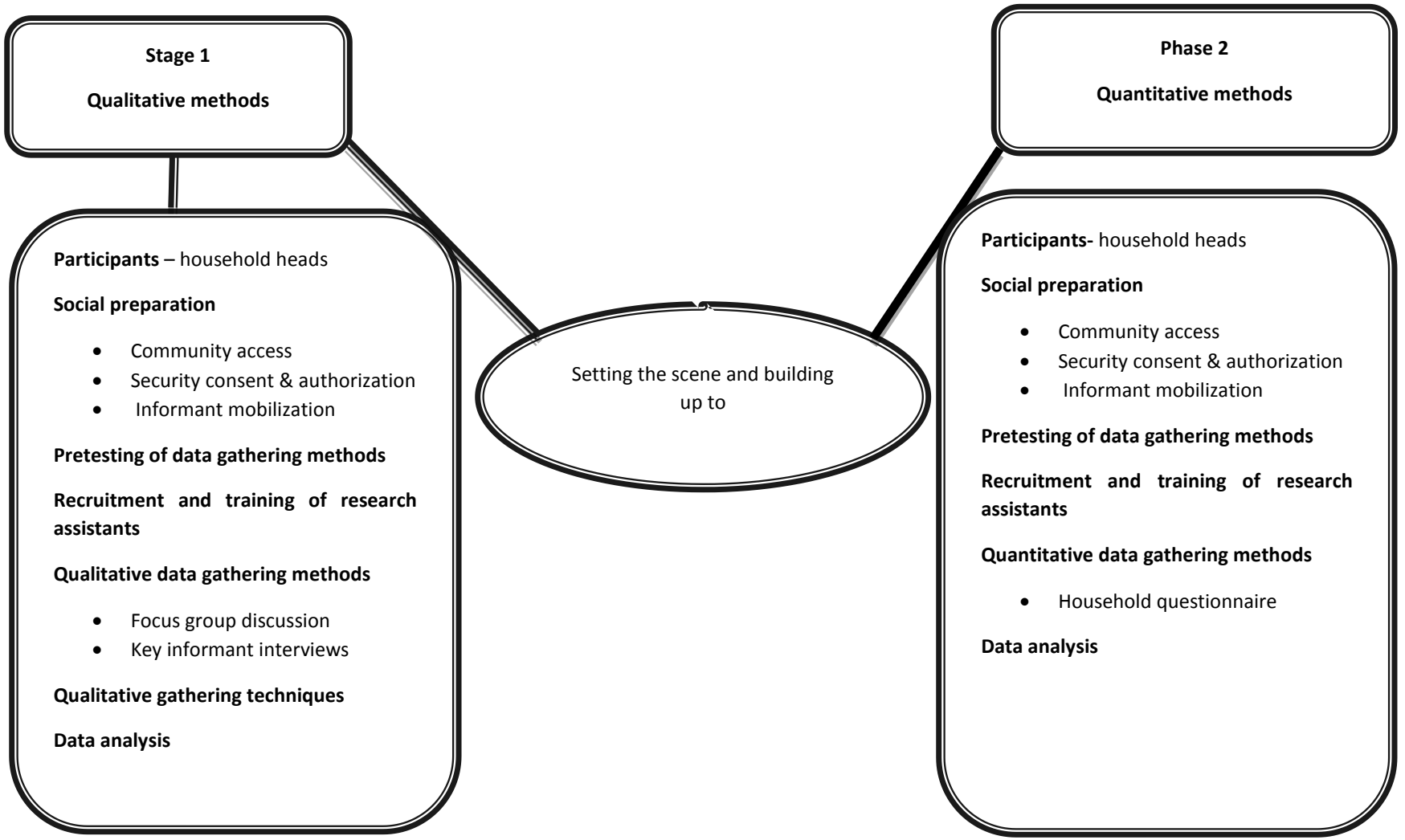


Figure 3.2: Research design of the study: Sequentially integrated mixed method design

© University of Venda

Table 3.1: Summary of study objectives, data collection and analysis

Study objective	Data collected	Data analysis
1. To determine the level of food deficit among communal households	Socio-economic characteristics of households (age, level of education, asset ownership, credit facilities, institutional belonging etc.), Perceived impact of household food insecurity.	Descriptive statistics (Percentages and frequencies)
2. To assess the coping strategies adopted to mitigate household food deficit	List of coping strategies (hunting, consumption of less preferred foods, skipping of day time meals, gathering, food donation, maternal buffering, borrowing, decrease in the quantity of food, migration, remittances and asset disposal.	Coping Strategy Index (CSI), Thematic content analysis
3. To determine the challenges affecting the adoption of sustainable coping strategies	Economic variables (poverty, food storage & processing challenges, poor skills, lack of access to credit, inadequate training, access to information). Ecological factors (shortage of land for agricultural expansion, draught power, animal and crop diseases, climate & soil infertility	Principal Component Analysis, Descriptive statistics,
4. To develop an intervention approach that help combat household food insecurity	Identification of past coping strategies and the suggestion of alternative strategies	Thematic content analysis

© University of Venda

3.7 Data Collection Procedures

Household heads constituted the main respondents for this current study. Participants were visited in their households for discussion meetings done through the use of interview schedules. There were explanations and probing as was considered necessary. Interview answers were filled in the interview schedule. Observations were carried out soon after the interview discussions. Data on detected phenomena were recorded in the researcher's memoir. Features observed comprised the sizes of the farming land, family possessions, the type of dwellings in the homestead, the type of food grown during the past season, the foodstuff vended at the nearest market, the types of food available in the household, the prices of food items at the markets, the adjacent water source and the presence of water in the family (Appendix 8).

3.7.1 Procedure followed for focus group discussions

Respondents assembled at selected venues to participate in the focus group discussion meetings. The headmen, as leaders in their respective communities, started the discussions with opening remarks and the research team was introduced to the respondents. A follow-up clarification on the aim of the FGDs and how the meetings were to unfold were done. Ethical considerations were also clarified during the gathering. The respondents were informed about consent and the permission to voice record and take pictures was sought.

The respondents were then separated according to their age and gender where possible. However, in one of the FGDs attended by one female youth, a conclusion was made to combine her with the male youths. Within smaller focus groups, additional clarification of the process was done together with the delivery of equipment and stationery. The respondents were given the FGD guides attached as an appendix. The research assistants transcribed down the answers from the group. To supplement the data gathered, voice recorders were utilized to capture the deliberations.

3.7.2 Participatory social mapping

Participatory social mapping is known to provide a connection between the people and the multifaceted environment in which they exist (Aidoo *et al*., 2013). It allows participants to respond to research questions in a manner that unravel their lived experiences. In this study, participatory social mapping was utilised to categorise the coping methods used to address household food deficit as part of the exploratory phase 1 of the study.

Participatory social mapping has long been used as a visual qualitative research interrogation method (Asfaw, 2017). Participatory mapping is the visual presentation of the perceptions of a

© University of Venda

group of people with regards to a phenomenon. The tool tells stories, bring out conversations, and show the way of living of the people through maps.

Mapping has been commonly used to depict the spatial distribution of various features within a locality. Participatory social mapping introduced the visual presentation of mental processes shaped by local knowledge and experiences without necessarily including the geographic distribution of the features represented. Even though spatial distribution is sometimes not factored in, participatory social maps depict relationships, culture, history, trends and associations experienced by the people constructing it.

Over the past years, there has been a wide spread use of participatory mapping in different regions of the world in social research due to the richness of the data collected in this manner (Coberrt, 2009). This is regardless of the presence of spatial maps. Spatial maps show the geographic distribution of various features across an area and are usually drawn to scale.

Participatory social maps contained metaphors which allowed the representation of culture, traditions and local history, which could not be easily represented by spatial maps. Developing and bringing out the understanding of participatory social maps was done in a participatory manner, which ensured generation of shared knowledge. Participatory social mapping was more engaging and the process allowed innovation particularly in FGDs that included semi or illiterate participants. It gave participants the space to make meaningful contributions to the subject under discussion. The process also gave participants an opportunity to reflect on their thoughts, feelings, realities and experiences.

According to Coberrt (2009), there is urgent need to evaluate participatory maps to ensure that they represent the views of a community. Unlike other kinds of mapping, it is challenging to determine if the information displayed on a participatory social map is complete or accurate. This is because the information represented is not constant, for example, in the case of participatory spatial mapping or seasonal mapping where particular features occur at the same time or place. Participatory social mapping focuses on the views of the participants that cannot be labelled as incorrect or inaccurate.

3.7.2.1 Materials used for participatory social mapping

Successful social mapping is facilitated by the availability of appropriate resources for the process. There is no generic list of resources needed but this study made use of basic and easily adaptable resources. The exercise was carried out at Chibuwe centre hall in Chipinge district. Stationery used included A1 flip charts, coloured markers, sticky tape, pens, pencils,

© University of Venda

participatory social mapping guide, voice and video recorder. Participants were encouraged to use any other material which they deemed necessary.

Participants were supplied with a lot of stationary and this gave them room for innovation. They were also allowed to use other materials beyond the stationary availed by the research team. Such material included sticks, stones, leaves and papers. These materials were used to illustrate preferred coping strategies of the participants who drew the maps.

The venue of mapping sometimes determines the resources needed. For instance, for one focus group that conducted social mapping outside the hall, a flipchart stand was used. The group that conducted discussions inside the hall attached their charts to the walls. Additionally, the venue was conducive for the discussions because sufficient space to accommodate all participants was available. Furthermore, the venue for this study was conducive as the households always hold their weekly meetings there.

Planning for participatory mapping considered the people who participated and their context. According to Peck *et al*. (2015), the context is vital because it gives a problem a meaning. Not so much can be done accurately without understanding the operational context. Likewise, context is important in determining appropriate materials that work better with the people under given circumstances. Thus, the material selected adapted to the needs of the participants and their capabilities. This was particularly important when considering the participatory mapping guide and literacy levels of the participants. The mapping guide clearly outlined the purpose and the activities that were carried out and it was written in the Ndau language that participants understood. Facilitators played a vital role in clarifying the research question and the mapping process. Facilitators were well trained and had a clear understanding of their role in the participatory mapping process. Facilitators minimised interference in group discussion and this enhanced active participation and interaction among the participants.

The use of voice recorders and video cameras was done after getting consent from the participants. Coberrt (2009) postulates that sometimes, participants feel very uncomfortable to be recorded whilst engaging in discussions. Clarification of the reason behind the recording helped to avert any fears. Voice recording during participatory mapping process complemented field notes and verbatim quotes were easily picked during map analysis.

3.7.2.2 Procedure for participatory social mapping

In the current study, participants were residents in Chipinge District. They comprised both male and female adults and youth who were divided into mapping groups according to age and social

© University of Venda

class. Groups were made up of between four and twelve participants depending on the number that turned up. Small groups were opted in order to ensure an enabling environment for participation. Large groups are often affected by side-lining of the opinions of the more introvert participants. Food and Nutrition Technical Assistance (2005) shares the same sentiments that small homogenous groups produce better results in participatory mapping exercise. The process of group participants was the same as the one used for focus group discussions.

Three groups engaged in participatory mapping to produce three social maps that represented the coping strategies devised to address food shortages in Chipinge District. One of the participatory maps is presented in Chapter 5. The participants decided on how their map represented their view. Facilitators worked with the groups to go through the instructions after which they stepped back to allow the discussions to be done freely. However, the facilitators monitored the proceedings from time to time. After drawing the maps, participants were given time to share their products with the rest of the group in a plenary session. During the presentations, interpretations given by the group to their maps were recorded. Follow-up questions were asked so as to get clarity on the map features.

3.7.3 Procedure used to conduct a citizen jury

Kothari & Garg (2014) define a citizen jury as a gathering of community members who listen to realities and evidence of a case in order to make informed choices. A citizen jury was used to propose alternative intervention approaches for addressing the challenges affecting current coping measures. The decision making model of the citizen jury was used and it had a clear set of options from which participants selected responses from. This was a participatory method employed to solicit opinions from the local people. It was built on the understanding that solutions to the challenges which affect the poor emanate from them. The design was selected in order for participants to provide responses in a participatory approach. This method emanates from the failure of the formal top-down development paradigm. The discussions allowed jury members to propose suggestions and recommendations for implementation.

Organising a citizens' jury required good facilitation, negotiation and conflict resolution skills (Blanche *et al*., 2012). The jury was coordinated by this researcher. The citizen jurors were predetermined to ensure that groups contained jurors of both socio-economic status and gender. Smaller groups made sure that each jury member contributed during the deliberations. The discussions started with briefing on the format of the session and group norms. With this in mind, the adjudicators were taught the basic rules of adjudging. This assisted the jurors to get community views through a clear procedure. Jurors were polled with a number of questions and

© University of Venda

requested to select responses that best represented their opinions. The jurors were asked questions related to the effectiveness of preferred coping strategies in addressing household food insecurity. The witnesses were given 15 minutes for their expositions and question time. The jurors were re-polled after all witnesses presented their opinions. Eyewitness testimonies were sensibly balanced to ensure that both sides received just treatment. The approach encouraged a culture of citizenship and participation. It assisted in ascertaining sustainable intervention for combating household food deficit. Evaluation forms concerning the procedure and content of the citizen jury were completed by adjudicators at the conclusion of discussion meetings.

3.7.4 Procedures used to derive context- specific coping strategies using Coping Strategy Index (CSI)

Maxwell (2008) posits that the CSI is an indicator of food deficit that is quick to utilise. The indicator connects well with more composite assessment of household food deficit. A number of inquiries about how people cope with food deficit results in a simple numeric score. The rudimentary idea involves the measurement of the incidence of coping mechanisms (how frequently was the coping option utilised?) and the austerity of the preferred strategies (what point of anxiety do they suggest?). This current study only considered those coping mechanisms that were used frequently in Chipinge district.

The first stage in the design of procedure was the identification of locally appropriate coping mechanisms in Chipinge district, using FGDs. Participants were requested to draw an illustration of how they manage food deficit. The strategies were categorised into four basic groups, namely dietary change, temporary strategies to increase household food accessibility, temporary strategies to reduce the number of household members who feed and managing or rationing the deficit**.** A number of distinct coping mechanisms were identified in each of these groups.

The list of individual coping strategies was derived through FGDs with household heads. During the first FGDs, a list of context-specific coping strategies was brainstormed. Participants were requested to draw pictures depicting the measures usually relied upon in the district when people had limited access to sufficient food. During the second FGDs, participants were requested to discover if there were other locally appropriate coping mechanisms that were not incorporated in the list. Missing strategies were added on the list at this stage. The replication of the exercise for the second time ensured that the list reflected a comprehensive opinion of the participants. The focus groups included household heads because they were considered more

© University of Venda

knowledgeable about food intake patterns. The final list consisted of the main identified coping mechanisms that represented the compromise opinion of all participants.

The second stage comprised the interviewing process which culminated in the counting of the frequency of the strategies. A shorter recall period of 7 days was used. Chambers (2014) notes that a protracted recollection time usually gather data that is descriptive of distinctive strategies, but the lengthier the recollection time, the less precise the recall about household behaviours. In corroboration, Maxwell *et al*., (1999) note that experience with the CSI shows that 7 day recall period is the longest time that participants recall their activities precisely. Thus, guided by these findings, the questions were drafted on a 7 days recollection period. Considering the list of distinct coping strategies developed during the first two FGDs, the key enquiry became how frequently, in the previous 7 days did participants depend on identified coping strategies.

The third step involved the categorization and weighting of the Strategies. The distinct coping strategies were clustered according to comparable levels of austerity and assigned a weight to respective clusters from minimum severe to most austere. A choice of weights from 1 to 4 was utilised. The austerity of coping options was a matter of participants' opinion.

The fourth stage comprised the grouping of strategies of comparable severity. Since this task was done with various focus groups, some structures were imposed from the outset. Thus, the coping strategies were categorised into three different scales namely very severe, moderate and least severe. Participants were requested to select the least severe and most severe distinct coping strategies first. Participants were then requested to identify strategies that were more or less the comparable of these two in terms of severity. After establishing the two extremes, it was simpler to categorise the outstanding mechanisms into intermediary sets.

The fifth stage commonly referred to as scoring involved the combining of occurrence and severity for examination. To carry out an examination of the finding of the CSI, 2 more pieces of data were required. The first was the means of counting the comparative occurrences; the other was a means of counting the weights that were derived from the previous stage. Both of these measurement procedures were direct processes.

The CSI measured the total days in the previous week a family had to depend upon identified coping mechanisms. The measurement ranged from "never" (0) to "each day" (7). The derived incidence score was multiplied by the austere weight. The minimum severe coping options were weighted 1; the severe set was weighted 2. The processes for apportioning scores for the austerity of coping strategies were used. The simplest method that guided this process was that

© University of Venda

the greater the Coping Strategy Index raw index score, the more food deficit a family was. Furthermore, two more pieces of information guided weighting of the coping strategies. The frequency of any coping option utilised, the greater the score for that distinct option; and second, the more austere an option was, the greater the weight for the entire categorised group. This can be summed up using the following formula:

$$CSI = \sum_{i=0}^{k} Fi\ Si \quad \text{..... (1)}$$

Where F_i = frequency of the i^{th} coping strategy adopted in the past 7 days; $S_{i\,=}$ severity weight attached to the i^{th} coping strategy and k= represented the total number of coping mechanisms.

3.7.5 Procedure used to determine the effects of coping strategies

To determine the impact of food deficit in Chipinge district, a 4 point Likert scale was utilised. Participants specified their opinions by checking the 4 choices provided in the questionnaire. These opinions were, “To a very great degree”, to a great degree”, “To a little extent” and “Never”. The values allocated to the choices included numbers 1, 2, 3 and 4 correspondingly. Statistical figures were added to get 10, and it was then divided by 4 to get the value 2.5 (considered as the mean). Totals with the average sum below 2.5 were considered having no negative effect on household’s food status. Totals with a mean sum equivalent or above 2.5 were considered as having an impact on the well-being of the households.

3.8 Data Analysis

Thematic content analysis was employed to analyse qualitative data. Wherever necessary, data from open-ended questions were assessed and considered for analysis. Similarities and differences in the answers provided were observed and reflected upon. These were analysed after compiling them. International Business Machine (IBM) SPSS statistics (Version 24), HFIAS, CSI and the Principal Component Analysis were utilised to analyse quantitative data. Descriptive statistics and inferential statistics were also used in this study.

With reference to descriptive statistics, percentages and frequencies were employed in presenting data on household socio-economic physiognomies, coping strategies and the factors inhibiting the adoption of viable coping options. These methods of data analysis assisted in visualising and imagining data implications and making conclusions. The selection of the data analysis techniques was done as a result of the descriptive nature of this research.

© University of Venda

3.8.1 Data analysis for participatory social mapping

Participatory social mapping has data analysis embedded in it though it is not comprehensive. Data analysis started when participants gave an annotation of their maps during a plenary session. During the presentations, participants chose a rapporteur to explain the symbols and metaphors within their maps. The symbols and metaphors took various shapes and forms depending on group choices. The rapporteur pulled out the reasoning behind selected symbols, metaphors, and the nature of maps that elaborated the linkages embedded in the maps.

This analysis was crucial for achieving a better understanding of the social maps produced. It also helped to maintain the voice and understanding of the participants who developed the map. Caution was taken to make sure that map interpretation process did not lose the meaning given by the participants who produced them. Through presentation, the groups were able to further clarify and refine the views represented on the maps. The researcher also had the opportunity to ask follow-up questions for further clarity.

Efforts to bring out the shared understanding from the maps called for an analysis of data produced. The second kind of analysis carried out by the researcher was the processing of all the outputs of the mapping process in order to come up with concrete meaning of the findings. Thematic content analysis was applied. The first step in the data analysis process was to thoroughly study all the maps produced one by one whilst noting down the themes emerging. The maps were studied in conjunction with the respective field notes and discussion recordings. Field notes and discussion recordings acted as guidelines for the better understanding of map features. In addition, discussion recordings were richly loaded with experiences and perspectives, which contributed to better understanding of the maps produced. Listening and reading through the notes for a number of times ensured immersion into the data. Notes and recordings also ensured that the voice of the participants was not lost. Particular attention was given to the size, colour and shape of the features of the maps in relation to the explanation given. These depicted the value elements embedded in the feature presented during the discussions.

After identifying the incipient themes, the common features of the maps were jotted down according to themes that emerged. A table was drawn to make the tallying of the map features. The table clearly outlined the themes that emerged from all the maps, cross-tabulating them with the specific feature and the groups that identified them. After compiling a list of all the features, reading through helped to identify related themes. Tallies were calculated to give a picture on the frequency of the identified features.

© University of Venda

After pulling out the map features, it was necessary to relook at the maps to check for any outstanding data not captured on the table. This process enabled the researcher to identify other important aspects or relationships that could have been shown on the map unconsciously. This exercise brought out important aspects and relationships that were omitted during map development and presentations. Whilst listening to the voice and video recording of the mapping proceedings, verbatim quotes were picked up in order to give a good representation of the emotions and passion behind the issues under discussion.

3.8.2 The Determination of family food deficit using Household Food Insecurity Access Scale (HFIAS) and the Food Security Index

The HFIAS was employed to assess food deficit statuses of respondents in Chipinge District. The HFIAS was used in many countries with similar socio-economic and physical characteristics such as those prevailing in Chipinge. These countries include Kenya, Ethiopia and Sudan (FANTA, 2005). The HFIAS includes 9-questions on food deficit gauge proposed by the USAID FANTA mission. The HFIAS calculates anxiety about household food provision, followed by items about food quality, quantity and finally, items on spending the whole night and day without consuming food or going to sleep hungry (Maxwell, 1996; FANTA, 2005). The HFIAS tally was then measured as a constant assessment of the magnitude of food shortfall in the family in the preceding 30 day period. The total tally was added up to twenty-seven (27) (considered as the maximum score) for a family facing severe food shortfall and a Zero (considered as a minimum score) when the family was food secure

In cases where it was complex to use the HFIAS, the FSI was adopted as an alternative method of classifying households. Like the HFIAS, the FSI also allowed households to be categorised into food insecure and secure families. In some cases, the FSI was used to identify the food deficit status of several families as an alternative to the HFIAS. It was given as;

$$Fi = \frac{\text{Per capita food spending for the ith family}}{\text{2/3 mean per capita food spending of all families}}$$

Where Fi= FSI,

When Fi ≥ 1= food secure ith family

Fi ≤1= food deficit ith family.

Food secure households were categorised as those families whose per capita once-a-month food spending fell above the two-thirds of the mean per capita food spending. In contrary, the

© University of Venda

food insecure family was categorised as that household whose per capita food spending fell below two-thirds of the average once-a-month per capita food spending.

3.8.3 Determination of socio-economic dynamics influencing household food deficit

Using the Livelihood Framework, this study identified the determinants of the socio-economic aspects that influence household food security and the coping strategies. Human, natural, social, financial and physical capitals were identified.

Factors of human capital

This factor embodies the abilities, awareness, and educational achievement that assist household members to work and have good well-being. These qualities enable a household to utilise diverse coping options in order to achieve varied livelihood goals such as ecological harmony and food security. At a family level, human assets are factors that determine quality and amount of workforce availability. However, this is determined by the size of the family (Ardichvili *et al*., 2013), health status (Chambers, 2008), skill levels and leadership potential (Abu and Soom, 2016). In this current research, human assets such as education attainment, sex, age, marital status and household size are discussed.

Factors of natural capital

Natural capital denotes natural assets from which supply of food originates. It also denotes the natural store where services essential for coping are derived. Households cannot subsist without sourcing food from the natural capital (DfID, 1999; Maxwell *et al*., 1999). In this current research, natural asset included the rainfall index tallies and land size possessed by the households.

Factors of social capital

Social capital denotes broader communal claims and entitlements on which households and individuals get critical services by virtue of belonging to a community. It refers to the capacity of households (actors) to get benefits as a result of their belonging to a societal system, linkages and structures. Social capital involves reciprocity and trade-offs within societies and between families based on mutual dependence derived from communal linkages (Moser, 1998, DfID, 2000). Social capital include access to appropriate market facts, access to work opportunities, access to informal and formal credit, provision of seeds and fertilisers on loan and skills (Davis, 1996). This current research discovered various types of communal linkages that facilitate use and ownership of livelihood assets. Relying on observed and hypothetical findings, the variable used in this current research is household head's participation in local institutions.

© University of Venda

Factors of financial capital

Borrowing from the livelihood framework, in this current study financial capital was conceptualised as shares of cash to which a household had unlimited access to. Financial capital includes access to loans, participation in non-farming work and getting transmittals from friends and relatives. Based on the empirical and theoretical results, the variables considered in this current research comprised of participation in off-farm activities and loan acquisition.

Factors of physical capital

Physical capital includes assets which can be generated by financial production processes. Physical resources comprises of ploughs, household goods, housing of acceptable durability and quality, productive resources that improve household income (such as sewing machines, rickshaws, bicycles and farming machines) and household utensils. This variable described livestock possession as one of the critical physical capital assets.

Access to social services

Chambers & Conway (1992) posit that in several developing nations, institutions and policies are usually at the centre of isolating poor people. Such segregation policies affect development initiatives meant to reduce food insecurity and poverty (DfID, 1999; 2000; Adugna, 2008). In this current research, institutional or formal livelihood provision variables were assessed in relation to how families gained access to numerous communal amenities such as water points and health facilities. An assessment of access to communal amenities considered the distance between the amenity and the household locations. This assessment is mainly useful in nations such as Zimbabwe, where public transport system is not effective (Nyikahadzoi *et al*., 2012). The questionnaire gathered data concerning the longest and shortest distance among numerous residence and social amenities in the study area. Among the several social amenities, water and health services are significant in defining the access to household food security statuses and assets. Principally, the means by which families utilise a health facility and safe water usually depends on accessibility to these critical physical capitals.

3.8.4 Determination of the challenges affecting sustainability of coping strategies

This study employed the Principal component analysis (PCA) model to approximate the factors inhibiting the adoption of sustainable coping strategies in Chipinge district. PCA is a statistical method utilised to assess the interrelations between sets of variables in order to classify the fundamental structure of the variables. Since PCA is a non-parametric, no prior knowledge could be incorporated in the identification of the factors that inhibit the adoption of sustainable coping methods. The model is given as follows

© University of Venda

$$P_a = a_{11}X_1 + a_{12}X_2 + *** + a_{1n}X_n$$

$$P_b = a_{21}X_1 + a_{22}X_2 + *** + a_{2n}X_n$$

$$P_c = a_{31}X_1 + a_{32}X_2 + *** + a_{3n}X_n$$

$$P_n = a_{n1}X_1 + a_{n2}X_2 + *** + a_{nn}X_n$$

The *a*'s, called loadings, were selected so that the constructed PCs meet two specific conditions namely: (1) PC were orthogonal, and (2) the first PC, *P*1 accounts for the highest probable fraction of the total variations in the group of available *X*'s. The second PC takes the highest of all the residual variation in the *X*'s. An analysis based on the standard errors of the Pearson correlation coefficients was utilized to choose the variable when its loading was significant. In view of the fact that the sample size was $n > 50$, a loading was significant at the 1% level if its value was bigger than ±0.346 (Otitoju & Enete, 2016).

Andres & Lebailly (2015) and Otitoju & Enete (2016) posit that the function of factor analysis is to explain the covariance associations among numerous factors in terms of a few underlying, but imperceptible, unsystematic quantities called variables, interpreted through weights of the variable referred to as the factor loadings structured in a matrix of factor loadings. The factor analysis model was structured in a way that all factors within a certain set were exceedingly connected amongst themselves, but also had comparatively diminutive correlations with factors in another set (Babatunde *et al*., 2007; Mengistu & Haji, 2015; Otitoju & Enete, 2016). Therefore, factor analysis using principal component analysis was a relevant technique of responding to the fundamental inquiry whether households grapple with constraints in their endeavor to address food shortages.

Preceding research also utilized Principal Component Analysis to study the variables determining the choice of coping strategies (Hossain *et al*., 2002; Adelaja, 2003), but not to assess the challenges inhibiting the adoption of coping strategies. Hallman (2002) also utilized the principal component analysis as a data reduction method to investigate consumers' opinions on biotechnology. Thus, revealing the factors inhibiting the adoption of sustainable coping strategies using principal component analysis provides pragmatic direction in the development of context specific coping measures.

© University of Venda

3.9 Funding and Ethical Clearance

Ethical clearance was secured from the University of Venda Research Ethics Committee (certificate number SARDF/15/IRD/05/0610) (Appendix 1). Thereafter, permission to conduct the study was sought from the local leadership of the Chipinge community. This was achieved through holding meetings with chiefs, household heads and extension officers. These meetings helped to gain community entry and connecting with the study participants

After obtaining approval to conduct the research, further clarifications were given to participants with the purpose of explaining the study and how the findings would be utilized. This cleared the path to get informed consent from the respondents to participate in this study. A written approval form that clarified the research focus to participants, as well as individual rights and obligations (Appendix 5) was given to the respondents. In order to guarantee that their contribution was voluntary, all the data gathering tools were accompanied by the consent form. Ethical guidelines guaranteed that possible benefits overshadowed residual risks.

3.10 Conclusions

This chapter presents the mixed methodology used to gather data. Both quantitative and qualitative methodologies were utilised to classify the food deficit status of households, determine determinants of household food deficit and the strategies used to address household food deficit. The literature review shows that there is no good standard or exclusive method of measuring food deficit. It is thus, critical to be aware of the advantages and disadvantages in order to choose the most appropriate technique or a mixture of tools and techniques suitable in measuring food deficit. Gathering data for a thorough examination of food deficit prove to be an unbearable task in circumstances where family arrangement is variable.

© University of Venda

3.11 REFERENCES

Abu, G, A. & Soom, A. 2016. Analysis of factors affecting food security in rural and urban households of Benue, State, Nigeria. *Food and Agricultural Economics,* **4(1)**: 55-68.

Adugna, E. B. 2008. Livelihood strategies and food security in Wolaita, Southern Haramaya University. *Developing Country Studies*, **4(14)**: 123-135.

Aidoo, R., Mensah, J. O. & Tuffour, T. 2013. Determinants of household foods security in the Sekyer-Afram Plains district of Ghana. *European Scientific*, **3(2)**: 514-425.

Ardichvili, A., Page, V., & Wentling, T. 2013. Motivation and barriers to participation in virtual knowledge-sharing communities of practice. *Knowledge Management*, **7(1)**: 64–77.

Asfaw, B. H. 2017. The dynamics of agro-pastoralist - extension workers communication: Maiden Evidence from East Ethiopia. *Sociological Research*, **7(1)**: 7- 13.

Atuhaire, A., Mugerwa, S., Kabirizi, J., Okello, S., & Kabi, F. 2014. Production characteristics of smallholder dairy farming in the Lake Victoria agro ecological Zone, Uganda. *Frontiers in Science,* **4(1)**: 12-19.

Babbie, E. 1993. *The Practice of Social Research*, p395, Wadsworth, Belmont, California.

Baiyegunhi, L. 2014. Social capital effects on rural household poverty in Msinga, KwaZulu-Natal, South Africa. *Agrekon,* **53(2)**: 47 - 64.

Blanche, T. M., Durrheim, K & Painter, D. 2012. *Research in Practice: Applied Methods for Social Sciences, 594p.* University of Cape Town, Cape Town, South Africa.

Bickel, G., Mark, N., Cristofer, P., William, H., & John, C. 2000. Guide to Measuring Household Food Security: Measuring Food Security in the United States, United States Department of Agriculture (USDA). Retrieved on 12/12/17. www.ers.usda.gov/briefing/foodsecurity.

Chambers, R. 2008. *PRA, PLA, and Pluralism: Practise and Theory*. IDS, Paper 268. Brighton: IDS.

© University of Venda

Chambers, R. and Conway, G. R. 1992. Sustainable Rural Livelihoods: Practical Concepts for the 21st Century, p33, IDS Discussion Paper 296. Institute for Development Studies. Brighton: United Kingdom.

Chifamba, E. 2011. Adaption and mitigation strategies in sustainable land management to combat the effects of climate change in Chipinge. *Sustainable Development*, **13(2)**:14 – 27.

Corbett, J. 1988. Famine and household coping strategies. *World Development*, **16(9)**: 1099-1112.

Creswell, J. W. 2014a. *Research Design, Qualitative, Quantitative and Mixed Method Approaches (4th Edition ed.) 576p.* Thousand Oaks, CA: Sage Publication, London.

Creswell, J. W. 2014b. *Qualitative Inquiry and Research Design: Choosing among five Approaches, 448p*, Thousand Oaks, CA: Sage Publication, London.

Creswell, J., & Plano-Clark, V. 2011. *Designing and Conducting Mixed Methods Research* (2nd *Ed.), 576p*. Thousand Oaks: Sage Publications Inc. London.

Davis, S. 1996. Adaptable Livelihoods: Coping with Food Insecurity in the Malian Sahel, *p335,* Macmillan Press, London, UK.

DfID (1999). Sustainable livelihoods guidance sheets. *p26*, DFID, London.

DfID (2000). Sustainable livelihoods guidance sheets. *p36*, DFID, London.

FANTA (2005). Measuring Household Food Insecurity Workshop II Report: October 19, 2005. *p17*, Washington, DC.

Hossain, F., Onyango, B., Adelaja, A., Schilling, B., & Hallman, W. 2002. Uncovering factors influencing public perceptions of food biotechnology, Working paper WP-0602-003. New Brunswick: Food Policy Institute, Rutgers University

© University of Venda

Kothari, C. R. & Garg, G. 2014. *Research Methodology: Methods and Techniques, 449p*, New Age International Ltd, New Delhi, India.

Krishnal, T. 2015. Determinants of household food security of paddy farmers in Batticaloa District, Sri Lanka. *Tropical Agricultural Research & Extension* **17(3 & 4)**: 20- 27.

Kusena, B. 2015. Coping with new challenges: The case of food shortage affecting displaced villagers following diamond mining activity at Chiadzwa, Zimbabwe, *Sustainable Development in Africa,* **15(1)**: 1-14.

Maxwell, D. and Smith, S. (1992). Household Food Security: A Conceptual Review. Institute of Development Studies, University of Sussex, Brighton, U.K. Mimeo.

Maxwell, D. 1996. Measuring food insecurity: the frequency and severity of coping strategies. *Food Policy,* **21(4)**:291-303.

Maxwell, D., Ahiedeki, C., Armar-Klemesu, M., Zakariah, S. & Lamptey, G. 1999. Alternative food-security indicators: revisiting the frequency and severity of coping strategies. *Food Policy,* **24(2)**:411-429.

Maxwell, D., Watkins, B., Wheeler, R. & Collins, G. 2003. The Coping Strategies Index: A tool for rapid measurement of household food security and impact of food aid programs in humanitarian emergencies. ftp://ftp.fao.org/docrep/fao/meeting/009/ae513e.pdf Retrieved on 07/11/2017.

Maxwell, D. & Caldwell, R. 2008. The Coping Strategies Index: Field methods manual, *p52* CARE and WFP, Washington: DC.

Moser, C. O. N. 1998. The asset vulnerability framework: Reassessing urban poverty reduction strategies. *World Development*, **26**: 1-19.

© University of Venda

Mugenda, O. & Mugenda, A. 2003. *Research Methods: Quantitative and Qualitative Approaches*,

p69, Acts Press, Nairobi, Kenya.

Nyikahadzoi, K., Siziba, S., Mango, N., Mapfumo. P., Adekunle, A. & Oluwole, B. 2014. Creating food self-reliance among smallholder farmers of Eastern Zimbabwe: Exploring the role of Integrated Agricultural Research and Development. *Food Security,* **4**: 647-656.

Ochocka, J., Elin, M., & Rich, J. 2013. A framework for entry: PAR values and engagement strategies in community research. Gateways. *Community Research and Engagement,* **3**: 1-19.

Otitoju, M. A., & Enete, A. A. 2016. Climate change adaptation: Uncovering constraints to ther use of adaptation strategies among food crop farmers in South-WEST. Food and Agriculture, 2(1): 1-11.

Wittink, M., Barg, F., & Gallo, J. 2000. Unwritten rules of talking to doctors about depression: Integrating qualitative and quantitative methods. *Annals of Family Medicine,* **4(4)**: 302- 309.

ZimVAC. 2017. 'Zimbabwe rural food security assessment, June 2017.' ZimVAC, Report No. 5, Harare.

© University of Venda

CHAPTER 4: EXTENT OF HOUSEHOLD FOOD INSECURITY IN CHIPINGE DISTRICT

4.1 Abstract

Achieving household food security is still a challenge in most rural areas of Zimbabwe. However, nutritional and health surveys exclude a large portion of the rural households resulting in inadequate data on household food shortfall statuses. Therefore, in this research the food security statuses of households were investigated. A random sampling method was used to choose 120 participants in Chipinge district. Household food insecurity access scale (HFAS), head count method, food insecurity gap, and the Mann-Whitney U test were employed to measure family food deficit. A four point Likert scale was utilised to examine the perceived effect of food deficit in the study area. Approximately, 80.9 % of the participants were food insecure whereas 19.1% were secure. Households facing food deficit subsisted below the 2.250 kilo-calories and the food secure ones survived slightly above this food security line. Moreover, big family sized households with truncated income levels and low asset base grappled with food deficit. In contrast to food anxious families, food secure families had manageable household size and a relatively higher income. Educational qualifications of the head of the family had no positive effect on family food security. This was attributed to widespread unemployment in the study area. Using a 4 point Likert scale, decrease in household savings as a result of a rise in food expenditure (M= 3.59), rise in prices of a food basket (M=3.57) and reduced agricultural output (M=3.47) were some of the noted perceived impact of food deficit. Grounded on the results of this investigation, it is recommended that food policies ought to cogitate over the demographic characteristics of vulnerable households in order to devise sustainable solutions for improving household food security status. Furthermore, efforts directed towards addressing household food deficit should emphasise on enhancing household income and assets.

Key words: Sustainable Development Goals, coping strategies, determinants, livelihoods, Zimbabwe

4.2 Introduction

The greatest challenge affecting developing economies is the need to enhance household food security status and the basic needs (Akhtar *et al*., 2015; Wabwoba *et al*., 2016). In the last two decades, attention concentrated on strategies for addressing starvation and malnutrition world-wide. Abu & Soom (2016) opine that Sustainable Development Goals (SDGs) were developed to eradicate hunger and poverty. In light of this vision, SDGs were adopted, bringing the global

© University of Venda

societies together in order to 'eradicate starvation and promote access to nutritious and adequate food items' by 2030 (Abu & Soom, 2016; Wabwoba *et al*., 2016). However, like the MDGs, existing figures still prove unrealistic on the attainment and realization of this objective by the year 2030 (Wabwoba *et al*., 2016).

Household food deficit is no longer considered as a failure of crop production but rather as a result of inadequate and ineffective coping strategies (Devereux & Maxwell, 2001, Girma, 2012; Oyebanjo *et al*., 2015). Studies on food security status are shifting the focus from the national food production to a consciousness that viable and ecological coping strategies are critical factors in household food self-reliance. Isaboke (2006) and Bedeke (2012) posit that a family standpoint provides a very different impression of the household condition than a macro level method. Thus, this research fills the gap in previous studies by narrowing the study from the national perspective to the district level. Also, unlike other previous researches, this research specifies the level of food deficit that affects different family income categories.

A limited, but increasing number of studies show that hunger, poverty and food deficit exists in Zimbabwe. ZimVAC (2015) posits that a large percentage of households in Zimbabwe grapple with food shortfall, and that it is presently difficult to monitor improvement towards realization of food self-sufficiency. For the last quarter of the 2016/17 (January-March 2017) consumption period, ZimVAC (2017b) projected that a total of 5.1 million people were deprived of sufficient resources to meet their yearly food supplies compared to about 3.4 million people during the same quarter in 2016. These statistics show increase in deprived households. A study by ZimVAC (2017b) also noted that almost 77.5% of rural households failed to purchase a rudimentary dietary hamper of food, priced at $ 250.00 per month (at October, 2017 prices). This is clear evidence that households in Zimbabwe are vulnerable to food shortfall. Kusena, (2015) and Hanyani-Mlambo (2002) note that despite this glaring evidence, no sufficient resources have been channelled towards studies which endeavour to identify the food situation of deprived households.

Chipinge is one of the districts grappling with food deficit in Zimbabwe. Based on the ZimVAC (2017a) report, it is ranked one of the districts with high poverty incidences. In Chipinge district where socio-economic and environmental circumstances are unfavourable, poor households face substantial food shortfalls and restricted livelihood choices (Kusena, 2015; ZimVAC, 2017b). Employment prospects are narrowed by high food prices and water scarcity. Thus, households are restricted to providing farming labour to wealthy households and cash

© University of Venda

transmittals. This weakens household capacity to meet rudimentary food requirements. Furthermore, although the revenues are decreasing, household expenditures are rising due to increasing agricultural expenses and food costs. Therefore, Chipinge district is grappling with deteriorating food situation (ZimVAC, 2017b), and this results in high prevalence of hunger related diseases (Nyikahadzoi, *et al*., 2014; Ndiweni, 2015), which not only emasculate household health status, but also deters agricultural production.

Limited studies have been piloted at household levels and research at the national level do not articulate household's access and availability issues adequately (Mango *et al*, 2014). There are insufficient studies in Chipinge district that approximate the magnitude and effects of food deficit. Although, several studies were done so far in the field of food insecurity, they give more prominence to the urban part of Chipinge district (Mango *et al*., 2014; Nyikahadzoi *et al*., 2014; ZimVAC, 2017b). Thus, there was pressing need to examine food statuses and their perceived effects. This information assists in designing appropriate policies and projects that reduce household food deficit in the district. Understanding the households food security status helps to determine the sustainability of adopted coping strategies. In order to capitalize and build on such knowledge require clear appreciation of the food deficit situation in Chipinge district.

4.3 Materials and Methods

This chapter follows the methodology which is explained in Chapter 3. Study area (Section 3.2), participants, study design (Section 3.3) and data gathering methods (Section 3.6) were carried out in the same manner as spelled out in the sections referred hereto. Data were gathered through household interviews, participatory social mapping and focus group discussion as expounded in Chapter 3. HFIAS and FSI were used to categorise participants into food secure and insecure. Furthermore, the procedure used to examine the perceived effects of coping strategies is explained in Chapter 3 (Section, 3.7.5). The analytical techniques used are explained in Chapter 3 (Section 3.8.1 and 3.8.2).

4.4 Results

4.4.1 Household perception on the magnitude of food deficit in Chipinge district

Focus group discussions revealed that respondents had diverse perceptions on the definition of food deficit. Key informants who took part in the initial discussions considered food insecure households as those that had limited or no food for consumption. This category also defined food insecure households as those without crops in the fields. Furthermore, households that could not purchase sufficient diet to sustain food supplies now and in the imminent period were

© University of Venda

also described as food insecure. Focus group discussions defined a food insecure household as those that acquired food in a socially unacceptable manner, such as engaging in prostitution and theft.

Another group of participants defined food deficit families as those that relied on gathering wild foods such as vegetables and fruits all the times. This group of participants believed that such households could be identified by classifying their activities, particularly those of children in the family. Participants in this group also believed that insecure households spend much of their income on food; consumed very few meals or withdraw food consumption during the day. It was agreed that such households had members who moved to other areas in search of work or food. Participants also stated that August to January was the most severe period usually experienced food shortfall (Appendix 2). They concurred that this was the critical time of the year when households required much resources and energy to work in the fields.

Respondents' experiences and views about the trends of food deficit in Chipinge district in the previous, current and in the conceivable future were gathered. The history of food deficit is significant in order to understand food trends in Chipinge district. Focus group discussions revealed that food deficit trend in the previous twenty-five years was worse due to the prevailing conditions. The discussion further revealed that food deficit condition was deteriorating in the district over the past years, despite numerous interventions adopted to improve food security. Participants cited low production as the major cause of food deficit in Chipinge district.

4.4.2 Household food deficit status among the surveyed respondents based on HFIAS

The HFIAS was used to identify household food deficit statuses in Chipinge district as shown in table 4.1. Affirmative answers for the questions varied between 72.5 % and 93.3 % among the sampled households in the study area. When asked about whether households had become anxious that food would run out, 93.3 % of the participants replied affirmatively that they often get worried. Affirmative responses for questions 7 to 9 which were designed to show severity of food shortfall were very high (80.9; 90 and 80.9 respectively). Of the 9 questions on the HFI scale, question 6 (Did any family member consumed less meals in a day due to inadequate food?) received the lowest affirmative answer (72.5 %) among the sampled households. All other affirmative responses scored more than 72.5 %. These findings reveal that the incidence and severity of food deficit in Chipinge district is very high.

The HFIAS permitted the researcher to make a distinction between food insecure and food secure families**.** This current study included three classifications namely severely, mildly and

© University of Venda

moderately food insecure. A dichotomous indicator for food deficit notch of ten or more was generated. Almost two thirds of the household representatives (62.5 %) reported that they were food insecure. Approximately 19 % indicated that they were food secure. The remaining 11.7 % and 6.7 % were moderately and slightly food insecure. All these categories were considered as insecure and they constituted 80.9 %. Of the total participants who were interviewed, only 19.1 were food secure. The three categories of food deficit were valuable in clarifying and simplifying the data presentation without considerably altering Chipinge district's food deficit situation. The livelihoods of most households in the study area were similar. Households depended much on subsistence agriculture, trade and livestock keeping.

4.5 The Socio-Economic Determinants of Food Deficit in Chipinge District

The demographic features of respondents are presented using descriptive statistics. The Mann-Whitney U was employed to test continuous variables and the Chi-square was also used for categorical variables. The Mann-Whitney U Test was utilised to test for variances between two independent groups on a continuous measure. This section cross-tabulates levels of food deficit with human, natural, social, financial and physical capital factors. About 13 best fitting predictors were selected. These predictors included age of family head, rainfall index, family size, land size, sex of the family head, distance to the sources of water, educational achievement of the family head, participation in local institutions, marital status, livestock ownership, off-farm work, distance to the health amenities and cell phone ownership. The predictors were classified and analysed according to five forms of capital. The analysis was based on both empirical model fitting procedures and the theoretical models underpinning this study. Table 4.1 shows the distribution of participants based on HFIAS.

© University of Venda

Table 4.1 Distribution of participants based on Household Food Insecurity Access Scale items

Question	Proportion of respondents agreeing, % (n = 120)
Did you become anxious that household would have insufficient food to consume?	93.3
Were you unable to consume the types of food you favoured to eat due to absence of resources?	89.2
Did any family member consume inadequate food because of absence of resources?	76.7
Did any family member consume foods that you really did not want to consume because of lack of food?	95
Did any member in your family consume a reduced portion than you felt you wanted due to insufficient food?	89.2
Did any family member consume fewer meals in a day due to inadequate food?	72.5
Did you fail to consume food of any kind because there was absence of assets to procure food?	80.9
Did any family member go to sleep without consuming enough	90
Did any household member stay for the whole day and the following night starved of consuming food because there was insufficient food?	80.9

© University of Venda

4.5.1 Human capital factors

The survey showed that 67.8 % of male headed families were food anxious while 32.2 % of these were secure. Also, out of 47 female respondents interviewed, 13.2 % were food secure while 86.8 % recounted severe food shortfall. The statistical results revealed a significant association between sex category and food deficit ($P < 0.001$). Furthermore, the majority (32.5 %) of participants were between 40 and 50 years of age, while 30-39 years age group constituted 27.6 %. Participants who were between 20–29 years and over 51 years accounted for 30 % and 10 % respectively. This means that about 60 % were within the active age group. High incidences of food insecurity were witnessed among households above 65 years. One participant above 65 years of age recounted that:

> *"I am food insecure because I no longer have the energy to work on my piece of land. When my neighbour persuaded me to give him part of the land, I could not resist because the land had remained underutilised for some time".*

The exposition above implies that the older the head of the family, the greater the likelihood of experiencing food shortfall. The statistical analysis revealed that there was a significant difference in age of the family head of food insecure and food secure families ($P < 0.001$). Thus, the older the family head the greater the chances of the family being food anxious.

The educational attainment was linked to access to work opportunities and greater incomes and therefore, resilience to food deficit. Approximately 13 % of the participants had primary education. About 53.0 % had secondary school qualifications, while 34.3 % had tertiary certificates. Educational achievements had positive implications on the level of agricultural production and consequently household food output. The incidence of food deficit was high (78.4 %) among families whose household heads were illiterate. The incidence was lower (21.6 %) among families headed by literate heads. Thus, there was a significant association between literacy status and food insecurity ($P < 0.01$). This corroborates findings which suggest that educational status has an effect on household food deficit (Aidoo *et al*., 2013).

In this current study, the mean size of the sampled households was five for food insecure and four for food secure families. There was significant association between family size and food insecure and secure households ($P < 0.01$). This meant that as the mean size rose from four to six the likelihood of a family to face food deficit increased. However, the findings illustrated that the more capital endowed households were, the greater the motivation for having more children.

© University of Venda

However, affluent households adopted children of their deprived relatives (extended family) in order to have additional labour despite the challenges affecting large sized households. These findings can also be explained in terms of asset endowment. Affluent households have more capital assets on their disposal and this act as an incentive to adopt an extra household member.

These results conform to the Tesfaye (2003) and Majule (2009). Specific to Chipinge district, ZimVAC (2017) posits that large household sizes were common in both groups of insecure and secure families. This is due to the fact that many male household heads in the study area practice polygamy. This is common among household heads who own more capital assets. These assets enable them to marry more wives and sire children (Aidoo *et al*., 2013). During focus group discussions, respondents revealed that large household size with able bodied members ensure a ready supply of labour for crop production.

4.5.2 Financial capital factors

Off–farm activities refer to non-farming work which households perform to complement their food and income. These activities influence food security, as they are direct sources of income and food. Nevertheless, if households spend much time on these activities, less time is left for agricultural operations. Food insecurity becomes inevitable, especially if the income they receive do not correspond with the forgone farming income.

This current research showed that households which were participating in off-farm work (78.4 %) were secure, while 21.6% were food anxious. Also, the findings showed that of the respondents who recounted to be not involved in off-farm activities, 87.8 % were food insecure while 12.3 % were food secure. Thus, this study concludes that there is significant association between participating in off-farm activities and household food security ($P < 0.001$). This finding meant that households which were involved in non-farming activities were more likely to be food secure.

4.5.3 Natural capital factors

Land is the most vital means and factor of agricultural production. The mean land size was 4 hectares and 2. 5 hectares for food secure and insecure households respectively. The results indicated that 98.7 % of the respondents cultivated small scale farm holdings of between 1-2.5 hectares. Only about 1.3 % of the respondents cultivated crops on plots above 2 hectares. The findings revealed a significant association between family food deficit and land size ($P < 0.001$).

© University of Venda

It was noted that access to land facilitated production of both cash and food crops for household consumption.

With regards to the natural assets, the importance of precipitation in the subsistence survival of farming families in Zimbabwe is extensively documented (Hanyani-Mlambo *et al*., 2002, Mango *et al*., 2014, Ndiweni, 2015). Any slight variation and irregularity in rainfall timing results in negative effects on rural livelihoods. The current research surveyed how food shortfall was linked to precipitation variation over a period of time. It should be acknowledged that among poor nations such as Zimbabwe, weather-related stations are scant and therefore dependable precipitation information and facts at micro-levels are limited (Mango *et al*., 2014). Considering this challenge, this current research employed a subjective index assessment test of precipitation. A Mann-Whitney U test was used to match the precipitation index tallies for food insecure and secure families. Mann-Whitney U test was employed to test the rainfall index as a continuous variable. This study indicated no substantial variance in totals for food insecure and secure families ($P>0.05$). These results corroborate the significance of dependable precipitation in the production systems of rural households in Chipinge district. Key informant interviews and focus group discussions testified that agricultural activities in Chipinge district have been exposed to irregular amount of rainfall since the year 2000. Participants revealed that inadequate precipitation dispersal, together with food shortfall periods, worsened the challenge of moisture shortages and exposed households living in semi-arid areas of Chipinge.

4.5.4 Physical capital factors

Focus group discussions revealed that livestock were significant and critical capitals that households relied on in order to protect themselves from any kind of a threat. The prior expectation anticipated livestock to have a positive impact on food security. Livestock is a vital source of wealth which is critical in order to cope with food shortfall. This study revealed that 88.7 % of participants owned livestock such as poultry, goats and cattle. Almost, 98.8 % of the participants who possessed livestock also kept other animals such as sheep and pigs. The statistical test showed a significant association between household food insecurity status and livestock ownership ($P < 0.001$). This information suggested that livestock played a significant role as a hedge against food deficit in Chipinge district. Participants noted that livestock protected them against indebtedness of all forms. Focus group discussion showed that livestock formed the basic value units both in economic and social terms. Furthermore, the diagnostic test revealed that the odds ratio in favour of food deficit decreased by 0.953 when livestock ownership rose by one cattle.

© University of Venda

The results revealed that of the families who possessed cell phones 82.4 % were food secure and 17.6 % were food anxious. Also, the findings revealed that of the families who had no cell phones 23.8 % were foods secure, while 76.2 % were food anxious. The statistical test revealed that there was a significant association between cell phone possession and food deficit status ($P < 0.001$). The analysis revealed that the odds ratio for food deficit decreased by 0.167 as the family head possessed a cell phone. These findings implied that cell phones have potential in assisting the deprived households towards improved earnings and food security. Focus group discussions revealed that participants walked more than 50km in order to access critical services and information. This affected the delivery of notices for critical meetings and vital information on markets and agricultural programmes. With the advent of cell phones agricultural and market information reach rural households well in time.

4.5.5 Social capital factors

The greater percentage (52.5 %) of sampled household heads belonged to cooperative groups, while 47.5 % were not members of a cooperative. The statistical test revealed a significant association between the two groups of food insecure and secure households with regards to their participation in local institutions ($P < 0.001$). Focus group discussions revealed that members who belonged to cooperative institutions shared benefits and risks that were linked to belonging to such social clubs. However, participants revealed that the nature of benefits derived from cooperatives failed to stimulate feasible income delivery schemes in the study area. This caused a decrease in the reliance on informal credit sources. Despite the challenges facing cooperatives, participants concurred that credit facility schemes and participation in local institutions increased household food consumption, returns and production. A greater number of participants in the study area had limited access to loans as a result of non-existent or limited loan facilities, as well as incapacity to provide the required collateral security.

4.5.6 Access to social services

The majority (82.5%) of household heads had no access to extension services in one year (2016/17 farming season) prior to the carrying out of this study. For the few household heads (17.5), the average interaction period with extension officers was less than two hours per year. The results showed no significant association between food insecure and secure households with respect to their access to extension services ($P > 0.05$). This result contradicts Liwenga (2003) who found significant association ($P < 0.001$) between household access to extension services and food security. Interactions were very low perhaps due to the insufficient funding of extension work by the Zimbabwean government. This lessened the prospects of household

© University of Venda

heads' access to improved crop production methods offered by extension officers. This situation presented a number of limitations in the endeavour to achieve household food security.

One critical amenity which is correlated with food deficit is household access to markets. Markets are important for household and community food accessibility and stability. The survey results revealed that the mean distance for accessing the nearest market centre was 3 km or less for 47.3 % of the food secure and 52.7 % of the food insecure families. The statistical findings revealed that there was no significant association between the distance to the market and household food deficit status ($P > 0.05$). This finding contradicts Beraki (2009) who found that distance to the market positively affect food insecurity status ($P < 0.001$) of families in rural parts of Ethiopia. The differences in these results are a result of the dissimilarities in income levels between the two case studies. Without access to disposable income, access to the market does not ensure household food accessibility and stability. The majority of households (47.5 %) acquired most of their basic food items straight from the market, while 35.5% got a portion of their main food items from their fields. Food production in Chipinge district was insufficient to meet households' daily food requirements. Thus, in order to meet the minimum food requirements, most households supplemented their food with items acquired from the market. A significant number of participants (12.0 %) also sourced their food items from donations. Despite the existence of household food insecurity, few charity organizations distributed food in the district.

The mean distance from the main water source was 3.5 km for the food secure and 7 km for insecure families. The distance from the water point affected household food security. The statistical test revealed a significant association between the distance to a water source and household food deficit ($P < 0.05$). Participants revealed that households close to water sources diverted water to irrigate their small gardens and this supplemented available food. It was also reported that the distance from the water source affected household food security by diverting women's labour from agriculture. Women reported that they spent many hours travelling to fetch water for domestic use.

One critical amenity which is interrelated with household food security is health provision. Health amenities are critical for community and household stability. The average distance for reaching the adjacent health facility was 3.5 km for 67.8 % of the food insecure and 32.2 % for food secure families. The countrywide average distance to health amenities is 3.5km (ZimVAC, 2017). The statistical test exposed that there was no significant relationship between family food deficit status and the distance to health amenities ($P > 0.05$). This finding contradicts Singh

© University of Venda

(2006) who found significant association (P < 0.001) between access to a health facility and household food deficit. The differences in the results lie in the period when the studies were carried out. Singh carried out the study during the peak agricultural season when labour was critical for maintaining agricultural production. One participant remarked that:

> *"During the previous season, I could not harvest enough grain for consumption because my husband was bed-ridden. I spent a lot time looking after him and this reduced the total acreage cultivated. This ultimately reduced the total food produced in the fields".*

This exposition showed that incapacitated household members do not contribute to the aggregate household labour pool. Thus, the total distance to a health amenity is a vital determinant of a family's failure or success in achieving the season's targeted farming output.

4.6 Perceived Impact of Food Deficit on Households in Chipinge District

A 4 point Likert scale was utilised to assess the perceived impact of family food anxiety as shown in Table 4.2. A Likert-type scale was used because of its acceptability and intelligibility in getting respondents perceptions (Singh, 2006). Food deficit contributed to human suffering, decrease in children's dietary status, high mortality rates and poor health status among participants. Most households channelled their incomes and assets towards food procurement to the disadvantage of other rudimentary requirements.

Participants revealed that household food deficit compromised children performance at school (M3.38). The study showed an increase (8 %) in the number of primary school enrolment drop outs. Furthermore, cases were cited where a number of children joined the informal sector to work for a wage. The majority of respondents (67.8 %) channelled most of their capital towards food procurement, thereby, compromising other basic requirements such as education and access to health provision. Few students proceeded to secondary and tertiary education due of lack of fees. This study confirms Ahmed *et al*. (2015) and Wambua (2013) who noted that lack of education compromise households' capacity to utilize chances around them. Participants concurred that in order to address household food insecurity households should invest more assets towards education. This subsequently develop household economic base which is critical in addressing food security in Chipinge District. Participants revealed that households experienced a decrease in household earnings and savings as a result of increased cash outlay on food (M= 3.59). One male respondent noted that he spent all the household earning towards food procurement. He expressed it in the following manner,

© University of Venda

"All the money that I get is used to procure food. I can't watch while the family is affected by food insecurity".

Thus, an attempt to address household food insecurity in Chipinge district should solve the food accessibility and availability challenges. These findings collaborates Dhruba (2014) who noted that household food insecurity has a negative effect on household earnings and savings. In terms of policy implications, stakeholders should promote policies that are pro-poor which result in increased income and savings.

It was also noted that food scarcity resulted in price increase of basic food basket in Chipinge district (M=3.57) and a rise in state outlay on food imports (M= 3.56). These results show that households are restricted to access satisfactory diet due to truncated earnings and dwindling household assets. Wabwoba *et al.* (2016) posit that the government increased its cash outlay on importing food to address the household food deficit to the detriment of other critical development sectors.

The decrease in farming output as a result of poor household well-being status (M=3.47) was also noted as one of the impact of food deficit in Chipinge district. The incidence of food deficit and heavy workloads created competing demands on the allocation of scarce energy resources and had negative effect on household energy turnover. One respondent noted that:

"My husband is sleeping in the house because he is not feeling well. I cannot be productive because I spent much of my time looking after him".

The study also showed that other effects of food deficit included removal of school children to work for salaries (M= 3.27); relying on loans from money creditors (M= 3.22); dietary decrease among children (M= 3.18); decrease in available labour due to starvation which preclude household members from working on the farm (M= 2.07); rise in illegal activities such theft (M= 3.13); and reduced capacity to fight contamination of diseases (M= 2.83). Most of the variable presented above had a mean above 2.5 and this shows that they had negative impact on family food security.

The disposal of domestic physical assets had a higher mean (3.20) and this indicates that it had a negative effect on household income. Households without assets were prone to food insecurity. Amaza *et al*. (2009) and Grobber (2014) posit that household assets are a critical measure of household flexibility, which mitigate the impact of severe conditions, like drought. Table 4.2 shows the mean scores of perceived effects of food deficit in Chipinge district.

© University of Venda

Table 4.2: Mean scores of factors of food deficit in Chipinge district (n = 120)

Impact of food deficit	Mean	Standard Deviation
Decrease in household earnings and savings	3.59	0.87
High children mortality rates	2.31	0.87
Decreased energy levels	2.34	0.80
Reduced capacity to fight illness and infection	2.87*	0.67
Reduced life expectance	2.45	0.70
Stumpy birth mass	2.39	0.68
Upsurge in the prices of food items	3.57*	0.70
Compromise children performance at school	3.38*	0.80
Increased state cash outlay on food importation	3.45*	0.77
Irritation	2.38	0.71
Rise in illegal activities such as prostitution and theft	3.05*	0.74
Auction of domestic physical assets	3.20*	0.77
Borrowing from money creditors	3.12*	0.79
Decrease in children's dietary status	3.07*	0.74
Removal of children from schools to work for income	3.19*	0.84
Decrease in household labour due to starvation	3.10*	0.89
Reduced farming output due to poor health	3.43*	0.68

© University of Venda

4.7 Discussion

The different perceptions on the definitions of food deficit showed diverse appreciation of characteristics of food insecure households. The definitions suggested corroborated the conceptualisations of food deficit in the broader literature (Davis & Tarasuk, 1994; Ezeama *et al.* 2015; Uzokwe *et al*., 2016). This means that participants understood the meaning of food insecure household. It can be concluded from the numerous definitions that measuring household food deficit embroils assessing the present and future food access, stability and availability.

The findings show that most families in Chipinge district face acute food deficit. These high incidence of food insecurity are also confirmed in other findings in Ethiopia (Bedeke, 2012, Ahmed, 2015), Nigeria (Babatunde *et al*., 2007; Ayoade & Adetunbi, 2013) and Kenya (Icheria, 2015). Affirmative answers were highest for questions showing moderate to severe forms of food shortfall such as anxiety about household food availability, fail to consume favoured diets, consumption of inadequate kinds of foodstuff, and consumption of lesser or smaller meal portions per day. Household capacity to diversify coping options is important to local wellbeing and is critical in mitigating uncertainty, risk and contingencies. These findings expose the dire food security situation in Chipinge district. Without urgent targeted intervention, households continue to be imperilled by the food deficit condition in Chipinge district.

Access to essential pecuniary assets influence household ability to make critical decisions that affect livelihoods. However, access to economic resources is determined by sex relationships that prevail in a given community (Ellis, 2000). Female hardship is worsened by the fact that only males are permitted to inherit assets such as land and livestock. This situation makes women reluctant to own up as family heads, even in circumstances where they are. The direct consequence of gender relations is witnessed in gender-blind roles between men and women. There is unequal involvement of women and men in socio-economic activities and the gender disproportions affect females in terms of ownership, access and control of productive assets. Females are a vital constituent of the rural economy and are involved in farming production (Mjonono *et al*., 2012, Kumba, 2015). Women also contribute meaningfully to food and cash crop production (Ellis, 2000); small-scale rural agri-business (Sikwela, 2008) and reproduction of male farming work force (Oyebanjo *et al.*, 2015). Despite their contribution in rural economies, women have limited access to productive assets. The results exposed that the majority of female headed households grappled with food deficit while, their counterparts had a larger incidence of food security cases. According to Hanyani-Mlambo *et al*. (2002) men in

© University of Venda

Zimbabwe access farmland through inheritance. Therefore, policy interventions should address gender disparities in access, ownership and control of critical productive resources.

Family headship is defined as a source of power which is influenced by economic contribution to the household and cultural values among many other factors. Male headed households possessed unlimited right to use the land for food production. This result is consistent with comparable finding by Haile *et al*. (2005) in Ethiopia and Kaloi *et al* (2005) in Uganda. In these studies male headed households were employed in wage labour, while in female headed families, the responsibility was assumed by unmarried or widowed head. Furthermore, the other explanation for this finding could be that male headed households usually have more family members engaged in income raising work. This situation contributes to household food security. Thus, any sustainable coping approaches should target women as a heterogeneous group. In terms of policy implication, stakeholders should implement existing gender-sensitive policies such as Legal Age of Majority Act (1982) Gender policy (2000) and Empowerment Act (2000). Thus, the enforcement of existing legal frameworks helps in guaranteeing women access to essential productive resources such as livestock and land.

The results showed a positive relationship between increase in the age of the family head and food insecurity. This study corroborates many empirical researches (Omonona *et al*., 2007; Kabui, 2015, Selepe *et al*., 2015), which argue that younger family heads are likely to be more productive than their counterparts. Abu and Soom (2016) suggest that within this economic active age group, participants are very productive and receptive to extension services. Economically active household heads are enthusiastic and have the ability to utilize advanced farming techniques (Azeez & Madhukwe, 2016; Tshediso, 2013; Kabui, 2012). Babatunde *et al*. (2007) and Girma (2012) also posit that able-bodied household heads are anticipated to work on large farms rather than their mature counterparts. However, contrary to these findings, Mjonono (2008), Tshediso (2013) and Selepe *et al*. (2015) recounted high frequency of food security among the aged families in South Africa. The differences in these findings lie in the variations in the effectiveness of national security policies in Zimbabwe and South Africa. Thus, in the case of Zimbabwe, the government should come up with targeted interventions that address the specific needs of the aged citizens.

These results validate Amaza *et al*. (2006), who suggest that literacy status of the family head has an effect on food security. Furthermore, Akhtar *et al.* (2015) and Idrisa *et al*. (2008) posit that high standard of education among household heads make the utilization of better farming technologies by agriculture and extension workers easy. Thus, education enhances a

© University of Venda

household's understanding of innovative farming technologies meant to improve its dietary status. In terms of policy implications, stakeholders should continue to consolidate the gains achieved in the provision of universal primary education. The educational policies should be supported by appropriate extension support in order to improve household food security.

The findings revealed that bigger families were more food anxious than smaller sized households. Based on these findings, it is worthy to point out that only more affluent households had a higher likelihood of having bigger family size. It was also noted that rich families usually adopted children of their deprived relatives in order to have extra supply of labour. These findings corroborate Omonona (2007) and Irohibe & Agwu (2014). Also Abu and Soom (2016) note that as the number of household members increased, proceeds per head decreased and households members became less food secure. However, this finding contradicts Ahmed and Abas (2016) who opine that larger household sizes act as an indemnity against food deficits through provision of smallholding labour. The contradiction is due to variations in the physical and socio-economic factors which characterize the two distinct study areas. In Chipinge, the increase in the size of a household could not result in increased agricultural output because the environment does not support food production. Furthermore, the other likely explanation for the discrepancies between this current study and Ahmed and Abas (2016) could be a result differences in the importance of family labour in these two study areas. In an area where households rely on family workforce, the production rises with labour provision, implying that bigger families produce more food.

In this study, off-farm activities had a positive effect on household food security. Abu and Soom (2016) suggest that off-farm income raising activities are critical in diversifying the income sources of rural households. Non-farming income raising work allows households to improve their farming output by decreasing the threats of food shortfall during times of unforeseen crop failures. Earnings derived from non-farming work are also used to finance farming in order to increase food output and accessibility at the family level. These findings contradicts other scholars (Anderson, 1998; Kabui, 2012; Abu & Soom**,** 2016) who posit that families involved in off-farm undertakings are more food insecure than their counterparts who engage in on-farm activities. The differences in these results lie in the differences in physical and socio-economic features of the study areas. In Chipinge, households which rely on farming activities are usually affected by food insecurity because of aridity and poor soils. In terms of policy intervention, policy makers should urgently design appropriate means for enhancing off-farm activities. This can be done through promotion of sustainable approaches through which households engaged

© University of Venda

in off-farm activities. Furthermore, households should access financial resources necessary for the establishment and improvement of productive activities. These strategies contribute in improving household food security statuses.

Land size influenced household food deficit negatively. The means of production is uneconomic and insufficient, as it fails to satisfy the requirements of household sustenance. The prevalence of small farm land holding in the study area was possibly a result of the customary land ownership which permits all male household members to have a portion of the land as inheritance. Such practice resulted in land divisions, fragmentation and waste of farming land by absentee owners. Abu & Soom (2016) suggests that the extent of farming land that a household owns affects its farming activities and ultimately its food security status. Therefore, the necessity rises as to how households in Chipinge district can increase their production and get supplementary income to satisfy their subsistence requirements. Access to arable land enhances production of both cash crops and food for households as well as individuals. This study agrees with Abu & Soom (2016) and Kabui (2012) who posit that the extent of farming land that a household possess affects its farming activities and ultimately its food security status.

The results showed negative relationship between household food deficit and rainfall pattern index. Climate variability and change worsened income generation challenges and food deficit among several rural households in Chipinge district. These findings corroborate the importance rainfall in the production systems of rural households. The results are in sync with other similar studies (Maxwell *et al*., 1999; Sikwela, 2008; Kamba, 2015) that suggest that the frequency of hostile weather conditions is the underlying source of food deficit. In terms of intervention, stakeholders should target the revival of obsolete irrigation schemes in Chibuwe and along the Save catchment area.

The association between food deficit and the number of livestock was statistically significant. The importance of livestock in addressing household food insecurity is well documented (Adugna & Fakadu, 2015; Ayoade & Adetunbi, 2013; Devereux & Maxwell, 2001). Livestock act as a buffer during times of food deficit. Households without livestock are usually prone to food deficit. More interestingly, this current study observed two distinct household economies, namely female and male economies. When the men-induced economy faced challenges, the female economy played a different and vigilant part in the provision of household food. When both economies collapsed, the families encountered severe food shortfall. These economies were not in conflict, but supported and complimented one other. The female economy was

© University of Venda

centred on investment through strictness and vending of assortment of wares and small livestock such as poultry, goats and vegetable products.

Access to public amenities such as clinics is beyond families' control, but is critical for enhancing coping options. It also facilitates households' access to productive assets. Thus, enhanced access to public facilities affects households' capacity to manage food deficit and hence ensure household resilience. As noted earlier on, the findings showed no significant association between household food deficit and distance to public amenities. However, in a similar study, Adugna & Fakadu (2015) found out that distance to health facilities affect food security status of families in Ethiopia. The difference in these results may be a result of differences in seasons within which these two distinct studies exist. During the farming season families are predisposed to various ailments. Thus, the distance to the health amenities, therefore, becomes an important factor of the families' failure or success in realising targeted farming output.

4.8 Conclusion

Different perceptions on the definition of food insecurity were suggested. This research revealed that household food deficit is a challenge in the study area. Approximately 87.9 % of the population subsisted below the FAO food security line which is 2,250 Kcal. The analysis of frequency, depth and severity revealed that it was higher among households headed by a member above 50 years of age. Households with over six household members had also higher food insecurity depth and severity (0.54, and 0.67). The analysis of the perceived impact of household food deficit revealed that reduced household earnings/savings, rise in prices of consumables, decreased agricultural output and compromised children performance at school were some of the main perceived effects of food deficit. Policies should ensure that creditors reduce their extortionate repayment rates of over 30 % on credit and the bureaucratic problems in acquiring the loans. This will encourage household access to credit schemes for improved agricultural output. The study was carried out in Chipinge district of Zimbabwe, implying that the findings are not likely to reflect the food deficit situation across the country. This is due to the variations in climatic conditions among various climatic regions in Zimbabwe. The study is critical for areas which fall under climatic region V. Thus, expanding this research to cover other areas with various climatic conditions is a valuable avenue for future research. The succeeding chapter focuses on the coping strategies devised to address household food deficit in Chipinge district.

© University of Venda

4.9 REFERENCES

Abu, G, A. & Soom, A. 2016. Analysis of factors affecting food security in rural and urban households of Benue, State, Nigeria. *Food and Agricultural Economics*, **4(1)**: 55-68.

Abur, C. C. 2014. Assessment of food security status among rural farming households in Guma local government area of Benue State, Nigeria. *Research in Humanities and Social Studies*, **1(2)**: 34-42.

Adugna E. B. & Fikadu, M. A. 2015. Vulnerability to food insecurity and households' coping strategies. *Rural Development*, **34(4)**: 529 -542.

Ahmed, M. A. 2015. Determinants of household food security and coping strategies: The case of Bule-hora District, Borana Zone, Oromia, Ethiopia. *Food Science and Technology*, **3(3)**: 30-44.

Ahmed, U. I., Ying, L. & Bashir, M. K. 2015. Food insecurity and coping strategies by micro growers in Punjab, Pakistan. *Environmental and Agricultural Sciences*, **3:** 31-34.

Akhtar, S. M., Hussain, S., & Igbal, N. 2015. Economics and dependence of wheat productivity on farm size in southern Punjab. *Environmental and Agricultural Science*, **2**: 4-13.

Amaza, P.S., Adejobi, A.O. & Fregene, T. 2009. Measurement and determinants of food insecurity North-east Nigeria: Some empirical policy guidelines. *Food, Agriculture and Environment,* **6(2)**: 92-96.

Ayoade, A. R. & Adetunbi, S. I. 2013. Determination of farmers' coping strategies to household food insecurity in Oyo State, Nigeria. *Social and management sciences,* **4(1)**: 1-7.

Babatunde, R., Omotesho, O., & Sholotan, O. 2007. Socio-economic characteristics and food security of farming households in Kwara State, North-Central Nigeria. *Pakistan Journal of Nutrition,* **6(1):** 41-58.

Bashir, M., Schilizzi, S., & Pandit, R. 2012. *The Determinants of Rural Food Security: The case*

© University of Venda

of Landless Households of the Punjab, Pakistan. Crawley: School of Agricultural and Resource Economics, the University of Western Australia.

Bedeke, S. B. 2012. Food insecurity and copping strategies: A perspective from Kersa District, East Hararghe, Ethiopia. *Food Science and Quality Management*, 5:19-27.

Braun, V. & Clarke, V. 2006. Using thematic analysis in psychology. *Qualitative Research Psychology*, **3**: 77–101.

Chamhuri. S., Ahmed, S. & Rawshan, A. B. 2014. Household food insecurity, nutritional outcome and coping strategies: Evidence from Malaysia. *Agriculture & Environment*, **12(1)**: 19-23.

Chimhowu, A. 2009. *Moving forward in Zimbabwe: Reducing poverty and promoting productivity*. 687p, Manchester: Brooks Poverty Institute.

Creswell, J.W. 2014.*Qualitative Inquiry Design: Choosing Among Five Approaches*, 594p, Sage, Washington D.C, United States of America.

Devereux, S., & Maxwell, S. (eds.). (2001). *Food Security in Sub-Saharan Africa*, 276p ITDG Publishing, Pietermaritzburg, South Africa.

Dhruba, R. G. 2014. Household food security and coping strategies: Vulnerabilities and capacities in rural communities. *Scientific and Research Publications*, **4(9)**: 1-8.

FAO. 2016. *The state of food insecurity in the world. Addressing food insecurity in protracted crises*, 57p, .FAO, Rome, Italy.

Haile, H. K., Alema, Z. G. & Kundhlande, G. (2005). Causes of Household Food Insecurity in Koredegaga Peasant association, Oromiya Zone, Ethiopia. Working Paper, Department of Agricultural Economics, university of Free-State, South Africa.

Hendriks, S. 2005. The challenges facing empirical estimation of food (in) security in South Africa. *Development Southern Africa*, **22(1)**: 1-21.

© University of Venda

Girma, G. G. 2012 Determinants of food insecurity among households in Ethiopia. *Interdisciplinary Description of Complex Systems*, **10(2)**: 159-173.

Grobber, W.C.J. 2014. Food insecure household coping strategies: The case of a low income neighbourhood in South Africa. *Social Science*, **5(13)**:100-106.

Hanyani-Mlambo, B., Mhazo, N., Proctor, S., & Henson, S. 2002. Facilitating the effective production and marketing of processed food products by small-scale producers in Zimbabwe, 96p, University of Zimbabwe Publications, Harare, Zimbabwe. *Sustainable Development in Africa,* **17(2)**: 14-24.

Icheria, B. K. 2015. Household food insecurity and coping strategies among small-scale farmers in Tharaka Central Division of Tharaka South District, Kenya. *Humanities Social Sciences and Education,* **2(2)**: 63-76.

Idrisa Y. L., Gwary, M. M. & Ibrahim A. A. 2008. Adoption of cassava farming technologies in Mubi North Local Government of Adamawa State. *Tropical Agriculture, Food, Environment and Extension*, **7(3)**:199-205.

Irohibe, F. J. & Agwu, A. E. 2014. Assessment of food security situation among farming households in rural areas of Kano State, Nigeria. *Central, European Agriculture,* **15 (1)**: 94-107.

Kabui, I.B. 2012. *Household food insecurity and coping strategies among small scale farmers in Tharaka Central Division, Kenya*. A thesis submitted in fulfilment of requirements for the award of the Degree of Master of Science. School of Applied Human Sciences, Kenyatta University.

Kaloi, E., Tayebwa, B. & Bashasha, B. 2005. Food Security Status of Households in Mwingi District, Kenya. African Crop Science Conference Proceedings,

Krishnal, T. 2015. Determinants of household food security of paddy farmers in Batticaloa

© University of Venda

District, Sri Lanka, *Tropical Agricultural Research & Extension* **17(3 & 4)**: 20- 27.

Kumba, K. K. 2015. The role of household characteristics in determining food security situation in Kisii Central Sub-Country. *Research and Humanities and Social Sciences*, **10(2)**: 47 63.

Kusena, B. (2015). Coping with new challenges: The case of food shortage affecting displaced villagers following diamond mining activity at Chiadzwa, Zimbabwe. *Sustainable Development in Africa,* **15:** 1-14.

Liwenga, E.T. 2003. Food insecurity and Coping Strategies in Semi-Arid Areas: The Case of Mvumi in Central Tanzania. p, 189. PhD Thesis. Stockholm University, Sweden.

Mango, N., Zamasiya, B., Makate, C., Nyikahadzoi, K., & Siziba, S. 2014. Factors Influencing Household Food Security among Smallholder Farmers in Mudzi District of Zimbabwe. *Development Southern Africa*, **31(4)**:625-640.

Maxwell, D., Ahiedeki, C., Armar-Klemesu, M., Zakariah, S. and Lamptey, G. 1999. Alternative food-security indicators: Revisiting the frequency and severity of coping strategies. *Food Policy,* **24(1)**:411-429.

Mjonono, M. 2008. An Investigation of Households Food Insecurity Coping Strategies in Umbumbulu. Submitted in partial fulfilment of the degree of MSc Agriculture (Food Security), African Centre for Food Security, University of KwaZulu-Natal, Pietermaritzburg.

Mjonono, M., Ngidi, M., & Hendriks, S. 2012. *Investigating Household Food Insecurity Coping Strategies and the Impact of Crop Production on Food Security using Coping Strategy Index (CSI)*. p. 312-326, 17th International Farm Management Congress, Bloomington, Illinois.

Ndiweni, N. 2015. Food insecurity vulnerability in South Western Zimbabwe: A case of

© University of Venda

rural households in Matobo District. *Sustainable Development in Africa,* **17(2)**:38-51.

Nyikahadzoi, K., Siziba, S., Mango, N., Mapfumo. P., Adekunle, A. & Oluwole, B. 2014. creating food self-reliance among smallholder farmers of Eastern Zimbabwe: Exploring the role of Integrated Agricultural Research and Development. *Food Security,* **4**: 647-656.

Omonona, B., Agoi, T. & Adetokumbo, G. 2007. An analysis of food security situation among Nigerian urban households: Evidence from Lagos State, Nigeria. *Central European Agriculture*, **8**: 399-406.

Oyebanjo, O., Ambali O. I., & Akerele, E. O. 2015. Determinants of food security status and incidence of food insecurity among rural farming households in Ijebu Division of Ogun state Nigeria. *Agricultural Science and Environment*, **13**: 92-103.

Selepe, B. M., Mtyingizane, S. S., Masuku, M. M. 2015. Factors contributing to household food insecurity in Mhlontlo area, Eastern Cape, South Africa. *Tourism and Leisure*, **4 (1)**: 1-11.

Silverman, D. 2013. *Interpreting qualitative data*, p423, Sage Publications, New Delhi, India.

Sikwela, M. M. 2008. Determinants of Household food Security in the Semi-arid Areas of Zimbabwe. A Case of Irrigation and Non-Irrigation Farmers in Lupane and Hwange District. p148, Thesis for the Master of Science Degree in Agriculture. Department of Agricultural Economics and Extension, University of fort-Hare, Republic of South Africa.

Singhs, K.Y. 2006. *Fundamental of research methodology and statistics*, New Age International Limited Publishers, New Delhi, India.

Tshediso, J. S. 2013. Determinants of food security status of households receiving government grants in Kwakwatsi. South Africa. *Social Sciences*, **4(1)**: 147-153.

Wabwoba, M.S., Wakhungu, J. W. & Omuterema, S. 2016. Household food insecurity coping

© University of Venda

strategies in Bungoma Country, Kenya. *Nutrition and Food Sciences*, **4(6)**:713-716.

Wambua, B. N. 2013. Food security in semi-arid areas: An analysis of social – economic and institutional factors with reference to Makueni District, eastern Kenya. PhD Thesis, University of Nairobi. Kenya

Ziaei, M., Bidabadi, F. S., Eshraghi, F. & Keramatzadeh, A. 2013. Food security and coping strategies. Case study of rural areas of Gorgan. *Agriculture Crop Science* **6(4)**: 225-230.

ZimVAC. 2015. *Rural households' livelihood, Sirdc, Zimbabwe.*

ZimVAC. 2016a. *Rural households' livelihood, Sirdc, Zimbabwe.*

ZimVAC. 2016b. *Rural households' livelihood, Sirdc, Zimbwbwe.*

ZimVAC. 2017. Rural Households' livelihood, *Sirdc, Zimbwbwe.*

© University of Venda

CHAPTER 5: STRATEGIES FOR COPING WITH HOUSEHOLD FOOD INSECURITY IN CHIPINGE DISTRICT

5.1 Abstract

Decreasing farm income and productivity forced households to adopt numerous coping strategies in Chipinge district. Thus, the current study assessed the effectiveness of several coping approaches adopted to manage food deficit. Focus group discussions, observation and a questionnaire were used to gather both quantitative and qualitative data from 120 simple randomly sampled household heads. Thematic content analysis, Coping strategy index and IBM-Statistical Package for Social Sciences were data analysis methods used in this current study. Households used temporary food intake coping strategies which were ineffective in mitigating the effects of food deficit. Most preferred coping options compromised future household security. Intake of less favoured foods was used more than any other coping mechanism. Skipping of day time meals, decrease in the amount of food given to adults, hunting and gathering, getting assistance from friends and relatives, remittances, maternal buffering, migration and sale of assets were other common coping mechanisms. Coping strategies were developed taking into account the severity of household food deficit, available household resource endowment and the access to external interventions. These strategies were used in a logical and predictable order, beginning with rescindable or reversible coping strategies which did not erode the household asset base to less easily revocable and more erosive mechanisms. This study concludes that the different common coping options adopted do not address food shortages in the long-term. Unless household adopt coping options that enhance assets, food shortfall will persist. Taking into consideration the observations made in the current research, it was recommended that heads of households should have access to informal education through extension amenities, with an outlook of improving the application of contemporary farming methods to increase production. Off farm income opportunities should be made readily available to households in the study area. The results presented in this current study can be helpful to various stakeholders in devising appropriate interventions.

Key words: coping practices, food deficit, sustainable development, Zimbabwe

5.2 Introduction

International attention is increasingly focusing on strategies for poverty reduction and coping with household food deficit (Babatunde *et al*., 2007; Makoti & Waswa, 2015; Wabwoba *et al*., 2016). This is in response to widespread failure of adopted coping strategies in developing

© University of Venda

economies (Jyoti *et al*., 2015). The worldwide increase in hunger incidences and undernourished people suggests that household coping strategies are not effective. It is estimated that throughout the world 905 million people are chronically underfed, which manifests itself through inadequate nutrition for an active and health well-being (World Food Programme, 2016). Wabwoba *et al*. (2016) note that the adoption of irreversible and distress coping strategies result in increased undernourished households.

Africa has over 61.7 % of the hungry people in the world, although it has one of the largest percentages of working people involved in food production (WFP, 2016). Africa's food anxious people are expected to rise from 12 % in 2015 to over 34 % in 2030 (Makoti & Waswa, 2015). Household food deficit is projected to increase in most dry areas, where one individual in every five, has insufficient food for a healthy well-being (Wabwoba *et al*., 2016). Rising food costs (Makoti & Waswa, 2015) and famine (Maxwell, 2008; Grobber, 2014) are forcing households to adopt erosive coping strategies which further expose households to poverty and food deficit. Furthermore, population growth exerts pressure on existing resources. This derails the efforts made to improve food security in Africa (Makoti & Waswa, 2015; Shelty, 2015). The extent to which families are affected largely depend on their susceptibility and coping response available to them. Omonona *et al*. (2007) note that countries in Sub-Sahara region search for quick remedies which further entrench the vicious cycle of poverty.

Numerous Households in Zimbabwe face difficulties in procuring adequate and stable access to diet, severe and chronic sickness, natural disasters, loss of fecund resources and a variety of other shocks and crises. Food shortfall remains the greatest noticeable indicator of household deprivation and it has captivated substantial discussion at hypothetical and policy levels. Food deficit is recognized as an imperative determinant of a person's dietary status (Babatunde *et al*., 2007; Shetly, 2015). Households face food deficit when availability of food is uncertain or limited, or when its capacity to obtain sufficient food through socially acceptable methods is restricted (Skalicky *et al*., 2006). Food deficit is complexly linked to poverty (Tshediso, 2013; Oyebanjo *et al*., 2015). Nyikahadzoi *et al*., (2016) estimate that over 6 million people in Zimbabwe are hungry, which is slightly below half of the nation's total population of estimated 14 million; over 65 % of the people live under the poverty datum line. The comparatively high prices of grains, meat, and vegetables cause low income households to depend on unsustainable coping strategies. These strategies further aggravate poor school performance, chronic sickness, age-related and psychosomatic challenges (Siligman *et al*., 2010; Shetly, 2015).

© University of Venda

Land degradation, lack of farm implements, shortage of grazing pastures and population pressure on available resources devalues the utilisation of sustainable coping options. Famine and poor rainfall affected the use of conventional coping strategies. Most of the adopted strategies are temporary considerations, which directly or indirectly degrade the ecological environment. Thus, to build adaptive coping capability, it is vital to interrogate existing coping mechanisms. Otherwise a coping option suffering from extreme shocks leads to irreversible effects on the household food security status.

Households adopt several coping mechanisms to reduce the impact of food deficit. Coping strategies are a bundle of activities that households 'choose' in order to survive during trying times (Mjonono *et al.*, 2009; 2008; Grobber, 2014). The variety of adopted household coping mechanisms often exposes the severity and intricacy of food deficit (Omonona *et al*., 2007; Wambua, 2013; Oyebanjo *et al*, 2015). For instances, adoption of options such as decreasing the number of mealtimes and the amount of food prepared for household intake, paternal and maternal buffering, borrowing outside affinity or kinship linkages and borrowing from relatives and friends may not be unusual. However, these strategies are reversible and do not incapacitate household in their future endeavour to recover from food deficit. In contrast, severe coping mechanisms such as avoiding food the entire day and the sale of productive assets show deteriorating household economic and food situations and can weaken future household food security status (Kabui, 2012; Tshediso, 2013; Selepe *et al*., 2015). Comprehending the lived experiences of food insecure households is needed for enhanced assessment of social and nutritional effects of food deficit. This information aids the design of more suitable mediations that address household food deficit. Thus, informed by the failure of adopted coping strategies, this current study sought to assess the nature and the factors which inhibit the success of preferred strategies in Chipinge district.

5.3 Materials and Methods

This chapter follows the methodology which is explained in Chapters 3. Study area (Section 3.2), participants, study design (Section 3.3), data collection methods (Section 3.6 and 3.7.2) and data analysis (Section 3.8) were carried out in the same manner as spelled out in Chapter 3 and in the specific sections refereed hereto. The procedure used to derive context specific coping strategies is also presented in Chapter 3 (Section 3.7.4).

© University of Venda

5.4 Results

A number of household coping strategies were identified during focus group discussions. The strategies were grouped into the following categories: (a) dietary change; (b) temporary strategies to increase food accessibility; (c) temporary strategies to reduce the number of household members who feed; and (d) regulating and managing the food deficit. The preliminary coping strategies adopted when households suffered food shortfall attempted to lessen the threats and manage losses in order to safeguard some nominal levels of food provision. Consumption of less preferred foods, asset disposal, skipping of day time meals, hunting and gathering, food donation, maternal buffering, decreasing the quantity of food given to children, borrowing food and money, remittances and migration were the specific coping strategies that were identified. Individual preferences and the magnitude of food deficit determined the use of one coping strategy over available alternatives. These coping options are comparable to those found in other empirical researches (Mjonono *et al*., 2012; Oyebanjo *et al*., 2015; Abu & Soom, 2016).

5.4.1 Consumption of less favoured food

The intake of less preferred food was the most common strategy in Chipinge district. Household heads recounted enduring developments towards consumption of foods that were less favoured and cheap as a way of adjusting. The strategy was used by 67 % of households between 4-7 days per week. Less than a quarter (22 %) of the households consumed less preferred foods 2-3 days per week. Furthermore, this coping strategy was also used by 7 % of households once per week and 4 % of households never relied on this strategy. Participants concurred that the adoption of this coping strategy reflected increasing food security concern among households in Chipinge district.

Households switched food intake from favoured foods to cheaper and less preferred substitutes. Thus, lower incomes and high food prices compelled household members to consume less favoured and cheap food in order to meet basic consumption. FGDs exposed that this coping mechanisms was reversible because families could switch to normal food consumption between March and August after crops were harvested from the fields. One participant said that:

> *"My family consume less preferred food during lean periods and return to normalcy after harvesting crops from the fields".*

With the worsening of food deficit, households shifted from quality to quantity, resulting in a number of health complications. Household consumed boiled maize seeds and wild fruits. The

© University of Venda

unavoidable effects of deterioration in household income during drought were revealed in the quantity and quality of food consumption. Food-insecure families made premeditated choices to bridge household food intake shortfall and also drew equilibrium between the social and economic outlays. Choices of deprived families to food allotment were observed as efforts to deal with the present endowment arrangements and to make the most out of existing household entitlements.

5.4.2 Skipping day time meals

The state of food deficit is witnessed in the propensity of households towards minimising food taken per day. Participants revealed that several families eat inadequate meals each mealtime. Observations exposed that food was of much inferior value and of a more restricted assortment than normal. Evidently, this severe strategy was used mostly by the low income households, and generally at certain periods of the week. This coping strategy was adopted by 65 % of households 4-7 days per week. Nineteen percent of respondents skipped day time meals 2-3 days per week and 11% of respondents only depended on this coping approach once per week. Furthermore, it was noted that 5 % of participants never adopted the coping strategy. This coping strategy was further divided into 3 classifications, depending on the frequency of family food consumption as described below.

5.4.2.1 Only 'consume two meals per day'

Table 4.1 reveals that 36 % of the household heads consumed two meals per day. In numerous cases, these meals comprised of breakfast in the morning and supper during the evening. A research conducted in Nigeria exposed comparable findings, where, 73 % withdrew daytime meals in order to address household food deficit (Omonona *et al*., 2007). This study also revealed that when households decrease the amount and quantity of food consumption, members become susceptible to health complications.

5.4.2.2 Consume food in the morning or at night

Respondents also indicated that they consumed food in the morning or at night. However, this coping strategy was adopted by households that were facing severe food deficit. Nearly 70 % of the households adopted this coping strategy 3-7 times a week while another 30 % used it 1 to 2 days in a week. The coping mechanism was more austere than consuming two meals per day. This coping strategy could not be relied upon over prolonged period without resulting in severe health challenges.

© University of Venda

5.4.2.3 Spending the whole day without consuming food

Table 5.1 reveals that 43 % of the respondents spend the whole day without eating food (21% adopt the strategy often 3-6 times per weeks, and 22 % used the strategy 1 to 2 times a week). However, there were no cases where households reported continuous use of this strategy, all the times. Withdrawing day time meals to address household food deficit was a coping strategy also adopted by households in Kenya, where above 29 % of the households do not consume food during the whole day (Wabwoba *et al*., 2016). Nevertheless, it was one of the most severe temporary household coping mechanisms. Decrease in the size of meal portions was adopted in order to guarantee that available food was shared among household members. Focus group discussions revealed that the decrease in the number of mealtimes extended the availability of food stock. However, the coping strategy resulted in health challenges such as undernourishment among household members.

5.4.3 Hunting, gathering and petty trading

The FGDs revealed that households reduced cash expenditure on food through activities such as hunting, gathering, fishing and petty trading. It was noted that over 45 % of households relied on these food procurement activities 4-7 times during the week. About 31 % of households acquired their food supplies from such activities 2-3 days per week and 22 % also used this coping mechanism once in a week. About 2 % of the food secure respondents never adopted this option. Participants revealed that although the level of reliance differed, the entire household relied on off-farm activities. Apart from relying of farming activities, respondents were engaged in other income raising initiatives which were not directly tied to the land.

Traditional blacksmiths produced several household tools and equipment such as axes, hoe tips, knives and sickles. Wooden plates, baskets, rope production for trade were among the supplementary activities stated in FGDs. Both men and women actively participated in petty trading. Trading items such as root crops and fruits were mainly bought from smallholder irrigation plots in Nyanyadzi and Burchnough. These commodities were conveyed to Chipinge district either by animals or human portage. However, the absence of capital, diminutive margin of revenue and depreciation of these foods when consumed at the household, were some of the cited factors that discouraged household heads who engaged in these coping strategies.

5.4.4 Food donations

The study revealed that 49 % of the households relied on receiving food from well-wishers 4-7 times per week during the lean season. About 35 % of the households received food from well-wishers 2-3 times per week, and 12 % of the participants also relied upon the coping

© University of Venda

mechanism once per week. Furthermore, this study also noted that 4 % of households never adopted this coping strategy. These figures showed that reliance on donations was also one of the common coping strategies and this shows the dire state of food security in Chipinge district.

Participants revealed that this strategy was common among neighbouring households due to social cohesion and cultural determinants. Cultural norms compelled households to assist each other in times of food deficit. Participants concurred that households attempted to improve their food security status using temporary coping mechanisms that were erosive in the longer term.

5.4.5 Maternal buffering

This was also another strategy used by mothers to cope with household food insecurity. Maternal buffering is a situation where a mother consciously limits her own food consumption in order to safeguard food for her children (Omonona, 2007). Maternal buffering was adopted by 17 % of households 4-7 days per weekly and 24 % of respondents employed this coping option 2-3 days per week. About 5 % of households relied on this option only once per week and 54 % of respondents never adopted this coping option. During the focus group discussions one respondent said:

> *"Sometimes I give my children the last portion of the food available. My children keep on asking me "mummy where is your own food?", and I continue telling them that I have consumed my share. I subdue my appetite to safeguard that the children feed. Instead of kids spending the whole day without eating food, I rather prefer to withdraw my food".*

Participants revealed that the adoption of motherly buffering as a protracted strategy perpetuate the inter-generational transmission of malnourished children as famished mothers conceive malnourished children. Nevertheless, respondents expressed their willingness to use this coping option any time it was necessary and did not anticipate their husbands to employ the same strategy. This coping strategy was not common among male participants. The probable explanation was that in most households women were responsible for preparing food and the person who prepared food consumed after all other members were served. Figure 5.1 shows the common copping strategies in Chipinge district.

© University of Venda

Figure 5.1 Participatory map showing some of the common coping strategies in Chipinge district

© University of Venda

Table 5.1 Frequency of distribution of coping strategies in Chipinge district

Coping strategy	Most of the times	Sometimes	Rarely	Never
Consumption of less preferred foods	67	22	7	4
Skipping of day time meals	65	19	11	5
Hunting, gathering, fishing and petty trade	45	31	22	2
Food donation	49	35	12	4
Decreasing the quantity of food given to children	38	36	21	5
Borrowing food and money	33	19	3	45
Migration	18	9	3	70
Maternal buffering	17	24	5	54
Asset disposal	17	6	5	72
Remittances	8	4	1	87

© University of Venda

5.4.6 Decreasing the amount of food given to kids in the family

This strategy was also adopted by few households in Chipinge District. This current study noted that 38 % of households relied on this strategy 4-7 times per week and 36 % of respondents also employed this option 2-3 times. About 21 % of households relied on this coping option once during the week and 5 % of respondents never reduced the amount of food given to children. One respondent retorted that:

> *"I told my household not to anticipate food in the morning and lunch. I am only able to serve them supper. When the household learnt not to eat in the morning and lunch, they eventually got used".*

The study revealed that very few households resorted to this coping strategy because the children's food security was considered a priority.

5.4.7 Borrowing either food or money

Borrowing food or money was a commonly-stated practice in Chipinge district. Households with more assets used secured borrowing strategies on the conjecture that unsecured borrowing had greater costs. Borrowing food or money was adopted by 35 % of respondents 4-7 times per week, 19 % of respondents relied on this coping option 2-3 times per week. About 3 % of households utilised this coping option once per 7 day period and 43 % of respondents never adopted this mechanism. One participant retorted that:

> *"I am facing critical food deficit and I normally rely on friends and relatives for food assistance. They usually lend me money which I use to buy food. When I get the money, I pay back the credit".*

FGDs revealed that despite the fact that participants borrowed from friends and relatives, the practice was considered shameful and disgraceful. In light of this, one participant pointed out that:

> *"I can't borrow food from a neighbour. I rather opt to borrow cash from a neighbour or relative. It's not respectful to borrow food from friends and relatives".*

Participants revealed that before the severe period, most poor households got food and money from neighbours, friends and relatives. Participants indicated that they borrowed food or money from relatives and friends. This coping strategy was suggestive of resilient social linkages among households in Chipinge district. During the FGDs, informal borrowing of food was stated as a method of acquiring food among food insecure households. Also, participants reported that

© University of Venda

informal credits from local merchants were also available. However, the debtors were requested to pay back the credit with very high interest at a future period, ordinarily after subsequent harvest. For instance, participants recounted that one bag of grain usually attracted two bags after reaping. During severe periods, households were compelled to get food grain as a loan from food traders or loans from local business merchants. During focus group discussions, participants concurred that borrowing food or money led to lasting household indebtedness. It was a typical example of how a temporary coping strategy exposed households to further vulnerability, with respect to longer-term livelihood options. Participants reported that rates charged on loans were high and this continued to exert pressure on households' meagre resources.

Respondents also noted that borrowing was the most severe option that kept most households in a vicious circle of deprivation. One participant reported that:

> *"Since the last time that I borrowed money from money lenders, I have not been able to secure sufficient food. When I failed to pay back the loan, all my cattle which used to provide draught power were confiscated".*

Borrowing was viewed as a severe coping strategy that left a number of families with an onus to pay back the credit. Participants considered borrowing stressful situation and it was also linked to shame as participants felt that the strategy exposed household's level of deprivation to neighbours. Borrowing was linked to risks of paying back loans with interest. This coping option was concomitant with defaulting payments and if the debtor dies without repaying back the loan, it was passed on to surviving spouse or household members. Such speculation compelled participants to identify borrowing as one of the most shameful and severe coping option. Participants also pointed out that dependence on friends relative and neighbours was usually ineffective in addressing household food deficit because many households suffered concurrently.

The study also noted that families' access to loans improved their security status in the interim period but affected household food status in the long term. Households which had the chance to obtain loans could not build their capability to harvest more food because the loans were used to procure food. However, with insufficient income to pay back, in some households the credit resulted in migration and selling of productive assets.

© University of Venda

5.4.8 Remittances

Abu & Soom (2016) define remittances as cash sent from outside and within the nation. Cash or food transfers play a significant role on the economies and livelihoods of several states, contributing to trade and industrial growth (Ellis, 2000). Using a recall period of one year, the study revealed that 8 % had relatives and friends from outside the household who frequently supported 4-7 months per year. About 4 % employed this strategy 3-4 times per year and 1 % used this strategy 1-3 times per year. It was noted that 87% of the household never used this coping strategy. The study also revealed that more female household heads (53 %) got more remittances than male headed households. Also despite the prevailing food scarcity 10 % of the households reported giving food assistance to other family members outside the household. The statistics revealed that getting transmittals was not a common coping strategy in the study area. The probable explanation is that most of the family members stay in the same or adjacent communities. Thus, such families have been similarly affected by the food shortfall problems. These results do not agree with other studies (Babatunde *at el*., 2007; Mendoza, 2008) in emerging states, which shows that transfers are an important component of family income.

On the contrary, for the few households that received remittances, this study clearly demonstrate the significance of family ties in the livelihood of rural households in Chipinge District. One participant who had children who migrated to Botswana pointed out that:

> *"Were it not for my kids who migrated to South Africa, my family could have famished a long time ago. These children have made me endure ...rarely do three months pass without one of them sending groceries or money. That is how we are managing".*

While households with migrant members had an average monthly income of $120.00, the recounted averages for non-migrant families was much lower, at $55.00. Though remittances were critical for a number of reasons, interviewees reported using over three quarters of the funds to meet their food requirements. Very few households reported saving remittances for precautionary purposes and this revealed the deteriorating financial circumstances in the study area.

5.4.9 Assets disposal

Using a one year recall period, vending of fecund resources such as cattle and smallholding implements was noted as another negative coping strategy used to address household food deficit in Chipinge. This study revealed that 17 % of the households relied upon the sale of productive assets 8-12 months per year and 6 % of participants sold their assets within the

© University of Venda

previous 4-7 months preceding the carrying out of this study. It was also noted that 5 % sold their assets 1-3 times per year. Thus, an aggregate total of 28 % relied upon selling of productive assets as a coping strategy at some point. A total of 72 % of the participants revealed that they never relied on this coping strategy. One participant retorted that:

> *"I had a big herd of goats and cattle but now I do not have a single beast because I exchanged livestock with grain to feed my family. My household can no longer afford to till the land even if we receive good rainfall because I no longer have the draught power".*

Interviews revealed that household sold assets such as bicycles, cattle and goats. This was due to limited household asset base to fall-back on during times of food scarcity and assets were usually sold as a last resort.

Focus group discussions revealed that households chose to reserve future food security by decreasing present diet intake, or through other strategies, long before it sold fecund resources. Even respondents with greater asset endowments were disinclined to sacrifice future food intake by selling productive assets to preserve present food intake. Thus, households converted endowments into foodstuff entitlements as a last resort in order to evade hunger. These findings reflect that the aim to preserve imminent household food security had a transient but considerably adverse effect on household food intake. Adugna & Fakadu (2015) highlight that as the severity of food deficit increase most households employ erosive coping strategies.

5.5 Discussions

Households in Chipinge district used temporary consumption coping mechanisms to reduce the impact of food deficit. These coping strategies were fall-back options used whenever habitual options were disturbed. Adopted coping options were not mutually exclusive, but rather, comprised a mixed approach, embracing both food compromising and financial domains. Adopted coping mechanisms were ineffective in reducing food deficit. Preferred coping options were detrimental to prospective rural livelihoods in Chipinge district. This is an indication of poor resilience to food deficit. The results show that households minimize hazards and manage food deficit in order to ensure minimal level of sustenance. Furthermore, deprived households also resorted to disposal of productive assets if food deficit persisted. Babatunde *et al*. (2007) and Oyebanjo *et al*. (2015) categorise asset disposal into numerous stages, with liquid assets disposed of first and fecund assets later. Finally, household members embark on distress migration, which reflects failure to manage the food deficit. When fecund assets are sold, it becomes more challenging for a household to restore a pre-crisis food status.

© University of Venda

Coping mechanisms related to compromising quantity and qualities of food intake were identified as initial steps considered for lessening the negative impact of food deficit at the family level. More severe coping options comprising pecuniary compromises were used when household food deficit situation worsened. A research done in marginal areas of Bangladesh revealed similar finding where households compromised the amount and frequency of food consumption. However a number of studies (Babatunde *et al*., 2007; Ziaei *et al*., 2015) found that compromising food intake has negative ramifications on household well-being. These results also concur with Zakari (2014) who noted that consumption of less preferred and cheap foods is usually one of the immediate mechanisms used by families grappling with food deficit. The findings of the study also corroborates Mjonono (2008) who exposed that about 61 % of households in Umbumbulu District of Kwazulu-Natal, 75 % in Ethiopia (Mengistu *&* Haji., 2015), and 60 % in Kenya (Wabwoba *et al*, 2016) utilized this coping mechanism to address household food deficit. Like other preceding studies (Babatunde *et al*., 2007; Oyebanjo *et al*., 2015; Nyikahadzoi *et al*., 2016), this study also concludes that consumption of less preferred foods could not address household food deficit in the long term because stored food continue to deplete. Thus, policy insight derived from these findings point to the need for establishing long-term coping options which contribute to asset building.

In terms of severity, skipping of day time meals was roughly comparable to consumption of foods that were less favoured. If more than a modest drop of food was involved, most participants preferred skipping day-time meals, so that they got content when they eventually eat. The way in which skipping of day time meals was done varied extensively among household in Chipinge district. A future study would need to distinguish between constant skipping of meals and redistribution that favours some household individuals to the disadvantage of other members. This remains a grey study area that deserves to be explored in prospective research on strategies devised to address household food deficit. Households depending on less preferred foods eat a diet that is insufficient for living an active and healthy life. Skipping of day time meals helped household members to get the best out of existing food for moderately protracted period although household members went through underfeeding. At the early stage of food scarcity only adults skipped day time meals. As food shortages prolonged, children were compelled to skip and decrease food as a surviving mechanism. Furthermore, comparable findings were revealed by Mjonono *et al.* (2009) in South Africa, where over 30 % of participants adopted the coping option to smoothen household food deficit.

© University of Venda

Withdrawing food the whole day has undesirable outcome on household well-being, especially if the member is on treatment.

Adopted coping strategies were helpful for food insecure households in sustaining basic consumption, but insufficient to guarantee food security. Food insecure households depended on diverse food sources such as wild meat and fruits. Kabui (2012) posits that the collection and consumption of wild foodstuffs is considered as an early notice of a looming disaster or deprivation. This study corroborates Quandt *et al*. (2004) who posit that obtaining food through hunting, gathering and petty trade resulted in greater household food security among the Latino migrant workers. Zakari (2014) also confirms that poor households involved in hunting and gathering eat more vegetable foods and were more food secure. These findings concur with earlier studies which revealed that wild foods harvested by households embody a common coping mechanism vital in reducing the impact of food crisis in South Sudan (Kabui, 2012; Gupta *et al*., 2015). Studies from Lesotho, Malawi, Mozambique and Zambia proved that owing to an increase in costs of basic foods, protracted famines and insufficient yields and reliance on wild foods increased in order to address household food deficit (WFP, 2016). However, although this study did not address the healthy implications of consumption of wild foods as a coping mechanism, studies in Ethiopia reveal that this may be linked to the spread of ailments such kwashiorkor and other well-being challenges (Mengistu & Haji, 2015).

Chipinge district faced chronic food insecurity and thus perpetually relied on food donations from government and NGOs. Although acquiring food on loan was considered a least austere coping option, similar studies (Kabui, 2012; Echendu *et al*., 2015; Abu and Soom, 2016) show that this can have lasting erosive impacts on household food security, particularly if utilised regularly. Inadequate earnings to pay back the credit result in migration or peddling of productive assets. FGDs revealed that whilst reliance on donations rise with the severity of food deficit, food secure households did not rely continuously on food aid. The major explanations raised for few households that avoided reliance on donations included opinions that they were not at risk or that the support was inadequate; and insufficient access to information about existing food donation schemes. Also, these results suggest that relying on food aid is one of the coping strategies adopted as a last resort. In many cases, dependence on food aid caused changes in eating habits. Food donations led to the preferences for maize which does not perform well in Chipinge district. The tradition and habit of consuming drought resistant crops had been seriously affected. Furthermore, many households developed dependency syndrome. This situation has negative effects of the sustainability of food systems in the study area. This

© University of Venda

study corroborates Shetly (2015) who provided understanding into how food aid has played a critical role among households perceived to be at risk of severe food deficit.

Maternal buffering was also one of the methods used to address food deficit in Chipinge district. However, there was no justification why other household members besides the mother could not use the same coping strategy. Unlike Echendu *et al*. (2015) who found paternal buffering in Southern Nigeria, there was no observed evidence emerging in this research to suggest that other members apart from mothers employed this coping strategy. Thus, paternal cushioning was consequently an exception rather than an imperative among the respondents and any female respondent whose husband employed this strategy was considered privileged by the rest of the participants. This study also confirmed that a mother in charge of food preparation tends to experience food insecurity first before allowing her children and the husband to starve. These results concur with Kabui (2012) who revealed that maternal buffering was a common strategy in Kenya during the famine periods. However, this study contradicts Mengistu & Haji (2015) in Southern Ethiopia who noted incidences where people in charge of food preparation got precedence at the expense of other family members during a famine. The difference could be a result of the fact that famine in Ethiopia was linked to political instability and each household member prioritized personal safety at the expense of collective household security.

Borrowing either money or food was a commonly-stated coping strategy. Local traders extended temporary loans to deprived households. Nevertheless, borrowing money to purchase food can result in lasting indebtedness. This showed how a temporary coping option can put a family in a more susceptible situation with respect to protracted coping options. The problem related to this coping strategy was that money creditors participated in the process of borrowing and lending. The creditors compelled the borrower to pay high amount of interest charges. Furthermore, one critical dynamic of kinship ties emerging form this study is its role in facilitating coping among indigenous communities. Reliance on credit was considered one of the non-adaptive coping strategies because higher interest charges discouraged household members. Alternatively, many of the participants sought help from informal kinships. Some previous research reveal that kinship ties have enfeebled considerably, due to the impact of urbanization (Dercon *et al*, 2005; Abu and Soom, 2016; Wabwoba *et al*., 2016). To the contrary, this study confirmed the existence of family ties among the local populations in Chipinge district. These ties played a vital role as a source of fall back mechanism in times of food deficit. Thus, an attempt to address food deficit in the study area should be built upon functional kinship ties. The

© University of Venda

results are consistent with Grobber (2014) and Gichuhi (2015) who noted that households which depend on loans are prone to irreversible household food insecurity statuses.

The results also revealed that participants relied on migration in order to address household food deficit. However, a number of similar studies (Dercon *et al*, 2005; Mengistu & Haji, 2015; Abu and Soom, 2016) posit that migration does not guarantee household food security. Migration has ramifications for the asset status of household members left behind. In Chipinge district, seasonal migration has relatively little contribution in reducing household deprivation. Most migration took place from rural villages to nearby farms and Chipinge town. Though migration took place in search of better life, it was also a reaction to food shortages. In the initial phase of household food crisis men migrated and women and children followed depending on the severity of household food deficit. For the family members who remained, working as casual labourers was their main priority. In contrary to these findings, Mengistu & Haji (2015) argue that household of-farm employment is the major source of rural income. Gichuhi (2015) also argue that the importance of salaried employment diminishes with greater levels of family earnings. The differences in findings between this current study and earlier studies (Mengistu & Haji, 2015; Gichuhi, 2015) could be a result of the fact that rural employment prospects are readily available in rural Kenya and Ethiopia. However, in Chipinge unemployment is estimated to be over 90 % (ZimVAC, 2017).

The sustainability of preferred coping measures is shaped by accessibility to a variety of assets. The study revealed a strong positive link between the number of resources possessed by a family and the magnitude to which they were food insecure. One opportunity observed in the study area was the revitalisation of community-based coping approaches (such as *Humwe*), pursued by stakeholders. Community-based approaches have capacity to raise income and build household assets (Mengistu & Haji, 2015). These approaches may be important in addressing food deficit at the household level. Stakeholders conceived coping options that focus attention on equity and assets. Furthermore, Adopted coping approaches varied over period depending on household food deficit condition, the nature of catastrophe and resilience capacity. Some of the coping strategies used were more detrimental than others. Strategies such as sale of fecund resources had negative effects on productivity. Understanding the preferred coping strategies provides a hint for determination and enhancement of sustainable development approaches. Thus, intervention strategies should identify alternative coping measures which ensure food provision throughout the year.

© University of Venda

5.6 Conclusions

It was revealed that initially households reduced food intake and introduced other austerity measures to manage food shortfalls. If hunger persists, households increasingly rely on credit and transferrals of assets and food between and within families. Transitory migration in pursuit of employment forms the other stage of coping with food shortages. Once households exhaust these coping strategies divestment follows. This is a gradual and selective process that follows a sequence in which resources were mortgaged or peddled. The inveterate phase of these coping mechanisms was disaster migration. The choice to adopt a particular coping strategy was taken at a household as well as community level.

This study revealed that households often change food intake from favoured foods to inexpensive and less favoured alternatives. Participants chose to reserve impending food security by decreasing immediate diet intake, or by using other strategies, long before it was ready to sell its productive resources. Households also attempted to increase food supplies through temporary coping mechanisms that were not viable over an extended period. Even households with greater resource endowments were unwilling to sacrifice impending food intake by liquidating productive resources to preserve present food intake. These strategies included borrowing, migration and buying food on credit. Begging and consumption of wild foods were some of the severe coping strategies. Furthermore, if the existing food was insufficient to satisfy needs, households reduced the number of members that were fed by sending some of them elsewhere. It was also noted that households managed the food shortfall by limiting the food available to its members through a buddle of measures. These measures included the reducing of the size of meals and spending the whole day without consuming food. Due to the diverse and temporary nature of preferred coping mechanisms, none of these strategies should be utilised for intervention in Chipinge district. Efforts should be directed towards transforming these strategies into more resilient adaptive methods in order to address the effects of food deficit.

This study revealed that preferred coping mechanisms had temporary consequences. Consequently, there is urgent need to improve households' access to income creating initiatives that are viable. In the light of these results, it is suggested that attempts to increase access to loans and the preferment of non-farming initiatives as alternate coping mechanisms should be promoted by both non-governmental organizations and local state institutions in Chipinge district. Farming extension facilities should be supported with a vision of teaching household heads on the utilization of local capitals to increase household food security status in Chipinge

© University of Venda

district. Policies and programs that make micro-credit accessible to rural households in Chipinge go a long way in solving their asset procurement limitations and ultimately enhancing their food security status in the district. This current research focused on one district which frequently grapples with poverty and hunger. Future studies should investigate coping strategies in other district with comparable ecological characteristics. This comparison will assist in providing a national outlook of common coping strategies in dry areas of Zimbabwe.

© University of Venda

5.7 REFERENCES

Abu, G, A. & Soom, A. 2016. Analysis of factors affecting food security in rural and urban households of Benue, State, Nigeria. Food and Agricultural Economics, **4 (1)**: 55-68.

Adugna E. B. & Fikadu, M. A. 2015. Vulnerability to food insecurity and households' coping strategies. *Rural Development*, **34(4)**: 529 -542.

Ahmed, U. I., Ying, L. & Bashir, M. K. 2016. Food insecurity and coping strategies by micro growers in Punjab, Pakistan. *Environmental and Agricultural Sciences*, **3:** 31-34.

Akhtar, S. M., Hussain, S., & Igbal, N. 2015. Economics and dependence of wheat productivity on farm size in southern Punjab. *Environmental and Agricultural Science*, **2(1)**:4-13.

Babatunde, R., Omotesho, O. & Sholotan, O. 2007, Socio-economic characteristics and food security status of farming households in Kwara State, North-Central Nigeria. *Pakistan Journal of Nutrition*, **6(1)**: 49-58.

Bashir, M.K., Schilizzi, S. & Pandit, R. 2012. The determinants of rural household food security in the Punjab, Pakistan: an econometric analysis, p18, Working Paper 1203, School of Agricultural and Resource Economics, University of Western Australia, Crawley, Australia.

Dercon, S., Hoddinott, J., & Woldehanna, T. 2005. Shocks and consumption in 15 Ethiopian villages, 1999-2004. *African Economies*, **14(4)**: 559–585.

De Stage, M., Holloway, A., Mullins, D., Nchabaleng, L. & Ward, P. 2012. Learning about Livelihoods Insights from Southern Africa, 431p, Oxfam Publishing., Oxford: UK.

Echendu, A., Obiageli, F. E & Adogu, P. 2015. Coping with household food insecurity: perspectives of mothers in Anambra State, Nigeria, *Science and Education Publishing*, **3 (6)**: 145-154.

© University of Venda

Grobber, W.C.J. 2014. Food insecure household coping strategies: The case of a low income neighbourhood in South Africa. *Social Science*, **5(13)**:100-106.

Gichuhi W. 2012. Resilience in the face of starvation: Coping strategies for food security among women in Kenya: Pathways to African feminism and development. *African Women's Studies* **12(1)**: 213-222.

Gupta P., Singh K., Seth V., Agarwal S. & Mathur P., 2015. Coping strategies adopted by households in urban slums of Delhi, India. *Food Security,* **3(1)**: 6-10.

Harrower, S., & Hoddinott, J. 2005. Consumption smoothing in the Zone Lacustre, Mali. *African Economies,* **14(4)**, 489–519.

Kabui, I.B. 2012. *Household food insecurity and coping strategies among small scale farmers in Tharaka Central Division, Kenya*. A thesis submitted in fulfilment of requirements for the award of the Degree of Master of Science. School of Applied Human Sciences, Kenyatta University, Kenya.

Kahsay, S. & Mulugeta, M. 2014. Determinants of rural household food insecurity in Laelay Maichew Woreda Tigray, Ethiopia. *Agriculture and Food Security*, **2(1)**:106-112.

Makoti, A. & Waswa, F. 2015. Rural community coping strategies with drought driven food insecurity in Kwale County, Kenya. *Food Security*, **3(3)**: 87-93.

Maxwell, D. G.1995. Measuring food insecurity: the frequency and severity of coping strategy. *Food Policy*. **21(3)**: 291-303.

Mengistu, D. & Haji, J. 2015. Factors affecting the choices of coping strategies for climate extremes: The Case of Yabello District, Borana Zone, Oromia National Regional State, Ethiopia. *Science Research,* **3(4)**: 129-136.

Mjonono, M. 2008. An Investigation of Households Food Insecurity Coping Strategies in Umbumbulu. Submitted in partial fulfilment of the degree of MSc Agriculture (Food

© University of Venda

Security), African Centre for Food Security, University of KwaZulu-Natal, Pietermaritzburg.

Mjonono, M., Ngidi, M., & S. Hendriks, 2012. Investigating Household Food Insecurity Coping Strategies and the Impact of Crop Production on Food Security using Coping Strategy Index (CSI). In 17th International Farm Management Congress July 2012, Illinois, USA, 312-326.

Negash, M. 2000. Environment Depletion as a Way out to Seasonal Food Insecurity. The case of North Wello, Ethiopia. A paper presented on the First Rural and Local Development Studies International Policy Research Workshop, April 14 - 15, 2000. Addis Ababa,

Nyikahadzoi, K., Siziba, S., Mango, N., Mapfumo. P., Adekunle, A. & Oluwole, B. 2016. Creating Food Self-Reliance among Smallholder Farmers of Eastern Zimbabwe: Exploring the Role of Integrated Agricultural Research and Development. *Food Security,* **4(1)**: 647-656.

Oyebanjo, O., Ambali O. I., & Akerele, E. O. 2015. Determinants of food security status and incidence of food insecurity among rural farming households in Ijebu Division of Ogun State Nigeria. *Agricultural Science and Environment*, **13(2)**: 92-103

Omonona, B., Agoi, T. & Adetokumbo, G., 2007. An analysis of food security situation among Nigerian Urban Households: Evidence from Lagos State, Nigeria. *Central European Agriculture*, **8**: 399-406.

Quandt, S. A., Arcury, T. A., Early, J. T. & Davis. J. D. 2004. Household Food security among migrant and seasonal Latino farm workers in North Carolina. *Public Health,* **119**: 568-76.

Jyoti, D. F., Frongillo E.A. & Jones S. J. 2015. Food insecurity affects school children's

© University of Venda

academic performance, weight gain and social skills. *Nutrition*, **135(12)**: 2831-2839,

Selepe, B. M., Mtyingizane, S. S. & Masuku, M. M. 2015. Factors contributing to household food insecurity in Mhlontlo area, Eastern Cape, South Africa. *Tourism and Leisure*, **4(1)**:1-11.

Shetly, P.S., 2015. *Food and nutrition*. In Detels R., (ed.), Oxford Textbook of Global Public Health (sixth edition), Oxford University Press, Great Clarendon Street, Oxford, United Kingdom, p.180-200.

Siligman H.K., Laraia B.A. & Kushel M. B. 2010. Food Insecurity is associated with chronic disease among low-Income NHANES participants. *Nutrition,* **140(2)**: 304-310.

Siri, H. E. Katrina, B. & Mick, P. K. 2005. The dynamics of vulnerability: locating coping strategies in Kenya and Tanzania. *The Geographical* **171(4)**:287-305.

Skalicky, A., Meyers A.F., Adams W.G., Yang Z., Cook J.T. & Frank D. A. 2006. Child food insecurity and iron deficiency anaemia in low-income infants and toddlers in the United States. *Maternal and Child Health,* **10(2)**: 177-185.

Tshediso, J. S. 2013. Determinants of food security status of households receiving government grants in Kwakwatsi, South Africa. *Social Sciences*, **4(1)**: 147-153.

Wabwoba, M.S., Wakhungu, J.W. & Omuterema, S. 2016. Household Food Insecurity Coping Strategies in Bungoma Country, Kenya. *Nutrition and Food Sciences*, **4(6)**: 713-716.

Wambua, B. N. 2013. The Status and Effects of Food Insecurity on the households and option in Semi-Arid Parts of Makueni District. *Agriculture and Food Sciences*, **1(4)**: 171-175

World Food Program. 2016. *WFP Food Assistance Reaches 26, 500 People Caught in Conflict in South Kordofan,* 37p, WFP, Kordofan, Sudan.

Yusuf, S. A., Balogun, O. L. & Falegbe, O. E. 2015. Effect of urban household farming on food security status in Ibadan Metropolis, Oyo State, Nigeria. *Agricultural Sciences*, **60(1)**:61-75.

© University of Venda

Zakari, S. 2014. Factors Affecting Niger Food Security: An Analysis at National and Household levels. PhD Dissertation, College of Economics and Management, Huazhong Agricultural University, Wuhan, China.

Ziaei, M., Bidabadi, F. S., Eshraghi, F. & Keramatzadeh, A. 2013. Food Security and Coping Strategies Case Study of Rural Areas of Gorgan. *Agriculture, Crop Science* **6 (4)**:225-230.

Zalilah, M. S. & Khor, G. L. 2008. Household food insecurity and coping Strategies in a poor rural community in Malaysia. *Korean Nutrition Society and the Korean Society of Community Nutrition* **2(1)**, 26-34.

ZimVAC. 2017. *Rural Households Livelihood Survey*, 39p, SIRDC, Harare, Zimbabwe.

© University of Venda

CHAPTER 6: HOUSEHOLD PERCEPTIONS ON FACTORS INFLUENCING ADOPTION OF SUSTAINABLE COPING STRATEGIES IN CHIPINGE DISTRICT

6.1 Abstract

Food insecurity is central to the fight against diseases and poverty in Africa. This explains why some governments, particularly in emerging economies, strive to identify the factors that incapacitate households to produce their own food. However, despite the existence of institutions and policies that support smallholder food production, the efforts have fallen short of expectations. This has generated serious anxiety and scepticism concerning the role of existing institutions and preferred policies. Thus, an exploratory study on the factors affecting the adoption of sustainable coping strategies among rural households was conducted in Chipinge district. Multistage random sampling method was used to select the study area and the respondents. Structured interview schedule and/or questionnaire were the methods employed to collect data from 120 household heads and 5 extension officers. Principal component analysis (PCA) and descriptive statistics were the analytical tools used to examine the constraints affecting the adoption of sustainable coping strategies. The PCA results revealed that the main challenges inhibiting the adoption of sustainable coping measures were labour, public and institutional constraints; religious values and land related problems; inadequate information on early warning system; limited employment opportunities and credit facility constraints; and poor rural farming projects and essential services provision constraints. These results pointed to the urgent need for state and non-state actors to strengthen efforts on improving access to reliable information, address institutional and rural land tenure challenges as useful measures of guiding the adoption of sustainable coping strategies in the study area. The cognitive purposes of this current study are to create awareness for households and feed policy makers about the problems for enhanced interventions.

Key words: Factors affecting, food deficit, poverty, copping strategies, Chipinge District,

6.2 Introduction

Food deficit is the most dominant point of discussion in any debate about the global economic growth since the Millennium Development decade (Maxwell, 2006; Irohibe & Agwu, 2014; Yenesew, 2015). Wilhemina (2008) postulates that efforts of varying magnitudes have been exerted to discover sustainable methods of guaranteeing that people have access to the least possible amounts of food critical to survive a healthy and active lives. This vision culminated into a number of conferences, such as the African Union Maputo Declaration of 2003, that

© University of Venda

emphasized on the increase of national spending on food to at least 12% of the state budget by 2015 (Adenyi & Ojo, 2013; Abur, 2014). Adugna & Fikadu (2016) argue that regardless of this intent, food deficit remains an obstinate challenge in the Sub-Saharan Africa region.

Makoti & Waswa (2015) posit that the number of malnourished and hungry individuals in the 2000s rose to 140 million and exceeded 185 million in 2017. In explaining continued increase in food deficit in Africa, Birara *et al*. (2015) argue that policies and initiatives were futile in addressing the fundamental coping threat concerns of insufficient diet, starvation and poverty. Inappropriate policies and interventions have opened up markets to the dumping of farming produce (Adenyi & Ojo, 2013; Asmelash, 2014; Cheema & Abbas, 2016), privatized communal and public natural resources (Maxwell, 2006; Adugna & Fikadu, 2016) and concentrated assets among the rich (Cheema & Abbas, 2016). Babatunde *et al*. (2007) corroborate this assertion by positing that adopted coping strategies are ineffective during manifestation of large covariate challenges. Anselm & Amusa (2010) and Andres & Lebailly (2015) argue that without urgent need to identify the factors inhibiting the adoption of viable coping mechanisms, developing economies will continue to import food from developed nations.

Sub-Saharan Africa has the greatest number of underfed people world-wide (Maxwell, 2006; Tshediso, 2013; Altman *et al*., 2009). The region harvests insufficient food per individual compared to the amount of food harvested a decades ago (Mulugeta, 2002; Bedeke, 2012; Muche *et al*., 2014). Yenesew (2015) approximates that two in every five kids below the age of three years are underfed and about 38% are malnourished. These statistics reflect the dire food deficit situation within the African continent due to the failure of preferred coping strategies. There is need to understand the challenges affecting the adoption of sustainable coping strategies, in order to address household food deficit.

The determinants of household food deficit in the region are numerous, diverse and composite. The main aspects that contribute to household failure to adopt sustainable coping options include environmental decay (Omonona *et al*., 2007; Ellis, 2009; Kuwenyi *et al*. 2014), climatic hazards (Maxwell, 2006; Anwar, 2012; Abur, 2014), population growth surpassing farming output (Makoti & Waswa, 2015)**,** uneven macro-economic atmosphere (Isaboke, 2006; Makoti & Waswa, 2015), inconsistent government policies (Muche *et al*., 2014) and misdirected food security policies (Campbell *et al*, 1991). Lemma & Wondimagegn, 2014 and Mengistu & Haji (2015) also argue that food security policies and programs are usually superimposed on the poor farmers without their approval. Yet there is consensus that successful programs and projects are usually achieved though integrated and participatory approaches (Maxwell, 2000;

© University of Venda

2006). Furthermore, inadequate access to infrastructure (Altman *et al*., 2009), shortage of food storage amenities (Isaboke, 2006) and low agricultural production (Babatunde *et al*., 2007) are some of the causes of food deficit. Thus, this current study examined the dynamics hindering the adoption of viable coping mechanisms in order to address food deficit.

Environment, political and socio-economic constraints are the major drivers of food insecurity (Makoti & Waswa, 2015). Rural areas in Zimbabwe are characterized by poverty, persistent drought, rising population growth ratio and ecological decay (ZimVAC, 2016). Nevertheless, a number of studies in the area give more importance to the urban centres. Limited studies hide the major factors inhibiting the adoption of sustainable coping strategies in rural areas. The undertaking of this study at the rural household level is important because the results give insights to stakeholders concerning the challenges affecting the livelihoods of the rural people.

About 80% of Chipinge's environment is semi-arid (ZimVAC, 2017a), with restricted and unreliable rainfall. ZimVAC (2017a) notes that food security is inevitable due to predictable high herd mortality and harvest failure. ZimVAC (2017b) notes that the land assets such as the vegetation and soils are extremely degraded. This is due to the interaction between ecological and anthropological aspects such as pressure on available natural resources (Mango *et al*, 2014), climate (Dube, 2016), deforestation and the subsequent over-utilization of the land resources (Nyikahadzoi *et al.,* 2012). The study area is more susceptible to food deficit because the economy heavily depends on the farming sector, where environmental hazards are the major determinants of farming productivity.

Despite increasing awareness of the failure of preferred coping strategies, existing literature have focused on the factors deterring farming production rather than those affecting coping strategies. Mombeshora *et al*. (1995) point out that analytical studies that examine factors that inhibit adoption of viable options are at best scanty. The analysis of challenges constraining the success of preferred coping strategies has received limited focus notwithstanding its growing importance for the vulnerable communities. Thus, this study sought to explore the challenges affecting adoption of sustainable coping strategies in Chipinge district in order to identify interventions that assist in addressing the limitations or alleviate the adverse impact of household food deficit.

6.3 Material and Methods

This chapter follows the methodology which is explained in Chapter 3. Study area, participants, study design and data collection methods were carried out in the same manner as spelled out in

© University of Venda

Chapter 3. Data were collected through household interviews and focus group discussion. Principal Component Analysis was used to determine the challenges inhibiting the adoption of sustainable coping strategies in Chipinge district. The procedure used in this data reduction technique is presented in Chapter 3 (Section 3.8.4). Furthermore, the justification for the choice of the Principal Component Analysis versus other regression models such as binary logit is also presented in Chapter 3 (Section 3.8.4).

6.4 Results

6.4.1 Principal component analysis of constraints affecting adoption of viable coping strategies in Chipinge district

Table 6.1 shows the Varimax-rotated principal component analysis of challenges affecting the adoption of sustainable coping strategies in Chipinge district. Five factors were extracted from the findings based on feedback from participants. The Kaiser criterion (1960) was adopted for choosing the total number of principal factors explaining the data. In this current research, the total number was determined by leaving out factors with matching Eigen values which was below 1. Only variable with significant loading of plus or minus 0.345 and above at ten percent overlapping variance were utilised in describing variables and significant at one percent level of probability. The factors that loaded below plus or minus 0.345 were not utilised. The communality shown in table 6.1 represents the squared multiple relationship between the item and all other items (Ozor *et al*., 2010). The factors include, Factor one (Institutional, public and labour challenges); Factor two (religious values and land related constraints); Factor three (ICT and exorbitant cost of farming inputs); Factor four (off farm employment opportunities, loan constraint and the distance from the market challenges) and Factor five (ineffective rural farming projects and programmes and socio-economic service delivery challenges)

After rotation, institutional, public and labour challenges (factor one) accounted for 11.9 of the variance, religious values and land related constraints (factor two) accounted for 11.4, ICT and exorbitant cost of farming inputs (Factor three) accounted for 8.7 and off farm employment opportunities, loan constraint and the distance from the market challenges (Factor four) also accounted for 8.6. The fourth factor also accounted for 7.5. In this current study, the factors that were taken explained 48.5 percent of the total variance in all the 22 inhibiting variable components. Table 6.1 shows the results of the PCA of factors that inhibit the adoption of sustainable coping measures in Chipinge district.

© University of Venda

Table 6.1 Principal Component Analysis of Challenges Affecting Adoption of Sustainable Coping Strategies in Chipinge District

	Challenge affecting sustainable adoption	Components*					Communality
		F 1	F 2	F 3	F4	F5	
1.	Inadequate weather forecasting	0.756					0.644
2.	Absence of government policies	0.753					0.613
3	Absence of supporting institutional amenities	0.655					0.591
4.	High cost inputs			0.669			0.561
5.	Household religious norms		0.591				0.441
6.	Communal land ownership		0.587				0.400
7.	Lack of collateral security		0.401				0.482
8.	Customary belief systems		o.457				0.512
9.	High cost of irrigation facilities			0.488			0.425
10.	Poor early warning systems			0.428			0.461
11.	Subsistence farming		0.769				0.645
12	Land inheritance		0.743				0.644
13.	Distance from the market				0.613		0.548
14.	Participation in off-farm jobs				0.580		0.412
15.	Poor access to farm land		0.791				0.697
16.	Lack of government intervention	0.417					0.285
17.	Lack of farm labour						
18.	Lack of credit facilities				0.467		0.333
19.	Effects of climate change				0.452		0.314
20.	Poor extension amenities					0.746	0.621
21.	Poor farming service delivery					0.774	0.653
22.	Inadequate storage facilities**			0.630	0.405		0.644
	Percentage of total variance	**11.9**	**11.4**	**8.7**	**8.6**	**7.6**	

*Factor 1: Institutional, public and labour challenges; Factor 2: Religious values and land related constraints; Factor 3: ICT and exorbitant cost of farming inputs; Factor 4: Off farm employment opportunities, loan constraint and the distance from the market challenges; Factor 5: Ineffective rural farming projects and programmes and socio-economic service delivery challenges.

** Challenges that loaded under more that 1 factor

© University of Venda

6.4.1.1 Institutional, public and labour challenges (Factor 1)

The factors integrated inadequate government policies to empower households (0.753), insufficient access to weather forecasting technologies (0.755), absence of institutional facilities (0.654) and insufficient household access to awareness information on climate change adaptation (0.567), lack of household labour (0.486), and state irresponsiveness to climate hazards. The absence of farming information and viable institutions poses serious problems to households in Chipinge district. Interviews revealed that households are not sentient of the new trajectories regarding climate change and the necessary readjustments required in order to address household food insecurity. These findings corroborate Mengistu & Haji (2015) who discovered that as household access institutional and public amenities, the probability of choosing viable options increases by 0.052 at p<10% (holding the value of other variables constant). Furthermore, these findings corroborate Enete *et al*. (2010) who posit that lack of public and institutional amenities to support household coping capacity affect their adaptation ability in Southern Nigeria.

6.4.1.2 Religious values and land related constraints (Factor 2)

The variables that loaded high were poor access to land resources (0.783), high cost of farming land (0.791), communal land ownership system (0.743), customary norms and values against adoption of scientific farming methods (0.655), spiritual beliefs of the household head (0.591), lack of deposit requisite to secure credit (0.402). These results agree with Mjonono *et al*. (2009) who also suggest that inadequate land for agricultural activities in rural areas is the major factor inhibiting the adoption of sustainable coping strategies. These findings also confirm Ozor *et al*. (2011) who exposed that high input cost is also a key barrier to the adoption of viable coping options. Furthermore, Bedeke (2012); Irohibe & Agwu (2014) and Adimassu & Kessler (2016) concur that religious values affect the adoption of coping strategies. In a study among the Oromo ethic group in Ethiopia, Adimassu & Kessler (2016) discovered that food insecurity affected Muslims more than Christian communities due to their strict choice of coping strategies.

6.4.1.3 Poor information on early warning systems and ineffective communication and technology challenges (Factor 3)

Factors that loaded high included high expenditure on irrigation amenities (0.487), illiteracy of household members (0.487) and inadequate information disseminated on early warning systems (EWS). The finding on EWS agrees with Mengistu & Haji (2015) who posit that as households access EWS, the probability of them selecting viable coping strategies increase by

© University of Venda

0.542 at a p<1%, holding the value of other variables constant. These findings concur with Mengistu & Haji (2015); Makoti & Waswa (2015) and Ahmed *et al*. (2015) who also noted that access to EWS is a major factor that determines adoption of coping strategies. Preceding studies (Ziervogel *et al*., 2006; Bryana *et al*., 2009; Hunnes, 2015) reveal that households with better access to information through farming extension workers invest more in devising sustainable strategies for coping with food deficit.

6.4.1.4 Off-farm employment opportunities, loan constraint and the distance from the market (Factor 4)

Distance to the market (0.613), participation in off-farm employment (petty trading, artisans, civil service (0.580), subsistence food production (0.517), lack of credit facilities (0.451) were the variables that loaded high. These findings corroborate Bedeke (2012); Abur (2014) and Adenyi & Ojo (2013) who discovered that inadequate rural credit facilities militate against adoption of sustainable coping options. Mengistu & Haji (2015) and Dube (2016) further confirm that limited access to credit facilities and inadequate information on market products are major factors which inhibit the adoption of sustainable coping options. Furthermore, Adimassu & Kessler (2016) reported negative correlation (p< 0.10) between access to the market and access to credit. This means that households with access to markets have a better chance of adopting viable coping options. Conway & Schipper (2011) also argue that households closer to the markets are prone to migrate in order to carry out off-farm activities.

6.4.1.5 Ineffective rural farming programmes and socio-economic service delivery challenges (Factor 5)

The factors that loaded high included poor extension facilities directed to enhance household coping capacity (0.774) and deplorable farming extension delivery systems (0.746). These results agree with Anselm & Amusa (2010); Adenyi & Ojo (2013) and Andres & Lebailly (2015) who suggest that inadequate rural agricultural extension is one of the factors that incapacitate households from adopting viable coping strategies. Furthermore, Mengistu & Haji (2015) discovered that access to rural farming programmes, increases the probability of choosing viable coping strategies by 0.019 at a p<5%, holding the value of other variable constant. Babatunde *et al*. (2007) and Dube (2016) posit that farmers' access to extension service is one of the determinants of coping in semi-arid regions.

© University of Venda

6.5 Discussion

This study focused on the factors that influence the adoption of sustainable coping strategies in Chipinge District. The district is extremely susceptible to food deficit due to climate shocks. This has affected the conventional coping measures. Thus, preferred coping measures have been weakened and are ineffective in overcoming the effects of environmental degradation. This current study identified numerous variables that affect adoption of sustainable coping strategies, grouped in five major components. These components included: (1) institutional, public and labour challenges, (2) religious values and land related constraints (3) Poor information on early warning systems and ineffective communication and technology challenges, (4) off-farm employment opportunities, loan constraint and the distance from the market, and (5) Ineffective rural farming programmes and socio-economic service delivery challenges.

Lack of information on climate change and EWS pose severe problems to preferred coping strategies as most households are oblivious of modern developments concerning climate change. Thus, households are ignorant of the essential coping changes required in order to address household food deficit. Absence of coping capacity due to challenges associated to inadequate access to climate forecasts result in staid gaps between households and practical information that should assist them in their agricultural activities (Isaboke, 2006; Kuwenyi *et al*., 2014). Abur (2014) and Adugna & Fikadu (2016) posit that climate forecasts are required to assist farmers to make viable decisions on selecting a range of coping options. However, lack of early warning information makes it difficult for household to plan and devise viable coping options. Thus, households continue to become more susceptible to the impact of food shortages in Chipinge district. In terms of practical interventions, stakeholders should invest in revamping both the traditional and conventional early warning systems. The revival of indigenous knowledge systems should be led by the local people because they know the local knowledge systems that have worked in the past under prevailing socio-economic and physical conditions.

The results reveal the significance of access to information, which is essential to improve households' knowledge and responsiveness to food deficit. Babatunde *et al*. (2007) and Tshediso (2013) suggest that farming related information can be disseminated through communication media such as newspapers, pamphlets, farmers' magazines and radio platforms. The utilization of agricultural development agents in supporting households on environmental related issues and identification of viable coping options should be strengthened in the study area. Furthermore, improving communication media (such as cell phone network)

© University of Venda

and availing information concerning ecological variations and apt coping options is critical in Chipinge district. Asmelash (2014) and Cheema & Abbas (2016) suggest that smallholder and subsistence households are vulnerable to climate changes. Therefore, in terms of interventions, stakeholder efforts are required to build household resilience to a range of ecological stresses and shocks.

Inadequate education and limited extension contacts were the major constraints inhibiting the adoption of sustainable coping strategies in the study area. A number of preceding studies (Maxwell, 2006; Muche *et al*., 2014; Cheema & Abbas, 2016) suggest that the higher the level of farming contacts with extension amenities and education attained, the higher the probability of using sustainable coping strategies. According to Kuwenyi *et al*. (2014) and Adugna and Fikadu (2016) learning increases the capacity of households to take up farming improvements and therefore, enhance their efficiency and output. Extension services provide informal guidance that assists to release the innate talents and intrinsic innovative traits of household members. Furthermore, education enhances farmers' capacity to appreciate, assess and take up novel farming methods that lead to increased household productivity. Stakeholders should direct efforts towards increasing extension contacts in the study area. This strategy can be implemented through integrating stakeholder efforts and assess the comparative advantage of each member.

Market is the main means of accessing pecuniary assets in Chipinge district. Nevertheless, as a distance increases it affects household participation in the market. This situation compels households to rely on their customary coping practices. As a result, households are exposed to food deficit risks due to inaccessibility of market services. Mengistu & Haji (2015) notes that improving market accessibility plays a considerable role in improving coping strategies and the customary livelihood systems of rural households. Otherwise, without improving the access to the market, rural communities in Chipinge district would be forced to depend on outside interventions.

The findings also reveal that availability of household labour is one of the variables affecting the adoption of sustainable coping strategies in the study area. Most households had limited accessibility to labour due to migration of able bodied members. Ahmed *et al*. (2015) and Dube (2016) posit that households with restricted labour have limited coping and adaptation

© University of Venda

capacities. Thus, in terms of policy implication, there is urgent need to build up labour sharing institutions in the study area in order to improve households' coping capacities.

The results shows that inadequate training on sustainable farming practice pose a challenge on the adoption of viable coping strategies in the study area. Access to training assists households to model their coping options along the practical path of strategies that have succeeded under conditions prevailing in the study area. However, rural households in Chipinge district depend on already weakening conventional local knowledge than scientific knowledge. Households in the study area value their indigenous knowledge systems than outside information as a result of its realistic and practical background. Nevertheless, any training provided to rural families should improve their local knowledge systems which will enhance the espousal of new information and training. Therefore, in order to enhance community awareness there is urgent need to examine their local knowledge systems, households' needs and capacity.

6.6 Conclusion

The results revealed that challenges affecting adoption of coping strategies are multifaceted and complex. Public, labour and institutional constraints; inadequate land, religious beliefs and neighbourhood norms constraints; exorbitant cost of farming inputs, information and technological challenges; distance from the market, access to information, off-farm and rural credit challenges and ineffective rural projects were identified as major constraints. Increasing household coping capacity, as well as availing extension services easily to the rural communities could enhance food coping strategies in Chipinge district and could be relevant to other districts with comparable context and background. This means that both state and non-state actors should intensify efforts on enhancing technological, institutional and land tenure systems as pillars for guiding the adoption of viable coping measures in Chipinge district. Furthermore, stakeholders should support studies on drought-resistant crop varieties in order to enhance household coping capacity. Furthermore, training and educating household heads on better farming practices and increasing agricultural output on a sustainable basis by ensuring ecological steward are key interventions necessary to ensure the adoption of viable coping strategies. The findings in this current study assist policy makers to make informed decisions that facilitate the adoption of sustainable coping options.

© University of Venda

6.7 REFERENCES

Abur, C. C. 2014. Assessment of food security status among rural farming households in Guma Local Government area of Benue State, Nigeria. *Humanities and Social Studies*, **1(2)**: 34-42.

Adenyi, O. R. & Ojo, A. O. 2013. Food security status of rural farming households in two Ayadire and Ayedaade local Government areas of Osun State South West Nigeria. *Food, Agriculture, Nutritional and Development*, **13(5)**: 8209-8223.

Adimassu, Z. & Kessler, L. 2016. Farmers' strategy to perceived trends of rainfall and crop productivity in the central rift valley of Ethiopia. *Environmental Development*, 12 (1): 123-140.

Adugna, E. B. & Fikadu, A. 2016. Vulnerability to food insecurity and household coping strategies. *Rural Development,* **34(4)**: 529-542.

Ahmed, U. I., Ying, L. & Bashir, M. K. 2015. Food insecurity and coping strategies by micro growers in Punjab, Pakistan. *Environmental and Agricultural Sciences*, **3:** 31-34.

Altman, M., Hart, T. & Jacobs, P. 2009. Household food security in South Africa. *Agrekon*, **48 (4):** 345-361.

Andres, L. & Lebailly, P. 2015. The coping strategies to fight against the food insecurity in the Republic of Niger, Paper prepared for presentation at the 2nd AIEAA Conference "Between Crisis and Development: which Role for the Bio-Economy", 6-7 June, 2013 Parma, Italy

Anselm, A. E. & Amusa, T. A. 2010. Challenges of agricultural adoption to climate change in Nigeria. A Thesis from the literature. *Action Science Report,* **4(1)**: 3-12.

Anwar, A. 2012. Role of participatory rural appraisal in community development: A case study of Barani Area Development Project in agriculture, livestock and forestry development in

© University of Venda

Kohat. *Academic Research in Business and Social Sciences*, **2(8)**: 25-35.

Asmelash, M. 2014. Rural household food security status and its determinants. The case of Laelaymychew Woreda Central Zone of Tigray, Ethiopia. *Agricultural Extension and Rural Development,* **6(5):** 162-167.

Babatunde, R.O., Omotesho, O. A. & Sholotah, O. S. 2007. Factors influencing food security status of rural farming households in North Central Nigeria. *Agricultural Journal*, **2(3)**:351-357.

Bedeke, S. B, 2012. Food insecurity and coping strategies: A perspective from Kersa District, East Hararghe, Ethiopia. *Food Science and Quality Management,* **5(1)**: 17-34.

Birara, E., Muche, M. & Tadesse, S. 2015. Assessment of food security situation in Ethiopia. *Agricultural Research*, **9(2)**: 55-68.

Bryana, E. Derresa, T. T, Gbetbouo, G.A., Ringler, C. u2009. Adaptation to climate change in Ethiopia and South Africa: Options and constraints. *Environmental Science* **12 (1):** 17-35.

Campbell, D. J., Zinyama, L. M. & Matiza, T. 1991. Coping with food deficits in rural Zimbabwe: The sequential adoption of indigenous strategies. *Research in Rural Sociology and Development,* **5(1)**:73-85.

Cheema, A. R. & Abbas, Z. 2016. Determinants of food insecurity in Pakistan: Evidence from PSLM 2010-11. *Applied Economics,* **26(2)**: 183-213.

Conway, D. & Schipper, E. L. F. 2011. Adaptation to climate change in Africa: Challenges and opportunities identified from Ethiopia: Global Environmental Change, **21 (2)**: 227-237.

Dube, K. (2016). Implications of rural irrigation schemes on household economy. A case of Lower Gweru Irrigation Scheme, Zimbabwe. *Agricultural Extension,* **44(1)**: 75-90.

Ellis, F. (2009). The determinants of rural livelihood diversification in developing countries.

© University of Venda

Agricultural Economics, **51(2)**: 289-302.

Enete, A. A., & Amusa, T. A. 2010. Challenges of agricultural adaptation to climate change in Nigeria: A synthesis of literature. *Field Actions Science Reports, **4***, 1–11.

Hunnes, D., 2013. The effects of weather, household assets, and safety-nets programmes on household food security in Ethiopia using rural household panel data. *Regional Environmental Change*, **15 (1)**: 1095-1104.

Irohibe, I. J. & Agwu, E. A. 2014. Assessment of food security situation in rural areas of Kano State, Nigeria. *Central European Agriculture*, **15(1)**: 94-107.

Isaboke, H. N. 2006. Explaining the perception of Smallholders towards weather index micro-insurance alongside risks and coping strategies. *Food and Agricultural Economics*, **4 (4)**:59-77.

Kuwenyi, S., Kabuya, F. I., Masuku, M. B. 2014. Determinants of rural household's food security in Shiselweni Region, Swaziland: Implications for agricultural policy. *Agriculture and Veterinary Science*, **7(11)**: 44-50.

Lemma, Z. & Wondimagegn, M. 2014. Smallholders' vulnerability to food insecurity and coping strategies: In the face of climate change, East Hararghe, Ethiopia. *Economics and Sustainable Development,* **5(24)**: 86-100.

Makoti, A. & Waswa, F. 2015. Rural community coping strategies with drought-driven food insecurity in Kwale County, Kenya. *Food Security*, **4(3):3**: 87-93.

Mango, N., Zamasiya, B., Makate, C., Nyikahadzoi, K., & Siziba, S. 2014. Factors influencing household food security among smallholder farmers in Mudzi district of Zimbabwe. *Development Southern Africa*, **31(4)**:625-640.

Maxwell, S. 2000. Measuring food insecurity: The frequency and severity of coping strategies. *Food policy*, **21(33)**: 291-303.

© University of Venda

Maxwell, S. 2006. *Household food security: Concepts, indicators, and measurement*. IFAD and UNICEF, Roma. Mimeo, International Disaster Institute, London, UK.

Mengistu, D., & Haji, J. 2015. Factors affecting the choices of coping strategies for climate extremes. The case of Yabello District, Borona Zone, Oromia Regional State, Ethiopia. *Science Research,* **3(4)**: 129-136.

Mombeshora, B., Mavedzenge, B., Madhara, M., Chibudu, C., Chikura, S. & Scoones, I. 1995. Coping with risk and uncertainty. ILEIA Newsletter Vol. 11 No. 4 p. 10. [Electronic]. Available: www.metafro.be/leisa/1995/11-4-10.pdf [2010, April 16].

Muche, M., Birara, E. & Tesfalem, B. 2014. Determinants of household food security among South-west Ethiopia rural households. *Food Science and Technology,* **2(7)**: 93-100.

Mulugeta, T. 2002. Determinants of household food security in Eastern Oromia, Ethiopia: The case of Boke District of Western Hararghe Zone. An M. Sc. Thesis presented to the School of Graduate Studies of Alemaya University, Alemaya. 151p.

Musiyiwa, K., Leal, F., Harris, D & Nyamangara, J. 2012. Implications of climate variability and change for smallholder crop production in different areas of Zimbabwe. *Environmental and Earth Sciences,* **6(8)**: 394-401,

Nyikahadzoi, K., Siziba, S., Mango, N., Mapfumo. P., Adekunle, A. & Oluwole, B. 2012. Creating food self-reliance among smallholder farmers of eastern Zimbabwe: Exploring the role of integrated agricultural research and development. *Food Security,* **4**: 647-656.

Omonona, B. T., Agoi & Adetokunbo. A. G. 2007. An analysis of food security situation among Nigerian Urban Households: Evidence from Lagos State, Nigeria. *Central European Agriculture,* **8(2)**: 397- 406.

Ozor, N., Madukwe, M. C., Enete, A. A., Amaechina, E. C., Onokola, P., Eboh, E. C., Garforth,

© University of Venda

C. J. 2010. Barriers to climate change adaptation among farming households of Southern Nigeria. *Journal of Agricultural Extension,* **14 (3)**: 241-253

Sen, A. 1981.*Poverty and Famines in the World*, 258p, FAO, Rome: Italy.

Tshediso, J. S. 2013. Determinants of food security status of household receiving government grants in Kwakwatsi, South Africa. *Mediterranean Journal of Social Science*, **4(1)**: 147-153.

Wilhemina, Q. 2008. Food security situation in Northern Ghana: Coping strategies and related constraints. *Agriculture and Research*, **3(5)**: 334-342.

Yenesew, S. 2015. Causes and coping mechanisms of food insecurity in rural Ethiopia. *Agriculture and Biology*, **6(5)**: 123-133.

Ziervogel, G., Bhanwani, S. & Downing, T. E. 2006. Adapting to climate variability: Pumpkins, people and pumps. *National Resources Forum,* 30 (1): 294-305.

ZimVAC. 2016. 'Zimbabwe Rural Food Security Assessment, June 2016.' ZimVAC, Report No. 5, Harare.

ZimVAC. 2017a. 'Zimbabwe Rural Food Security Assessment, November 2016.' ZimVAC, Report No. 1, Harare.

ZimVAC. 2017b. 'Zimbabwe rural food security assessment, June 2008.' ZimVAC, Report No. 2, Harare.

© University of Venda

CHAPTER 7: PROPOSED INTERVENTIONS FOR COMBATING HOUSEHOLD FOOD DEFICIT IN CHIPINGE DISTRICT

7.1 Abstract

In developing economies, the existing coping strategies have failed to address household food deficit. The ineffective of preferred coping options emanates from the imposition of these strategies from the central government without consulting the people affected. Thus, there is urgent need to find local specific coping options which are relevant to the local context. The severity of food deficit has resulted in a number of challenges such as unemployment, slow economic growth and increase in diseases. Thus, interventions requisite to combat food shortages were suggested in this study. A citizen jury was used to gather data from 120 multi – staged sampled respondents drawn from chiefs, village and household heads. Purposive and convenient sampling methods were used to select the sample. An unstructured questionnaire was used to permit flexibility and to assist the researcher to iterate and probe further on emerging themes. Thematic content analysis technique was utilised to analyse the data. The findings showed that all existing coping strategies were ineffective in the protracted period because they failed to ensure household food stability, availability and accessibility. There is necessity to support production-focused coping options that ultimately ensure expansion of production. Unless stakeholders promote income enhancing coping strategies and facilitate the building of critical assets, exposed households will continue to exhaust their assets and fall further in food deficit trap. Asset allocation schemes, access to loan facilities, environmental steward and various income generating initiatives are critical areas which should get immediate attention.

Key words: Coping strategies, sustainable development, citizen jury, food deficit, intervention

7.2 Introduction

Poverty and household food deficit are some of the problems affecting emerging nations (Bedeke, 2012, Mengistu & Haji, 2015). These problems originate from the failure of adopted coping strategies in addressing household food deficit (Devereux, 2000; 2001; Uzokwe *et al*., 2016). FAO (2010b) estimates that about 980 million people around the globe live in severe deprivation. Numerous development institutions have attempted to provide aid to food insecure regions in a despairing endeavour to address food deficit. (Harris-Fry *et al*., 2015). Isaboke *et al*. (2016) and Kuwornu *et al*. (2016) also posit that development agencies have provided palliative and temporary coping options in an attempt to address food deficit. Adopted coping strategies

© University of Venda

have further incapacitated (FAO, 2010b), malnourished (Maxwell & Caldwell, 2008), left households in serious debts and unable to meet rudimentary food requirements (Devereux, 2001; Makoti & Waswa, 2015; Isaboke *et al*., 2016). Thus, Adugna and Fakadu (2015) argue that unsustainable and temporary coping measures are the major cause of deprivation, food deficit and under development among developing economies. Thus, Cheema & Abbas (2016) and Isaboke *et al*. (2016) concur that without concerted interrogation of current coping strategies, developing nations will remain in a debt trap and unable to feed their citizens.

Africa has witnessed the unprecedented rise in food anxious households due to inappropriate coping strategies (Desalegn, 1992, Devereux, 2001; Ndlovu, 2011) The impact of the socio-economic and climate change have worsened the situation through exerting stress on the strained natural resources (Adenyi & Ojo, 2013; Kuwenyi *et al*., 2014). Isaboke *et al*. (2016) suggest that Africa's portion of the global vulnerable people is expected to multiply from 12% in 2017 to 22 % in 2030. Furthermore, Mengistu and Haji (2015) hypothesize that food deficit is estimated to increase in sub- Saharan Africa, with two in every five persons exposed to inadequate food for a health and active life. Bedeke (2012) also postulates that drought and high food costs are pushing more households into hunger and poverty. Also, rapid population increase imperils existing coping strategies and significantly reduces the available and accessible food needed to adequately feed the population (Degeffa, 2002, Cheema & Abbas, 2016). Thus, sub Saharan Africa is facing a number of challenges that have imperilled the capacity of people to address food deficit. The major challenge is that most preferred coping strategies depend on existing natural resource stock. The environment is currently under immense pressure from population increase and climate change. Therefore, without the development of alternative coping mechanisms, households in the Africa will continue to grapple with acute food deficit.

In Zimbabwe, over 80 % of households are deprived and food anxious (Ndlovu, 2011; Musiyiwa *et al*., 2012; ZimVAC, 2017). The largest group of vulnerable people in rural areas have inadequate resources to harvest sufficient food. Agricultural planning and policy approaches designed to mitigate food deficit proved to be unsuccessful due to many challenges. This has made Zimbabwe a symbol of poverty and food deficit. The most current FAO (2010b) definition describes food security in terms of four main constituents namely food stability, access, availability and utilization. Ndlovu (2011) suggests that all these dimensions are manifested in Zimbabwe. Consequently, the perpetuation of food deficit in Zimbabwe at present times has attracted the attention of many researchers in order to discover the areas affected and the

© University of Venda

fundamental causes of food deficit. Numerous factors were put forward explaining the diverse forms of food deficit and poverty in the western part of Zimbabwe. Unfortunately, there are no empirical studies which propose alternative coping strategies (Dale, 2000, Nyikahadzoi *et al*. 2012; Ndiweni, 2015). The lack of information on this critical area influenced this current study.

Chipinge's land mass is dry, with inadequate and erratic rainfall. The costs of food deficit are high as a consequence of several interrelated aspects such as reliance on rain-fed farming, poverty (Chifamba, 2011), population growth (Manyeruke *et al*., 2013), poor natural resource stewardship (Mango *et al.*, 2014) and insufficient economic growth. These are the major restrictive factors in farming development in the district. Therefore, household food security is obstinately at danger due to expected food deficit and high herd mortality (Chifamba, 2011; Nyikahadzoi *et al*., 2015). In order to cope, communities in Chipinge rely on outside assistance, a situation which deprives households of their pride. The lack of alternative sustainable coping options remains the major challenge in Chipinge district. Studies in India and Egypt show that marginalised areas present some of the premier returns if they get sufficient investments (FAO, 2010b). There is urgent need to come up with coping mechanisms that improve the food security situation, especially for poorly resourced households. Thus, this study provides stakeholders with insights essential for making appropriate choices in light of the existing food challenges. The designing of alternative local specific coping mechanisms contributes towards making suitable decisions towards creating sustainable communities.

7.3 Materials and Methods

This chapter follows the methodology which is explained in Chapters 3 and 5. Study area, participants, study design and data collection methods were carried out in the same manner as spelled out in these previous chapters. Data were collected through citizen jury and household interviews from 120 household heads. The procedure used to gather data through citizen jury (Section 3.7.3) is explained in Chapter 3. Furthermore, an expose of the thematic data analysis method used in this current study is presented in Chapter 3.

7.4 Results

7.4.1 Proposed coping options in Chipinge district

On the first day all participants were requested to list previously identified common coping options in Chipinge district. The identification, discussion and recording of the preferred coping strategies were the major activities carried out on the initial day. Activities carried out on the second day included the discussions on the alternative coping strategies appropriate to the Chipinge context.

© University of Venda

Participants were requested to identify the current preferred coping measures and their impact on household food insecurity. Hunting, fishing and gathering were singled out as common coping measures used to supplement household food. However, the jury concurred that the strategy was not sustainable due the decrease of wild animals, dwindling of forests and drying up of rivers. These factors rendered the strategy ineffective. One participant indicated that:

> *"We used to rely on the forest and rivers during the lean periods, but it's no longer possible because the rivers dried up and the forests are exposed to massive destruction".*

Furthermore, discussions also centred on the efficacy of asset disposal during severe period. Participants concurred that the disposal of household assets was not sustainable in the long run. Participants also noted that the money generated from sale of productive assets was used for consumptive purposes. Most of the productive assets decreased as cattle die of diseases and lack of drinking water. Cattle were sold at unsustainably low prices. Other household assets such as ploughs have also depleted due to over use and disposal. One participant said that:

> *"I witnessed my neighbour selling all productive assets and at times exchanging assets for food. Not much money was realized from the sale of livestock due to poor market prices. At the moment children are staying with relatives in neighbouring villages. This coping strategy has left many household vulnerable to food shortages".*

Thus, the sales of livestock to acquire grain during food deficit period had significant ramifications on household's economy due to sharp decline in livestock prices. These findings corroborate Sen (1981), Radimer (1990) and Mjonono (2009) who posit that assets are part of a family's wealth and their accessibility is a vital coping option during times of food deficit. Assets play a significant part in determining families' risk coping options (Kuwomu *et al*., 2013; Kumba *et al*., 2015). The jury encouraged participants to desist from relying on disposal of productive assets. At the end of the discussion on asset auctioning, the jury agreed that this coping strategy was not sustainable.

As presented in Table 7.1, coping options such as decrease of food intake consumed per day and the amounts served in a mealtime were also evaluated. Also, food anxious households recounted that they address food deficit by getting food donations generously from the state and non-state actors. According to FGDs, households developed dependency syndrome due to reliance on food donations. It was further noted that food donations had altered the eating habits which had led to preference for maize which does not perform well in Chipinge district. The

© University of Venda

tradition of consuming sorghum and millet as staples was seriously affected. These findings agree with that of Ellis (2000) which shows that conservative farming is reliant on the utilisation of particular crop varieties. Conversely, crop varieties utilised in high-input systems are not frequently adapted to truncated input farming, a crucial factor of various households in Chipinge district. Participants concurred that these strategies failed to provide long and permanent answers for the food security challenges that appeared to rise. Upon requested to assess the utility of these coping strategies, one participant retorted that:

> *"I have relied upon hand outs and the withdrawal of meals whenever I face food deficit. However, these methods have not managed to increase prospects of food accessibility and stability. What I need are long term strategies which assist me to increase the availability of food in my household".*

Participants agreed that there was need to move the emphasis from promoting the non-market based responses (including the reduction of consumption, societal and institutional earnings transferral schemes such as food donations and gifts) to production-focused interventions (improving output). These results corroborate Mengistu & Haji (2015) who discovered that non-market based interventions facilitates households to survive for a certain period, but do not contribute in enhancing food availability and accessibility. Thus, the jury noted that while the identified coping strategies were ineffective, lack of alternative coping options compelled households to employ these strategies.

The survey results also revealed that 33.5 % experienced seasonal migration in the previous 3 years and about 66.5 % had no such experience. By comparison families that experienced seasonal migration across wealth categories, out of the sampled households (n=120), 3.7 %, 16.9 % and 17.4 % were drawn from high status, middle status and low status households respectively. The results revealed that most households avoid seasonal migration. These results imply that seasonal migration contributed insignificantly to household food security in Chipinge district. However these findings contradict Ndiweni (2013) who discovered that temporary and permanent migration strategies were critical coping options that secured off-farm employment and stimulated social and economic links between Matobo area and the northern part of South Africa. This is attributed to the close proximity between the two areas. Furthermore, in Kwara State, migration had positive ramification on asset status of women who were left behind (Babatunde & Leliveld, 2007). This difference could be a result of the nature of migration in these regions. Table 7.1 and 7.2 shows current and suggested coping options.

© University of Venda

Table 7. 1: Current coping strategies and their level of effectiveness

Current coping strategy	Level of Effectiveness
Hunting, fishing and wild fruits gathering	Unsustainable because wild animals are dwindling. Rivers no longer have any fish. Rivers and trees are drying up due to hostile environment.
Asset disposal	Assets dwindled as livestock die of diseases, overuse and lack of drinking water. Livestock are sold at untenably low prices. All money acquired from the sale of assets is used for consumptive purposes.
Relying on food donation	Food donation (*kusunza*) was considered very old fashioned. The strategy is associated with laziness. Donations are also not always available
Maternal buffering	Material buffering although it was considered a common strategy it could not be practiced when food was available. It associated with health complications.
Consumption of less preferred food	The strategy also resulted in health complications, especially among children.
Skipping of day time meals	Could not be relied upon over protracted period without resulting in severe health complications.
Migration	Had detrimental effects on household labour supply. Thus the strategy further exacerbated household food deficit.
Decreasing the quantity of food given to children	Could not be relied upon over protracted period without resulting in severe health complications.
Remittances	Due the prevailing economic conditions it was very difficult to save remittances for future use; hence the coping option could not result in increased food.
Food donation	Very few organizations provide food donations. The strategy was considered unsustainable.

© University of Venda

Table 7.2: Proposed Coping Strategies for Combating Household Food Shortfall in Chipinge District

Theme	Tradition	Proposed strategy
Enhancement of farming practices	We rely extensively on traditional farming practices such as dry-farming, low input use and we do not use modern technology.	Dry land farming is exposed to climate variability. There is need to revamp long forgotten irrigation schemes. We should resort back to collective work and the chief's granary practice.
Balancing wild animal and human food needs	We experienced intense competition in the harvesting of wild fruits, game animals and fish. There were no institutions regulating the exploitation of the available natural resources. Some households harvested wild fruits for commercial purposes.	Tangible and intangible institutions should regulate the exploitation of forest resources. We should desist from over utilization of animals and wild fruits because they supplement our food needs. Also domesticated and wild animals depend on the natural ecosystem for their food supplies.
Enhancing household support systems	We depend on resources mobilised within our household. There is very little support system that we get from government and non-governmental organisations.	Stakeholders should assist us with affordable loans. Also eenlightenment projects on health education and birth control are a prerequisite. Creating effective investments platforms through development of food supply-chain. We expect also to see improved outlay in social security nets and rudimentary social amenities
Taking advantage of Off-farm/activities	Little earnings are realised from the sale of baskets, mates and pottery.	stakeholders to support income raising projects, improving food consumption and improving dietary awareness
Improved weather focusing	We used to forecast weather using the natural environment. We forecasted early or late rains based on how early or late *musasa* tree shed and shoot new leaves. Secondly forest birds only made its sound towards the beginning of the rain season. Many ants also meant a good year.	Scientific information on weather conditions should be provided. We should conserve trees because tree behaviour helped us to predict the rains. We avoid disturbing the natural ecosystem because it assists us in forecasting the rainfall.

© University of Venda

The citizen jury confirmed that there was urgent need to move away from coping to adaptive strategies. Participants noted the need to adopt long term mechanisms in order to counteract the effects of food deficit. The theme on agricultural enhancement raised a number of critical issues in this regard. Participants raised arguments on the necessity to adopt better farming practices, especially around the usage of novel and better crop varieties, use of intercropping as well as cultivation of higher value crops. Arguments around common post harvesting methods in the study area were also raised.

The jury concurred that the issue of considerable losses, especially for vegetables, needed greater examination in order to identify exact areas in the supply chain where bottlenecks arose. Participants concurred that such bottlenecks could be solved through better storage, value addition to crops during better seasons and enhanced links to markets. These strategies enhance community efforts towards decreasing the risk and vulnerability attributed to food deficit. Therefore, more benefits were anticipated to accrue from the coping strategies that contribute to poverty reduction in the study area.

Furthermore, discussions on agriculture enhancement chronicled the need to revive traditional practices. These practices were no longer carried out due to the use of contemporary agricultural practices. In Chipinge district communities need to see coping beyond the acquisition of immediate food requirements and be eager to enhance feeding habits and diversify production in line with climatic unpredictability. Participants argued that there was need to revise the traditional practices such as *humwe* (collective work done by community members) and *zunde ramambo* (chief's granary) concepts. These concepts facilitated communities to work together for the common good. These practices not only promoted social capital but also inspired even the indolent people to work together with other community members. Even perceived lazy community members could harvest after their fields were worked on by the whole community. The jury conceded that the chief's granary concept allowed community members to pool their resources to assist the underprivileged members of the community. Furthermore, the concept promoted self-sufficiency and family hood. One participant noted that:

> *The authorities compel us to use contemporary coping methods that are not understood by the community. We have our traditional coping measures that sustained our community long back. There is need to use the coping measures that have succeeded in the past.*

© University of Venda

The jury concurred that there was compelling need to use the coping strategies that were understood by the community. The community jury proposed that wild fruit harvesting, dry planting, stream bank or riverbank cultivation, conservation agriculture, planting drought resistant small grains, traditional food storage and food processing techniques were some of the practices which need to be revived**.** Abur (2014) confirms that traditional coping strategies such as conservation farming and traditional vegetable seasoning assisted traditional communities in addressing food deficit. The citizens' jury recommended the revitalisation of these coping methods. Although participants acknowledged that these strategies had their own challenges, the weaknesses identified were over-weighed by the returns.

7.5 Discussion

Households in Chipinge face serious problems associated with low food production. The challenges are associated to environmental, technological, political and socio-economic issues which inhibit the adoption of viable coping options. The cultivation of maize varieties regardless of the unsuitability of the area appeared fashionable. This is one of the factors causing food deficit in the study area. Adugna & Fakadu (2016) suggest that this challenge needs serious attention particularly in the growth of viable and alternative coping options. Stakeholder initiatives that provide poor households with inputs are plausible. However, authorities should desist from giving any kind of seeds in any part of the district. For instance, long maturing maize varieties were distributed in Chibuwe during the 2017/18 planting season when the rain season was quite short. This factor contributed to household food insecurity. There is need to emphasise on the cultivation of drought resistant crop varieties such as millet, sorghum, rapoko and millet. One clear outcome from the discussions was that an interface of multiple aspects cause food deficit in Chipinge district. Thus, the food challenge calls for an integrated system in order to achieve rural development.

The ruined ecosystem in the study area need to be conserved and the natural assets should be secured. There is urgent need to embark on water and soil conservation activities such as gully reclamation and reforestation/afforestation. Furthermore, weather predicting was another theme that came out in the deliberations. In order to address weather related challenges there is need to stop random cutting down of trees and guard wetlands, forest, streams and rivers. These natural stocks assist households to forecast the rains. Bedeke (2012) posits that communities in Ethiopia rely on the natural ecosystems for the provision of household food during periods of shortfall. In Chipinge afforestation programmes can be realised in the presence of tree seed

© University of Venda

subsidies from various stakeholders that motivate households to participate in campaigns for the rehabilitation the degraded ecosystem**.**

Indigenous knowledge systems (IKS) are still important in the provision of household food. The knowledge enable household to cope with variations in weather patterns and design appropriate coping strategies. Bedeke (2012) noted that the Wareda people in Ethiopia, used indigenous knowledge systems such as cloud colours to determine the amount of rainfall. Another instance was that of the Wagogo communities in Tanzania who foretold persistent storm, thunder and drought during the onset of the rain season. These warning system or forecasts assisted people to put in place mechanisms to cope with food deficit. Thus, intervention programmes should identify the IKS existing in the study area and harness them. These are time-tested systems that assisted local people to address food shortages.

The discussions on the theme on enhancing household support systems showed that there were limited employment opportunities in Chipinge district. The disposal of assets including ploughs, for example, jeopardized production and income earnings. Without productive assets most households rely on food aid. Though food aid was a common coping option especially during droughts, its contribution was insignificant. In order to address the income challenge, intervention strategies should integrate non-farm and farm activities through livelihood diversification. Furthermore, coping options should not be exclusively limited to agricultural activities. However, these interventions should be adopted cognisant of the fact that spending more time on non-farming work at the expense of working on farms can worsen household food security status. This is the case if the wages earned do not commensurate with the forgone farm income. Also, creation of activities that promote household income such as money transfer projects for poor households plays a vital role in addressing household income challenges.

Access to credit has potential to create a favarable environment to participate in economic activities that increase household income**.** Stakeholders operating in Chipinge district should provide credit facilities to suitable household heads using a targeting principle that reflects on the real characteristics of food insecure households. Also participants raised the challenge of collateral security which prevented households from accessing credit. Collateral security challenges should be addressed if stakeholders need to solve household food insecurity in Chipinge district**.**

Sufficient consideration should be given to policy strategies that are directed towards delivery of better family planning methods. Community participation in the design of information meant to

© University of Venda

impart adequate knowledge about family planning should be a prerequisite. It was also recommended that stakeholders should support formal education as a way of addressing household food insecurity. Furthermore, since households that accessed extension amenities had a greater likelihood of being food secure, strategies should deliver sufficiently proficient and equipped extension officers who inform farmers on improved agricultural technologies. Provision of adequate extension services has potential to increase adeptness in food production systems.

The capacity of families to draw on income sources outside farming is critical to the success of poverty alleviation interventions. There is need for strategies which are geared towards generating employment in Chipinge district. Access to income prospects outside the farming sector make a great difference in an area like Chipinge district, whose natural resources are under immense stress from unsustainable population growth rates. Increasing household income will address household food insecurity and malnutrition in Chipinge district.

The discussion on enhancing household support systems deliberated more on the strengthening of primary health care delivery system. The discussion centred on child nutrition, maternal interventions, and provision of funds to finance nutritional-based interventions. Participants emphasised the necessity for more specific nutrition and health support, especially on the prioritization of nutritional interventions on the public well-being programmes. It was stated that these programmes ought to underscore on establishment of health care systems, focusing on capacity building for staff and financial investment. This assist in identifying, monitoring, and treating diseases associated with food deficit. Participants also indicated that community-level interventions to support structured coping mechanisms could also be embraced in parallel to government policy interventions

The need for investment in targeted basic social services and communal safety nets was also discussed. With heightened food deficit and poverty greater investment in health, education, water and sanitation is required. The targeted safety nets should assist the most deprived households to establish sustainable coping options. Furthermore, investment in social protection should co-exist with precise interventions on health, employment generation and nutrition. Participants also discussed on the need to strengthen the food security monitoring systems in order to support policy-making process in the study area. Proposals were suggested that the present systems that deliver information on food deficit at the local level ought to be supported. It was noted that focus on assessing the latent and real effects of food deficit can permit early response action and risk reduction.

© University of Venda

During the discussion, it was noted that certain coping options associated with poor households were linked to certain social clusters. These coping patterns were traced to historic configurations of discrimination, restricted access to financial, credit, market data and information services. Poor households resorted to child labour to survive, or sacrifice fecund resources to purchase food. Political relationships also regulated who has access to employment and amenities. Thus, the jury emphasised that there was need to examine the coping strategies in order to identify the commonly adopted strategies when households failed to satisfy their food requirements. Thus, the discussions concluded that it was vital to differentiate those coping options that were not viable and coping options that resulted in positive outcomes.

The jury gave a determination on household coping security outcomes. It was agreed that in order to determine whether households were effective in pursuing their coping strategies, it is imperative to assess the outcome processes that capture need or welfare fulfilment. Education, constant availability of food, health, communal network involvement, habitat, education, physical security and ecological protection are coping outcomes that should be expected. The examination of outcomes should govern what necessities are presently not met, and also trade-offs between needs. The need to establish household-based coping monitoring methods that allow households to track their susceptibility to food deficit was also emphasised. This information assists in determining the food deficit threat and the effectiveness of preferred coping strategies.

7.6 Conclusions

The preferred coping strategies in the study area were not sustainable. Community members made self-examination on their own undesirable practices and suggested alternative strategies for addressing the challenges. It was significant that respondents felt empowered by the citizens' jury process. Considering the multi- faceted nature of food security, there is need for good sectorial integration to address food deficit in the long term period. For ensuring food secure communities, household capacity to prepare for and counter food deficit needs to be supported. Furthermore, enhancing household food storage and processing is one of the strategies that should be given due consideration. The protection of assets and livestock shields households against food shortfall. Households in Chipinge district should emphasise production based coping strategies rather than relying solely on consumptive coping measures. This is due to the fact that production based coping measures increase food availability, stability and accessibility. In the next and last chapter a synthesis of the study findings is presented.

© University of Venda

7.7 REFERENCES

Abur, C. C. 2014. Assessment of food security status among rural farming Households in Guma local government area of Benue State, Nigeria. *Research in Humanities and Social Studies,* **1(2)**: 34-42.

Adenyi, O. R. & Ojo, A. O. 2013. Food security status of rural farming households in two Ayadire and Ayedaade local Government areas of Osun State South West Nigeria. *Food, Agriculture, Nutritional and Development*, **13(5)**: 8209-8223.

Adugna, E. B. & Fikadu, M. A. 2016. Vulnerability to food insecurity and households' coping Strategies. *Rural Development*, **34(4)**: 529 -542.

Ajani, S. R., Adebukola B. C. & Oyindamola, Y. B. 2006. Measuring household food insecurity in selected local government areas of Lagos and Ibadan, Nigeria. *Pakistan Journal of Nutrition*, **5(1)**: 62-67.

Babatunde, R. O & Leliveld, A. 2007. On-farm and off-farm works. Complements or substitutes? Evidence from Rural Nigeria. p1-25. *Proceedings of a workshop on African Association of Agricultural Economists, 22-25 September, 2013*, Hammamet, Tunisia.

Bedeke, S. B. 2012.Food insecurity and copping strategies: A perspective from Kersa district, East Hararghe Ethiopia. *Food Science and Quality Management,* **5(1)**: 19-26.

Blanche, T. M., Durrheim, K & Painter, D. 2012. *Research in Practice: Applied Methods for Social Sciences, 594p.* University of Cape Town, Cape Town, South Africa.

Cheema, A. R. & Abbas, Z. 2016. Determinants of food insecurity in Pakistan: Evidence from Pslm 2010-11. *Applied Economics*, **26(2)**: 183-213.

Chifamba, E. 2011. Adaption and mitigation strategies in sustainable land management to combat the effects of climate change in Chipinge, *Sustainable Development*, **13(2)**:14–27.

© University of Venda

Claire, B., Higson. S. & Sithole, L. S. 2014. *Fundamentals of Social Research Methods: An African Perspective*, 410p, Juta & Company Ltd, Cape Town, South Africa.

Creswell, J.W. 2013.*Qualitative Inquiry Design: Choosing Among Five Approaches*, 594p, Sage, Washington D.C, United States of America.

Dale, R. 2000. *Organizations and Development: Strategies, Structures and Processes*, p342, Sage Publications, New Delhi.

Degeffa T. 2002. *Household seasonal food insecurity in Oromiya Zone, Ethiopia*: Social Science research Report Series- No.26, OSSREA, A.A.

Desalegn, R. 1992. *The Dynamics of Rural Poverty: Case studies Southern Ethiopia.* 30p Monograph Series 2/92, CODESRIA, Dakar.

Devereux S. 2000. *Food Insecurity in Ethiopia*. 234p, DFID, University of Sussex, United Kingdom.

Devereux, S. 2001. Livelihood insecurity and social protection: Re-emerging issue in rural Development. *Development Policy Review*, **19(4)**: 517-519.

Ellis, F. 2000. *Rural Livelihoods and Diversity in Developing Countries*, Oxford, OUP.

El-Beltagy, A. & Madkour, M. 2012. Impact of climate change on arid lands agriculture. *Food Security*, **7(1)**: 1-3.

FAO. 2003 *Annual Report*, Rome, Italy.

FAO (2010a), *Global Hunger Declining, But Still Unacceptably High*, Food and Agriculture Organization, Economic and Social Development Department.

FAO. 2010b.*The State of Food Insecurity in the World—Addressing Food Insecurity in Protracted Crises*, Food and Agriculture Organization of the United States, Washington D.C.

Friedmann, J. 1992. *Empowerment: The Politics of Alternative Development*. Oxford, Blackwell.

© University of Venda

Gerster, R. 1999, *Alternative Approaches to Poverty Reduction Strategies*: World Bank, Switzerland.

Harris-Fry, H., Azad, K., Kuddus, A., Shaha, S., Nahar, B., Hossen, M., Younes, L., Costello, A & Fottrell, E. 2015. Socio-economic determinants of household food security and women's dietary diversity in rural Bangladesh: A cross sectional study. *Health, Population and Nutrition*, **33(2)**: 2-12.

Isaboke, H. N., Zhang, Q. W., Nyateko, N. 2016. Explaining the perception of smallholders towards weather index micro-insurance alongside risks and coping strategies. *Food and Agricultural Economics*, **4(4)**: 59-77.

Kostakis, I. 2016. The determinants of households' food consumption in Greece. *Food and Agricultural Economics*, **2(2)**: 17-28.

Kothari C. R. & Garg G. 2014.*Research Methodology: Methods and Techniques, 342p,* New Age International (P) Limited Publishers.

Kusena, B. (2015). Coping with new challenges: The case of food shortage Affecting displaced villagers following diamond mining activity at Chiadzwa, Zimbabwe. *Sustainable Development in Africa,* **15:** 1-14.

Kuwenyi, S., Kabuya, F. I. & Masuku, M. B. 2014. Determinants of rural households' food security in Shiselweni Region, Swaziland: Implications for agricultural policy. *Agriculture and Veterinary Science*, **7(11)**: 44-50.

Kuwornu, K.M., Suleyman, D. M. & Amegashie, D. P.K. 2016. Analysis of food security status of farming households in the forest belt of the central region of Ghana. *Russian Agricultural and Socio-Economic Sciences*, **1(13)**: 26-42.

Makoti, A., Waswa, F. 2015. Rural community coping strategies with drought- driven food insecurity in Kwale County, Kenya. *Food Security*, **3(3)**: 87-93.

© University of Venda

Mango, N., Zamasiya, B., Makate, C., Nyikahadzoi, K., & Siziba, S. 2014. Factors influencing household food security among smallholder farmers in Mudzi District of Zimbabwe. *Development Southern Africa*, **31(4)**:625-640.

Manyeruke, C., Hamauswa, S. & Mhandara, L. 2013. The Effects of Climate Change and Variability on Food Security in Zimbabwe. A Socio-economic and Political Analysis. *Humanities and Science*, **3(2)**: 270-286.

Maxwell, S. & Frankenberger. M. S. 1992. *Household food insecurity: Concepts*, Indicators, Measurements; UNICEF, New York.

Mengistu, D. & Haji J. 2015. Factors affecting the choices of coping strategies for climate extremes: the case of Yabello District, Borana Zone, Oromia National Regional State, Ethiopia. *Science Research*, **3(4)**: 129-136.

Monsod, S. 2002. *Governance and Food Security*, p342. Oxford press, United Kingdom.

Musiyiwa, K., Leal, F., Harris, D & Nyamangara, J. 2012. Implications of climate variability and change for smallholder crop production in different areas of Zimbabwe. *Environmental and Earth Sciences,* **6(8)**: 394-401.

Ndiweni, N. (2015). Food insecurity vulnerability in south-western Zimbabwe: A case of rural households in Matobo District. *Sustainable Development in Africa,* **17(2)**: 38- 51.

Ndlovu, B. 2011. Drought copying strategies at Mutasa district in Zimbabwe, unpublished Masters Dissertation, University of the Free State, South Africa.

Nyikahadzoi, K., Siziba, S., Mango, N., Mapfumo. P., Adekunle, A. & Oluwole, B. 2012. Creating food self-reliance among smallholder farmers of eastern Zimbabwe: Exploring the role of integrated agricultural research and development. *Food Security,* **4**: 647-656.

Pandey, A. 2015. Food security in India and States: Key challenges and policy option. *Agricultural Economics and Rural Development*, **2(1)**: 12-21

© University of Venda

Scoones, I. 1998, *Sustainable Rural Livelihood. A framework for Analysis*. IDS working paper No.72, IDS, and Brignton.

Sen, A. 1988. *Poverty and Famines: An Essay on Entitlement and Deprivation*. 285p, Clarendon Press. Oxford. United Kingdom.

Swift, J. & Hamilton, K. 2001. Household and Livelihood Security. In: Devereux, S. and Maxwell, S. *Food Security in Sub-Saharan Africa*. London: ITDG Publishing, pp. 679

Van der Veen, A., and Tagel, G. 2011. Effect of policy interventions on food security in Tigray, northern Ethiopia. *Ecology and Society*, **16(1)**: 1-18.

Uzokwe, U. N., Giweze, E. A & Ofuoku, A. U. 2016. Contribution of home gardening to family food security in Delta North Agricultural Zone, Delta State, Nigeria. *Agricultural Extension and Rural Development Studies*, **3(2)**: 26-33.

ZimVAC. 2017. 'Zimbabwe rural food security assessment, June 2017.' ZimVAC, Report No. 5, Harare.

© University of Venda

CHAPTER 8: SYNTHESIS OF THE STUDY FINDINGS

8.1 Introduction

Food insecurity and poverty are some of the problems that rural households in developing countries face (Birara *et al*., 2015; Lawson *et al*., 2017). These challenges emanate from a myriad of sources and manifest differently in various regions. About 900 million people around the world live in poverty (FAO, 2016). Various development organisations have tried availing aid to heavily affected regions in desperate attempt to address these challenges (Altiman *et al*, 2009; Lawson *et al*., 2017). However, providing hand-outs to households is a short term solution to the challenges, but unsustainable in the long run as the beneficiaries are not empowered to solve their own problems. This has given rise to arguments postulating that aid is one of the primary causes of food insecurity (Gichuhi, 2012; Carmody, 2016). Food deficit challenge is even more pronounced within the rural households in Sub-Saharan Africa (SSA) (FAO, 2016). The impact of weather variations worsened the situation through exerting pressure on the strained natural capitals such as water, forests and land (Dube, 2016). This is because rural coping strategies are mainly natural resource based with low financial investments.

Over the past decade, stakeholders devised a number of coping mechanisms meant to lessen poverty and food insecurity (Wambua, 2013; Kahsay & Mulugeta, 2014; Wabwoba *et al*., 2016). This was in reaction to global rise in poverty and food deficit. In spite of the initiatives done by various stakeholders in realising global food security, it is clear that food shortfall remains a key and persistent phenomenon world-wide. Food deficit is persisting regardless of the strategies adopted by various stakeholders. Food speculation, export restraints, supply and demand imbalances and climate induced food shortages are some of the challenges derailing stakeholder efforts. As food shortage worsens, most households use distress coping mechanisms that are less reversible. This exposes the rural poor to higher levels of food deficit from a variety of idiosyncratic shocks. The coping approaches are often detrimental to the sustainability of livelihood and include risks that affect resilience to food deficit

The resilience of rural coping strategies is under threat due to political, environment and economic challenges (Shiferaw *et al*., 2014; Chanamuto & Hall, 2015). As such, it is imperative for stakeholders to better understand the characteristics, structures, benefits and negative impacts of the various coping strategies adopted by rural households. This information assists to make appropriate decisions in the light of the turbulent circumstances. Understanding this contributes towards making appropriate decisions towards achieving the SDGs. The

© University of Venda

Sustainable livelihood framework provides a structure for viewing and understanding coping options and the contexts which they operate in (Ellis, 2009). This framework was opted for in this current study as a way of better understanding the context in which households exist. It also assisted to assess the effects of social, economic natural and financial capitals on household food security. According to the framework, a household opts for a coping strategy depending on its capital portfolio. Five livelihood capitals were identified according to the DfID classification, and these are financial, physical, social, human, and natural (DfID, 2000). However through engaging in a particular coping strategy, the structure of the household capital portfolio is bound to change either positively or negatively. This change helps to apprehend the contribution of the livelihood strategy towards sustainable livelihoods and unearthing the role it plays in achieving the SDGs. The current study focused on understanding the coping strategies adopted in order to recommend solutions for addressing household food deficit in Chipinge district.

A number of studies in literature focus on the effect of livelihood capital portfolio on family coping strategies and diversification (Alwang *et al*., 2005; Fang, 2013; Zenteno *et al*., 2013). However, the current study's focus is unique in that it fixated on the flip side of the argument, zooming into the utility of preferred coping strategies in addressing food deficit. Understanding the effectiveness of preferred coping strategies is important for household food sustainability.

The main objective of this study as mentioned in Chapter 1 was to critically assess strategies used to address household food insecurity in order to realise viable coping options. This was done through; a) determine the level of food deficit among rural households, b) assess the coping strategies adopted to mitigate household food deficit, c) determine the challenges affecting the adoption of sustainable coping strategies, d) To develop intervention coping strategies that help to combat food deficit.

The findings of this study provide deeper insights into the realities of coping strategies at household level. It unravels the effect of various capitals on food security. In addition, it evaluates the impact of various coping strategies on household food security. Government policies are crucial for enhancing household coping measures (World Bank, 2006). This can only happen if there is a clear understanding of the problems inhibiting the adoption of sustainable coping measures. Such evidence helps in the crafting of well-informed policies that can be implemented in support of the practice. The knowledge also ensures that there is proper targeting of improvement strategies and presumably enhances existing coping strategies.

© University of Venda

In this chapter, a synthesis of the whole study is provided in order to present a clear comprehensive picture. The methodology employed and major findings are presented in relation to the study objectives set. The chapter concludes by suggesting relevant measures and recommendations for improving household coping resilience, research and policy.

8.2 Methodological Imperatives

A sequentially integrated mixed approach was employed to assess the coping strategies adopted to address household food insecurity in Chipinge District. This current study was premised on the qualitative and quantitative research paradigms. Blanche (2012) posits that triangulation is employed to combine the strengths of both the quantitative and qualitative approaches. Creswell (2013) also suggests that each method offers specific advantages as well as disadvantages. The study was split into two stages with the initial stage being exploratory and qualitative in nature (Figure 3.2), with the findings feeding into the subsequent stage which was quantitative and collaborative. This design was suitable for this study because the investigator endeavoured to acquire an in-depth understanding of the coping strategies devised to address food deficit in Chipinge District. The specific objectives explored in this study are mentioned in Chapter 1.

Proceeding to data gathering, community access undertakings and social preparation were done in order to recruit respondents, acquire authorization and raise awareness on the research**.** A triangulation of community access activities was done in order to ensure acceptance to participate in the study. Initially, a community access and recognizance visit was done in order to assess the condition and acquire acquaintance with present time realities of food deficit in Chipinge District. Recognizance visits were facilitated by previously existing linkages with some of the community leaders. The researcher met with community leaders and Chipinge local Authority representatives. Clarifications were done on research expectations and how the study potentially benefited them and adds to rural development. These numerous agents of community access succeeded in getting the respondents incited to participate in the research. Data gathering tools for the initial stage were considered

Primary data was gathered through FGDs, interviews, citizen jury and participatory mapping during the first exploratory qualitative stage. Respondents of the FGDs and participatory social mapping were household heads and other members of their households. A total of 120 household heads took part in this study. FGDs comprised of six groups including men, women and the youth. The FDGs groups were created in relation to age and gender dimensions in order to capture diverse opinions and to enable shared thinking and analysis. During the

© University of Venda

discussions, views were captured on a voice recorder and utilized to compliment the transcriptions taken. Also, the respondents presented their FGDs in a plenary session giving imperative comments and clarifications to their results. The findings from the initial qualitative stage were then analysed through thematic content analysis and employed to configure the questionnaire design for the subsequent quantitative phase.

The quantitative stage was enabled by a closed-ended questionnaire, administered to 120 participants from wards in Chipinge District. The quantitative stage also functioned as a feedback and reaction session on the results of the initial data collection stage. This process assisted to further elucidate to respondents concerning how this current research fit into their local development trajectories. A 100% response rate was realized in this research due to the investment done during community entry stage. This thesis offers understanding on enhancing participant response rate through appropriate community entry activities.

The questionnaire was used to measure the occurrence and severity of preferred coping mechanisms from the inputs gathered from the initial qualitative stage and the literature. This guaranteed that the questionnaire enquired about data which was appropriate to the research site. Quantitative data was also gathered from respondents, government and NGO records. These sources provided data on challenges affecting the adoption of viable coping measures.

The data from the quantitative phase was gathered, cleaned and examined using IBM-SPSS version 24, CSI and HFIAS. Descriptive statistics were employed to assess food deficit and the determinants the coping strategies adopted to address household food insecurity. Furthermore, triangulation of data techniques and sources were employed to guarantee that an exhaustive understanding was achieved. Furthermore, validity and reliability were improved through triangulation. The Sustainable livelihood framework was used in assessing household coping strategies, determinants and challenges affecting the adoption of viable coping measures through several data gathering sources and tools. Ellis (2009) posits that the use of numerous approaches is significant in capturing the features of households' lives and their settings. The lack of appreciation of households' precise features and setting is recognized as one of the flaws of the application of the Sustainable Development Framework (Ellis, 2009; Pain, 2004). Thus, this research is exceptional in that it offers understanding enclosed around the SLF with the acknowledgement of the household settings and characteristics.

© University of Venda

8.3 Summary of the Study Findings

Chapter 4 described the frequency and austerity of household food deficit in Chipinge district. The Chapter reveals that household food deficit is a challenge in the study area. Chipinge district is food insecure, with over 87.9% of the population subsisting below the recommended 2.250 FAO food security line. This research noted that 12.5% of the respondents were food secure. The incidence of food deficit in Chipinge district is comparatively higher than recently issued findings from households in the North–western rural communities in Gwanda and Matopos, where 65% of participants were discovered to be food anxious (Dube 2016).

The analysis of food deficit frequency, depth and severity revealed that it was higher among households headed by a member above 50 years of age (32.8, 0.42 and 0.54 respectively). The frequency of food deficit rose with the age of the family head. This finding contradicts Mjonono *et al*. (2009) who found households headed by members above 50 years food secure. The difference in these results lies in the existence of sound *mundende* (social security nets) which cushion old aged headed households in South Africa. Furthermore, food deficit frequency was greater in female- headed families than their male counterparts. The food insecurity frequency and severity was comparatively low among participants involved in occupation and trading of petty goods. Household food deficit frequency also increased with increase in family size. Households with over 8 household members had also higher food insecurity depth and severity (0.54, and 0.67). However, these findings contradicts Irohibe & Agwu (2014) and Kuwenyi *et al*. (2014) who concluded that bigger household sizes help as an insurance against food deficits through the provision of smallholding labour. The contradictions in findings are caused by dissimilarities in the socio-economic and physical factors which characterize Chipinge district. It was also noted on the basis of dependence quotient that household food anxiety frequency rose with rise in dependency ratio. The last section in Chapter 4 analysed the effects of household food deficit. Decreased family earnings/investments (M=3.59), rise in prices of consumables (Mean=3.57), decreased agricultural output (Mean=3.47) and compromised children performance at school were some of the main perceived effects of food deficit.

Although no substantial differences were noted between food anxious and food secure families in Chipinge district for the chosen socio-demographic features, approximately half of the households in this rural part of the District had big family sizes staying and feeding from the same pot. Big family size is one of the major challenges affecting the adoption of sustainable coping strategies due to exceedingly higher number of mouths to feed that surpasses available food. Enlightenment projects on health education and birth control should be directed towards

© University of Venda

marginalized household in the study area. These suggestions are in sync with recommendations stressed in wider literature (Grobber, 2014; Ezeama, *et al*., 2015; Kostakis, 2016).

The coping mechanisms devised by families in order to address household food insecurity are presented in Chapter 5. Households in Chipinge district adopted and developed diversified coping mechanisms employed at periods of deterioration in available food. The coping strategies were adopted subject to how bad the emergencies were and what was accessible to support them cope with their condition. Most frequently preferred coping options comprised reliance on less expensive and less favoured food, borrowing, maternal buffering, receiving assistance from relatives and friends and restricting food consumption.

The findings revealed that consumption of less preferred food (67.23 %) and skipping of day time meals (65.06 %) were considered as the most important strategies adopted when there was inadequate food. A study conducted in Tharaka, Central Kenya also discovered comparable coping mechanisms like consumption of less preferred foods and skipping of day time meals (Icheria 2008). Also, like comparable results from earlier studies (Ericksen *et al*., 2009; Peng *et al*., 2017), these coping strategies were neither effective nor adequate because they hardly contributed to food availability and accessibility. These were temporal stop-gap measures. This kind of scenario calls for a more permanent solution to the food deficit challenge. Other common coping strategies included maternal buffering, borrowing food and money, hunting and gathering, migration and asset disposal. As noted in chapter 5, these coping strategies are widely documented in other comparable studies. (Mjonono *et al.*, 2009; Mango *et al.*, 2014; Mengistu & Haji, 2015).

Participants also noted that consumption of wild foods and hunting remained very significant coping strategies in the study area. These coping options were also observed among poor households in Tharaka Central Sub County, where collection of bush fruits was a common strategy (Wiley, 2007). However, in this current study, the significance of wild foods was overshadowed by several obstacles to the food acquisition stated during group discussions. Participants cited impediments to traditional collecting practices determining the accessibility of wild foods for household consumption. In comparable studies, Mayanya *et al*. (2014); Chanamuto & Hall (2015) and Carmody (2016) also cite a number of challenges inhibiting household from relying on available forest resources. Most of the preferred copping strategies had negative effects to the prospective household food security conditions in Chipinge district.

© University of Venda

The results suggests that while farming play a critical part in lessening the effects of food deficit, the challenge in Chipinge district can hardly be addressed by encouraging farming only. Consideration should also be prioritized towards the promotion of off-farm coping strategies, mainly those that are linked to the subsistence sector. Similar recommendations were suggested and adopted among the Embo community of Umbumbulu district in KwaZulu-Natal with measurable success (Oldewage-Theron *et al*., 2006; Mjonono *et al*., 2009). To guide the interventions, stakeholders should establish concise and reliable coping options, and practical food assessment framework. The recommendation above corroborates Wabwoba *et al*. (2016) who emphasized the use of a multi-dimensional strategic approach to food deficit and integrated system in order to ensure sustainability in Bungoma County, Kenya.

Chapter 6 presents the household perceptions on the factors affecting the adoption of sustainable coping options in Chipinge district. The study revealed that the challenges affecting the use of sustainable coping options range from the socio-economic, political and ecological. Limitations such as inadequate land, poverty relief, climate and aridity of the soil food storage and processing challenges lack of off-farm income raising activities and lack of credit facilities were noted as some of the critical factors inhibiting the adoption of viable coping options in Chipinge district.

The chapter recommends that the factors which inhibit adoption of sustainable coping measures cannot be addressed by encouraging crop farming alone. Focus should be directed towards the promotion of non-farming coping measures. This is due to the fact that existing conditions cannot support sustainable crop production. In order to establish novel prospects and encourage households to divert from land to non-land based alternatives, income raising structures should be developed. Furthermore, credit facilities should be made available to deprived households. Empowerment should be implemented through education on ecological conservation and sustainable agriculture, access to better agricultural tools; and access to markets for farming produces.

Chapter 7 provides the alternative intervention approach for combating household food deficit in Chipinge district of Zimbabwe. The chapter use participatory methodologies to find the alternative interventions from the people affected by food deficit. Chapter 8 provides a summary of the thesis. Methodological imperatives underpinning this study, contribution to literature, recommendations for policy and practice and grey areas which should influence future research direction are presented in this last chapter. Figure 8.1 shows the summary of the study.

© University of Venda

University of Venda
Creating Future Leaders

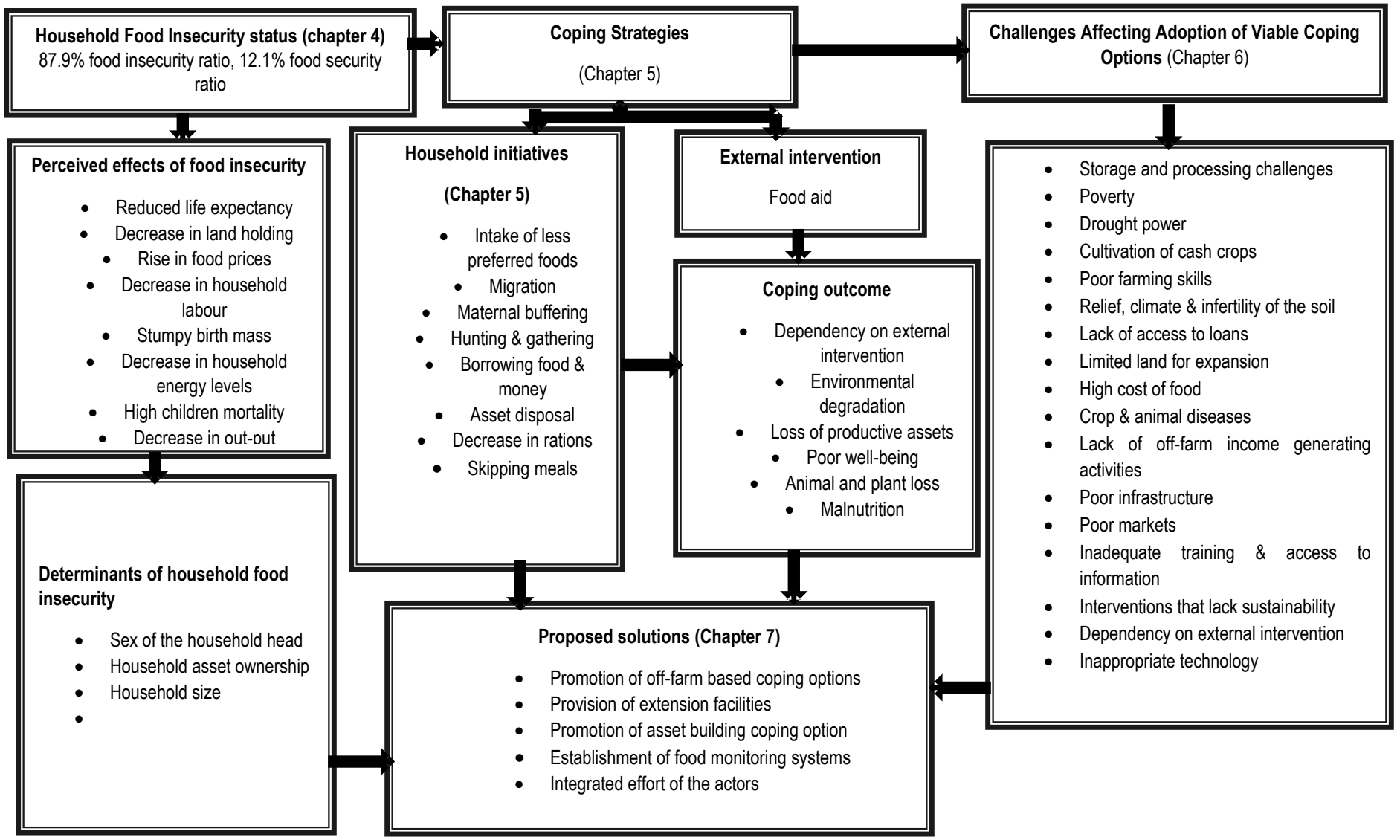


Figure 8.1: Summary of the study on the strategies for coping with household food insecurity in Chipinge district

© University of Venda

8.4 Key Contributions to the Literature on Strategies for Coping with Food Insecurity

This current study was driven by lack of concrete evidence base relating to household food security status, preferred coping options and their effects, determinants of food deficit and the challenges affecting the adoption of viable coping measures. These gaps existed prior this current research, considering current expert unanimity on study priorities for food insecurity research (Ndiweni, 2015; ZimVAC, 2017). The findings from this current research contribute to the existing literature in a number of beneficial ways. Firstly, it contributes to the body of theories on measurement of food deficit by revisiting the drawbacks and benefits of different methods as described in Chapter 2. Few studies (Mango *et al*., 2014; Dube, 2016; ZimVAC, 2017) reported the occurrence of food deficit preceding the planning of this thesis. Information on the occurrence of household food deficit in Chipinge District had not been gathered before this current study, with Chapters 4 and 5 showing proofs of exceptionally unusual rates of food deficits. The data raised in this study can be utilized to design programmes and policies that enhance coping mechanisms in Chipinge district and other areas with comparable food deficit concerns. The strengths of the current research are that it fills the remaining gaps in the literature, with regard to the representativeness of the sample, high response rate and data collection using validated CSI. The results from this study add to the evidence base on the implications of preferred coping strategies on household food insecurity. The evidence may be useful to Chipinge Rural District Council, NGOs and local residents. The information assists stakeholders in finding the lasting solution to the food challenges in the study area.

8.5 Recommendations for Policy and Practice

In light of results from this research, the following suggestions for policy and practice are recommended.

a. The diminishing land size affected the sustainability of coping measures in Chipinge district. Due to land scarcity and population density, expansion of farm land is not possible. Therefore, the improvement of family food security status depends on enhancing the value of the land resources, through better nutrient and soil management. The establishment of sustainable employment prospects in the short-to-intermediate basis is also another urgent measure for policy consideration.
b. The results revealed that food donations received over prolonged period had negative ramifications on household capacity to produce food. This means appropriate awareness and intervention efforts should discourage dependency on food donations. Furthermore, outside intervention should understand the preferred coping strategies, or else, the external interventions undermine them, thus, creating dependency syndrome, inadvertent and unfavourable consequences.

© University of Venda

c. Policies and programmes that address the challenges associated with credit facility provision and inadequate extension facilities should be put in place. This will address household resource procurement constrictions and ultimately enhance household coping capacity.
d. Households should be supported to expand their food base by growing more small grain variety crops to reduce the high reliance on maize**.**

8.6 Recommendations for Further Research

This research examined the coping strategies adopted to address food shortfall in Chipinge district. The precise objectives were to (a) determine the level of food deficit among communal households, (b) to assess the coping strategies adopted to mitigate household food deficit, (c) to determine the challenges affecting the adoption of sustainable coping strategies and (d) to recommend intervention strategies that help to combat household food insecurity. However, this current study did not exhaust all issues linked to household food deficit in Zimbabwe. This is because the dimensions, determinants and preferred coping strategies differ from one area to the other.

Although current study answered questions on utility of preferred coping strategies, additional questions were raised in the process. Thus, this current research proposes the following areas for further investigation:

a. This study was conducted in Chipinge district of Zimbabwe; hence the findings are not illustrative of the food deficit situation across the country. This is due to the variations in climatic conditions among various regions in Zimbabwe. Thus, expanding this research to cover other areas with various climatic conditions is a valuable avenue for a future study.

b. Are there remarkable differences in family food shortfall between seasons? In Chipinge district cyclical work engagements and dependence on aid are common practices. Therefore, studies on household food insecurity status during diverse periods or seasons and in relation to relief assistance is warranted in Chipinge district.

c. How can more sustainable indigenous food systems be developed?

d. How can coping strategies in these dry areas be buttressed by state policies?

© University of Venda

e. What are the coping strategy matrixes and the spatial scale at which these function in Zimbabwe?

8.7 Conclusion

The findings of coping strategy index (CSI) revealed that families are grappling with food insecurity, particularly during the lean period. Households utilised diverse approaches to manage food shortfall. This study contends that the specific coping strategies employed by a household differ in relation to the drivers of food deficit, household characteristic and the nature of food shortage. The consumption of less favoured foods was adopted as a common practice. The next recurrent coping options were skipping of daytime meals, maternal buffering and borrowing cash and food from relatives and neighbours. Auction of fecund assets and migration were the last options during food deficit periods.

Considering failure of coping strategies in Chipinge District, the urgency remains for planning and executing programs and policies that address food shortfall. Locally-driven interventions to enhance the coping strategies should be supported as likely case examples for other areas facing the same conditions. The success of the proposed interventions is comparatively centred on the integrated and collaborative work of various development players, such as government, NGOs and private investors. Thus, enhancing information exchanges and networks among these stakeholders assist in the design and operationalisation of appropriate development initiatives. Or else, effort may be wasted by repeating comparable interventions while other limitations persist without getting appropriate consideration. Among the strengths of this study are the utilization of a reasonably bigger sample sizes, and participatory methodologies which ensured that participants' voices were captured. The results generated in this study are transferable to comparable situations.

© University of Venda

8.8 REFERENCES

Altiman, M., Hart, T. G. B. & Jacobs, P. T. 2009. Household food security status in South Africa. *Agrekon,* **48(4)**: 345-361.

Alwang, J., Jansen, H., Siegel, P., & Pichon, F. 2005. *Geographic space, assets, livelihoods and well-being in rural Central America: empirical evidence from central America*. DSGD discussion papers 26, International Food Policy Research Institute (IFPRI).

Birara, E., Muche, M. & Tadesse, S. 2015. Assessment of food security situation in Ethiopia. *Agricultural Research*, **9(2)**: 55-68.

Blanche M.T. 2012. *Research in Practice: Applied Methods for the Social Sciences Methods: An African Perspective,* 574p Jutland Company Ltd: DC: International Food Policy Research Institute, Washington. D.C: United States of America.

Carmody, P. 2016. *The New Scramble for Africa* (2nd ed.). Cambridge, UK: Polity press.

Chanamuto, N., & Hall, S. 2015. Gender equality, resilience to climate change, and the design of livestock projects for rural livelihoods. *Gender and Development*, **23(3)**: 515-530.

Creswell, J.W. 2013.*Qualitative Inquiry Design: Choosing Among Five Approaches*, 594p, Sage, Washington D.C, United States of America.

DFID. 2000. *Sustainable livelihoods guidance sheet 2*. Retrieved 06 20, 2014, from: http//: www.eldis.org/vfile/upload/1/document/0901/section2.pdf.

Dube, K. 2016. Implications of rural irrigation schemes on household economy. A case of Lower Gweru irrigation scheme, Zimbabwe. *Agricultural Extension,* **44(1)**: 75-90.

Ellis, F. 2009. The determinants of rural livelihood diversification in developing countries. *Agricultural Economics*, **51(2)**: 289-302.

Ericksen, P., Ingram, J., & Liverman, D. 2009. Food security and global environmental change: Emerging challenges. *Environmental Science Policy*, **12(4)**: 373-377.

Ezeama, N. N., Ibeh, C., Adinma, E., Emelumadu, O., Odugu, P. 2015. Coping with

© University of Venda

household food insecurity: Perspectives of mothers in Anambra State, Nigeria. *Food Security*, **3(6)**: 145-154.

Fang, Y. 2013. The effects of natural capital protection on pastoralist's livelihood and management implication in the source region of the Yellow River, China. *Mountain Science*, 10, 885–897.

FAO. 2016. *The State of Food Insecurity in the World. How Does International Price Volatility*

Affect Domestic Economies and Food Security? 67p, FAO, Rome, Italy.

Gichuhi, W. 2015. Resilience in the face of starvation: Coping strategies among women in Kenya, Pathways to African feminism and development. *African Women Studies*, **4 (2)**. Retrieved 10, 10, 2017, from http://www.journals.uonbi.ac.ke/index.php/aws.

Grobber, W.C.J. 2014. Food insecure household coping strategies: The case of a low income neighbourhood in South Africa. *Social Sciences,* **5(13)**: 100-106.

Irohibe, F. J. & Agwu, A. E. 2014. Assessment of food security situation among farming households in rural areas of Kano State, Nigeria. *Central, European Agriculture,* **15 (1)**: 94-107.

Johnson, N., Njuki, J., Waithanji, E., Nhambeto, M., Rogers, M., & Kruger, E. 2015. The gendered impacts of agricultural asset transfer projects: Lessons from the Manica smallholder dairy development program. *Gender, Technology and Development,* **19(2)**:145- 80.

Kahsay, S. & Mulugeta, M. 2014. Determinants of rural household food insecurity in Laelay Maichew Woreda Tigray, Ethiopia. *Agriculture and Food Security*, **2(1):**106-112.

Lawson, D., Ado-Kofie, L., & Hulme, D. 2017. *What Works for Africa's Poorest? Programs and Policies for the Extreme Poor.* England: Practical Action Publishing Ltd.

Mango, N., Zamasiya, B., Makate, C., Nyikahadzoi, K., & Siziba, S. 2014. Factors influencing household food security among smallholder farmers in Mudzi District of

© University of Venda

Zimbabwe. *Development Southern Africa*, **31(4)**:625-640.

Mayanja, M. N., Akiiki, C. R., Greiner, T. & Morton, J. F. 2014. Characterization of food insecurity in pastoral and agro-pastoral communities in Uganda using a consumption coping strategy index. *Springer*, **5(11)**: 1-13.

Mengistu, D. & Haji, J. 2015. Factors affecting the choices of coping strategies for climate extremes: The Case of Yabello District, Borana Zone, Oromia National Regional State, Ethiopia. *Science Research,* **3(4)**: 129-136.

Mjonono, M; Ngidi, M; & Hendriks, S, L. 2009. *Investigating household food insecurity coping strategies and the impact of crop production strategies on food security using coping strategy index (CSI).* 17th International Farm Management Congress, July 2009, USA.

Ndiweni, N. 2015. Food insecurity vulnerability in south-western Zimbabwe: A case of rural households in Matobo district. *Sustainable Development in Africa,* **17(2)**: 38- 51. Edward Elgar Publishing.

Oldewage-Theron, W. H., Dicks, E. G. & Nappier, C. E. 2006. Poverty, household food insecurity and nutrition: Coping strategies in an informal settlement in the Vaal Triangle, South Africa. *Public Health,* **120**: 795-804.

Kostakis, I. 2016. The determinants of households' food consumption in Greece. *Food and Agricultural Economics*, **2(2)**: 17-28.

Pain, R. 2004. Social geography: Participatory research. *Progress in Human Geography*, **28(5)**: 652-663.

Peng, W., Zheng, H., Robinson, B., Li, C., & Wang, F. 2017. Household livelihood strategy choices, impact factors, and environmental consequences in Miyun Reservoir watershed, China. *Sustainability*, **9(1)**: 1-12.

Radimer, K. L., Olson, C. M., Green, J. C., Cambell, C. C. & Habicht, J. P. 1992. Understanding hunger and developing indicators to assess it in women and children. *Nutrition Education*, **24(1)**: 36-45.

© University of Venda

Shiferaw, B., Tesfaye, K., Kassie, M., Abate, T., Prasanna, B., & Menkir, A. 2014. Managing vulnerability to drought and enhancing livelihood resilience in Sub-Saharan Africa: Technological, institutional and policy options. *Weather and Climate Extremes*, **3**: 67–79.

Thirunavukkarasu, D., Jothilakshmi, M., Murugesan, S, & Kah, D. 2014. Transition of smallholder dairy farming system - A micro study in Tamil Nadu, India. *Livestock Research for Rural Development,* **26(2)**: 88-99.

Wabwoba, M. S., Wakhungu, J. W. & Omuterema, S. 2016. Household Food Insecurity Coping Strategies in Bungoma Country, Kenya. *Nutrition and Food Sciences*, **4(6)**: 713-716.

Wiley. E. I. 2007. Changing household responses to drought in Tharaka, Kenya: *Vulnerability,*

Persistence and Challenge, **32(2)**: 109-123.

ZimVAC. 2017. 'Zimbabwe rural food security assessment, June 2017.' ZimVAC, Report No. 5, Harare.

Zenteno, M., Ziudema, P., de Jong, W. & Boot, R. 2013. Livelihood strategies and forest dependence: New insights from Bolivian forest communities. *Forest Policy and Economics*, **26(1)**: 12–21.

© University of Venda

APPENDICES

Appendix 1: Research Ethics Approval Certificate

RESEARCH AND INNOVATION
OFFICE OF THE DIRECTOR

NAME OF RESEARCHER/INVESTIGATOR:
Mr E Chifamba

Student No:
15018557

PROJECT TITLE: **Strategies for coping with household food insecurity in Chipinge District of Zimbabwe.**

PROJECT NO: SARDF/17/IRD/03/2402

SUPERVISORS/ CO-RESEARCHERS/ CO-INVESTIGATORS

NAME	INSTITUTION & DEPARTMENT	ROLE
Prof J Francis	University of Venda	Promoter
Dr B Kilonzo	University of Venda	Co-Promoter
Prof S Mago	University of Venda	Co-Promoter
Mr E Chifamba	University of Venda	Investigator – Student

ISSUED BY:
UNIVERSITY OF VENDA, RESEARCH ETHICS COMMITTEE

Date Considered: February 2017
Decision by Ethical Clearance Committee Granted
Signature of Chairperson of the Committee: .....
Name of the Chairperson of the Committee: Prof. G.E. Ekosse

University of Venda
PRIVATE BAG X5050, THOHOYANDOU, 0950λ LIMPOPO PROVINCEλ SOUTH AFRICA
TELEPHONE (015) 962 8504/8313 FAX (015) 962 9060
"A quality driven financially sustainable, rural-based Comprehensive University"

© University of Venda

Appendix 2: Months of food deficit recounted by participants

Month	Frequency	Percentage
January	12	10
February	80	66.6
March	7	5.8
April		-
May	3	2.5
June	-	-
July	-	-
August	10	8.3
September	2	1.7
October	4	3.4
November	2	1.7
December	-	-
Total	120	100

© University of Venda

Appendix 3: Examples of food insecurity metrics, domains, and purpose for which they are usually utilised

Metrics	Measurement	Level of measurement	Domains	Data source	Purpose	Recall period
GHI	Ranks nations on a 100 point scale, using indicators such as child under weight, undernourishment, and child mortality	National	Physical food access or availability Nutritional status, food safety, food quality, economic access	Food balance sheet Demographic and healthy survey, multiple-indicator survey data	Contrast variations in food deficit across nations	More than 1 year recall period
Price volatility/ Domestic food index	Index of noticed price variability in the annual food price index	National	Economic access	ILO/FAO food price data	Assists as food advocacy instrument, facilitate global and regional governance of food	1 year recall period
CFSVAs	Combines primary and secondary data from thirteen core modules to assess food security. It also examines the causes of food deficit	Household National Regional	Economic access Food quantity Physical availability	Secondary data Household surveys	Evaluate base line food security status to apprise interventions Examine the causes of food deficit	Variable
CSI	Locally adapted list of coping options, examines frequency of their use, utilise FGDs and interviews, severity ratios are assigned to	Household National Regional	Food quality Food access Economic access	Focus group interviews and discussions	Target food donations and screen its effect; evaluate projected changes in household food insecurity	7 day recall period 30 days recall period

© University of Venda

	individual coping option				Identify affected households	
HFIS	Deals with replies to the nine questions related to domains of food insecurity	Household Regional	Food quantity Economic access Concern about food preferences	Household surveys	Measure food insecurity status across and within contexts, Target intervention and evaluate the impact of intervention	30 day recall period
Anthropometry	It measures height, weight, recumbent weight, MUAC. It combines with sex and age data to generate anthropometric indices	Individual, household, national and regional	Individual nutritional status	Household surveys Health and demographic surveys, Cluster survey data Multiple indicator	Measures occurrence of malnourishment, monitor changes in nutritional status, evaluate nutritional status of interventions	N/A

© University of Venda

Appendix 4: The criteria used for household wealth ranking (Chipinge district)

Criteria	Low status households	Middle status households	High status households
Land size	Less than 2 hectares	3-10 hectares	11 and above
Stored food	No stored food	Available not so often	Available at all the times
Off-farm activities	Selling firewood	Selling maize	Owned a grocery shop
Sources of income	Weaving baskets	Selling of food products	Selling of livestock
Type of secondary school attended by children	None	Secondary/ government schools	Private or Boarding schools
Livestock numbers	Less than three	Between four and seven	Above eight cattle
Casual labour	Provide casual labour for other household in order get money or food	Provide casual labour for other household in order get money or food	Hire labour
Type of house	Traditional house not adequate for household members	Traditional house big enough to accommodate household members	Asbestos or tile roofed house
Agricultural machinery	Owned tractor	Owned a plough	Owns hoes

© University of Venda

Appendix 5: Letter of Consent

LETTER OF CONSENT

10 October 2016

Dear Selected Respondent cabinet

You are cordially invited to contribute in a study on strategies for coping with household food insecurity in Chipinge district of Zimbabwe. The study focuses on the statuses of family food security in the district; determinants of household food insecurity and the analysis of the preferred coping strategies. I am Mr. Ephraim Chifamba and am a PhD candidate at the University of Venda. This study is conducted in fulfilment of the requirements of the PhD degree in Rural Development program. I am working with two research assistants in the process of data collection.

You have been chosen to contribute in this study because of your knowledge in coping mechanisms usually used to address household food deficit in Chipinge District. This study need about 45 minutes to 1.30 hours of your time. The questions will inquire about your knowledge about issues related to household food security. The interviews will be conducted at your convenience.

Several methods will be implemented to safeguard your identity and anonymity and identity. Interviews will mention any of your names, and any categorizing material will be removed. The research outcome will be retained in a locked filing cabinet at the University of Venda. All gathered data will be done within the next 5 years after giving the feedback.

There are no expected threats, discomforts or harm related to this study. Your contribution in this research is totally optional. You will be free to discontinue from the research at any period for any intention. By contributing in this study, you may also assist others by aiding people to better comprehend the utility of coping strategies adopted to address household food deficit. Contributing will also aid you to better understand the usefulness of the preferred coping strategies.

The results from this study will be used to write up my PhD thesis. Also, material from this study will be published in order contribute information on strategies for coping with household food insecurity. The findings will be given back to you so that you access the novel information produced. The policy approbations will be circulated to pertinent stakeholders through policy briefs.

© University of Venda

If you desire to obtain a reproduction of the research findings, please contact me using the following telephone number +263 773549105. If you have any other follow-up questions concerning this research or your privileges as a respondent in this study, contact my promoter on the following telephone numbers 0027 15 962 9049

I have read and understood the information above concerning this study on the strategies for coping with household food insecurity in Chipinge district of Zimbabwe.

_____ (Printed Name)

_____ (Signature)

_____ (Date)

© University of Venda

Appendix 6: Roll Out Plan for Community Entry and Checklist

Action	Key Questions Addressed	Deliverable
Introduce the study to the recognized community leaders and institutions	Who are get keepers, who should be approached for the approval of the study?	• Approval by gatekeeper to carry out the study • A glossed list of stakeholders who should approve
Visit participants to introduce the study	• What are the expectations associated with the authorization to conduct the research? • What kind of information do they have? • Who are the participants with the required data?	• Approval by the participants • summary of the participants available
Agree on dates for the commencement of the data collection phase	• Have get the consent to collect data	• Permission to carry out the study
Moreover, get some institutional recollections or stories from the get keepers		• Dates which data collection can be started • Accounts of some events that have been happening with regards to preferred coping strategies.

Appendix 7: Checklist of documents needed for community entry:

© University of Venda

- Ethical approval document from the UNIVEN Research Directorate
- Letter of acknowledgement and support from the Director of the IRD
- 10 photocopies of the proposal
- 20 photocopies of the planned activities
- Diary for recording vital information, key decisions and contact details
- Laptop
- Voice recorder
- Camera

© University of Venda

Appendix 8: Interview Schedule on Strategies for Coping with Household Food Insecurity in Chipinge District of Zimbabwe

STRATEGIES FOR COPING WITH HOUSEHOLD FOOD INSECURITY IN CHIPINGE DISTRICT OF ZIMBABWE.

Strategies that households use to manage food deficit will be investigated in this study. Household nutritional status and dynamics that determine the choice of coping strategies will be examined too. This is an opportunity for you to reflect on the strategies adopted to cope with food insecurity in Chipinge district. This study will facilitate systematic household capacity strengthening and shaping policies and practices that enables at widespread scales, communities to manage food deficit.

For each of the following statements place an **X** in the box that applies to you.

SECTION 1: HOUSEHOLD IDENTIFICATION

Date of interview	----------	Ward ----------	Village ----------
Household code	----------	Name of HHH	----------

SECTION B: HOUSEHOLD SOCIO-CONOMIC DEMOGRAPHIC DATA

1.1 Age of HHH (years)	1.2 Sex of HHH	1.3 Marital Status
	[1]=male [2]=Female	[1]= married [2]=single [3]= widow [4]= divorced [5]=separated [6]=immature

1.4 Household Roster- (categorize the household members under the following headings:

Number	1.4.1 list names of all members in the family	1.4.2 Sex Male Female Code	1.4.3 How old is the HHH? (Years)	1.4.4 What is the association with the household head? Code	1.4.5 Educational attainment	1.4.6 Employment
1						
2						
3						
4						
5						

© University of Venda

Note: List all the household members first before responding to questions 1.4.2 to 1.4.6. In this current research a household refers to the individuals who stay in the same house and consume food prepared from the same pot.

Codes for questions 1.4.1		**Codes for question 1.4.5**		**Codes for question 1.4.6**	
Husband	1	No schooling, illiterate	1	Farmer	1
Wife	2	Primary education half-finished	2	Trader	2
Son/ Daughter	3	Primary education completed	3	Manufacturing sector	3
Brother/ Sister	4	Secondary education incomplete	4	Employed in NGO or Government	4
Step son/daughter	5	Secondary education completed	5	Retired	5
Step mother/father	6	Vocational training	6	Pupil/student	6
Grand child	7	College training	7	Other (Specify)	7
Grandparent	8	University training			
Mother/Father in law	9	Other (specify)			
Daughter/Son in law	10				
Nephew/niece	11				
Uncle/ Aunt	12				
Cousin	13				
Children from another household	14				
Other relatives	15				
Other non-relatives	16				

1.5 What is the source of your income?

[1] Farming and off-farm activities

[2] Farming

[3] Off farm activities

[4] Other (Specify)

1.6 Household members permanently staying outside the household

1.6.1 Do any of your family members resides somewhere else?

[1]=Yes

[2]=No

1.6.2 If yes, please elaborate

[1] = household head

[2] =Spouse 3

© University of Venda

[3] =Child/children

[4] =Grand child

[5] =Parents

[6] =Other household members

1.6.3 Do your household receive remittances from these members?

[1] =Yes

[2] =No

1.6.4 If yes, how often?

[1] =after 7 days

[2]= after 4 weeks

[3]=every 4 months

[4]=every 8 months

[5]=every 12 months

1.6.4 What type of help do you receive?

[1]=Food

[2]=Cash

[3]=other issues needed by the household (specify)

SECTION 2. HOUSEHOLD ASSETS AND BASIC FACILITIES

2.1 What forms of capital does the family possess?

2.1.1 Types of capital	2.1.2 Ownership [1[=Yes [2]=No	2.1.3 How many?	2.1.4 Who possesses the capital? (Member ID)	2.1.5. What is the present market worth if sold?

Codes for question 2.1.1

Primary dwelling made of concrete stone, or bricks and asbestos roof material	1
Primary dwelling with mud and iron sheets roof	2
Primary dwelling with grass and mud roof material	3
Business building	4

© University of Venda

Solar panel	5
Toilet (pit)	6
Car(s)	7
Motor cycle	8
Refrigerator	9
Radio	10
Bicycle	11
Television	12
Other (specify)	13

2.1.6 Do you think the resources you possess have shrunk or improved over the previous 3 years?

[1]=Improved

[2]=Shrunk

[3] =Stayed constant

2.1.7 If decreased, why?

……..

2.2 Access to essential amenities

2.2.1 Type of facility	2.2.2 Do you presently have access? [1]=Yes [2]=No	2.2.3 If the answer is no, why?	2.2.4 If yes, what is the total distance? (km)	2.2.5 Do you have access in the last two years?
Primary school				
Secondary school				
Water source				
Medical centre				

Codes for question 2.2.3. If your household members could not access the facilities, what is the reason?

1 The local authority did not provide
2 Government did not provide
3 Pecuniary restrictions
4 Services not there
5 Cultural views
6 No need to access the facilities existing
7 Other, specify ……

2.3 Domestic water use

2.3.1 Sources of domestic	2.3.2 Distance to the water	2.3.3 seasons when water is	2.3.4 How do you consider	2.3.5 Water is used for?	2.3.5 If it is for drinking how?	2.3.6 Payment for use	2.3.7 If yes, how much?

© University of Venda

water use Code	source Km	on demand Code	the water quality? Code	Code	Code	[1]=Yes [2]=No	$/litre

SECTION 3: FARMING AND LAND PROPRIETORSHIP

3.1 Land proprietorship and its holding in the previous 2 years

3.1.1 Does your household possess any farmland?

[1]=Yes

[2]= No

3.1.2 How did you get your land?

[1]=Hereditary

[2]=Procured

[3]=Usufruct rights

[4]=Government owned

[5]=Rented

3.2 Total hectares owned by the household

3.2.1 Field	3.2.2 Area Area of each field Plot (acres)	3.2.3 Ownership [1]=owned used [2]=owned idle [3]=owned (rented out) [4]=Rented in [5]=Borrowed	3.2.4 Rent in Land Amount paid ($)	3.2.5 Rent out land Amount received ($)	3.2.6 Major crops Crops	3.2.7 production Domains [1]=dry Season [2]=Rain Season
1						
2						
3						
4						
5						
Total number of plots (sum codes 1-3 under ownership			Total area owned		Total area utilised for agriculture (including land rented in or out)	

3.3 Crop land possessed and utilised by the family

Please state the aggregate hectares utilised for each crop identified during the previous cropping season (2016)

© University of Venda

3.3.1 Major crops	3.3.2 Area (acres)	3.3.3 Production (kg)	3.3.4 Sold (kg)	3.3.5 Price kg/$
Sorghum				
Millet				
Maize				
Groundnuts				
Rapoko				
Cowpeas				
Beans				
Other, (specify)				

3.4 Vegetable production

3.4.1 Do you grow any vegetables?

[1] =Yes for home intake

[2]=Yes, for sale only

[3]=Yes for intake and for sale

[4]=No

3.4.2 Describe the vegetable production for the previous season (2017 season)

3.4.2.1 Vegetables grown	3.4.2.2 Area (Acres)	3.4.2.3 output (kg)	3.4.2.4 Quantity sold (kg)
Tomatoes			
Spinach			
Onions			

3.5 Utilisation of pesticides and herbicides

3.5.1 What forms of security do you utilise on your crops in order to improve crop yields?

3.5.1.1 Crop product	3.5.1.2 Means of protecting [1]=Pesticides [2]=Natural methods [3]=Natural methods	3.5.1.3 Reason
Sorghum		
Millet		
Maize		
Beans		
Cowpeas		
Other (specify)		

3.6 Farming tools and implements utilised

3.6.1 Machinery/Tools	3.6.2 How many units?	3.6.3 ownership [1]=Owned [2]=Hired [3]= Borrowed	3.6.4 Total value of units ($)	3.6.5 Purpose [1]=Weeding [2]=Digging [3]=Ploughing [4]=Slashing [5]=Any other	3.6.6 Gender Suitability [1]=Women only [2]=men only [3]=Youth only [4]=All

© University of Venda

1	Hand hoe
2	Spade/shovel
3	Pick
4	Axe
5	Plough and yoke for
6	animal
7	Manual sprayer
8	Rake
8	Carts
10	Tractor
11	Trailer
12	Fodder cutting apparatus
13	Generator/ diesel pump
14	Spraying machines
15	Bulls
16	Donkey
	Other animals (Specify

SECTION 4: LIVESTOCK

4.1 Do you keep any livestock?

[1]=Yes

[2]=No

4.2 Types of livestock kept

4.2.1 Type of animal	4.2.2 Number currently kept	4.2.3 livestock worth	4.2.4 Number vended during the previous year	4.2.5 Total Proceeds from animal sales during the previous 12 months	4.2.6 Number of animals slaughtered	4.2.7 The of animals that died during the past 12 months	4.2.8 Total proceeds from animal products
Cattle							
Sheep							
Goats							
Pigs							
Chickens							
Other (specify)							

© University of Venda

SECTION 5: ALTERNATIVE SOURCES OF INCOME

5.1 Apart form on-farm activities what are other sources of your household income during the previous 3 months? (All household members included)

SN	5.1.1 Sources	5.1.2 Ownership [1]=Yes [2]=No	5.1.3 Amount earned per last season [1]=below $50-00 [2]=between $50-$150-00 [2]=between $151-00-$250-00 [3]=above $250-00	5.1.4 Work place [1] Nearby [2] District]3] Town (Name) [4]=City (Name)
1	Blacksmithing			
2	Selling wild fruits			
3	Gold panning			
4	Carpentry			
5	Building			
6	Local beer brewing			
7	Beekeeping			
8	Shop owner			
9	Vending			
10	Selling firewood			
11	Weaving			
12	Fishing and selling fish			
13	Agro-processing			
14	Selling herbs			
15	Curving *munyaka* stone			
16	Milling			
17	Tailor			
18	Bicycle repair			
19	Hair dressing			
20	Manufacturing			
21	Other (Specify)			

SECTION 6: HOUSEHOLD FOOD SECURITY STATUS

6.1 Availability

Questions		**Answers**
6.1.1	How do you get the food that you consume in your family?	[1]=Agriculture [2]=Procuring [3]=Gifts and food help
6.1.2	If agriculture, how do you obtain seeds for planting?	[1]=Procure from the shops [2]= From past harvest [3]=Receive seed from government or NGOs [4]=Receive seeds from a friend or a relative
6.1.3	What is the source of labour supply in your household?	[1]= Family labour [2]=*Nhimbe* (Communal

© University of Venda

		labour [3]=Hired labour
6.1.4	Was your crop (maize, groundnuts millet) production last year 2017?	[2]=Above normal [3]=Below normal
6.1.5	How long do the food stocks for family?	[1]=Less than 3 months [2]=Between 3 to 6 months [3]=More than 6 months
6.1.6	Which period do you frequently face food shortfall in your family?	
6.1.7	If food output was not plenty within the previous year, please state the key causes by severity levels as zero, modest and austere. Put in the box the severity level as 0 for zero, 1 for modest, and 2 for austere	Drought Shortage of labour Shortage of draught animals Shortage of farming implements Inadequate farmers' advisory services Lack of agricultural credit Inadequate irrigation practice Pest and diseases damage Degradation Harvest loses Low off-farm income Reliance on a single harvest
6.1.8	How much does your family usually use on food per 30 days?	$.....
6.1.9	Has your family ever benefited from food relief?	[1]=Yes [2]=No
6.1.10	If yes, type of aid(check all that type)	[1]=Food for work [2]=Food , Emergency Relief [3]=Food Subsidized
6.1.11	Who receive the aid?(Member id)	…….
6.1.12	Institutional responsible	[1]=Central government [2]=District Council [3]=Village government [4]=NGOs [5]=Private sector (such as Red Cross) [6]=Other(Specify)……
6.1.13	How frequently did you collect relief in the past?	[1]=Every week [2]=Monthly [3]=Quarterly
6.1.13	How much was the monthly distribution rate? State the type of food and the quantities received	
6.1.14	Did you share the food aid with others	[1]=Yes [3]=No

© University of Venda

6. 2 Accessibility: Household Food Insecurity Access Scale (HFIAS) Measurement Tool For each of the following questions, consider what has happened in the past 30 days. Please answer whether this happened, never, rarely (once or twice), sometimes (3-10 times), or often (More than 10 times) in the past 30 days?

No	**Questions**	**Response option**	**Code**
6.2.1	Did you worry that your household would not have enough food?	0= Never 1= Rarely (once or twice in the past 30 days 2= Sometimes (Three to ten times in the past 30 days 3= Often (more than 10 times in the past 30 days	----
6.2.2	Were you or any household member not able to eat the kinds of food you preferred because of lack of resources?	0= Never 1= Rarely (once or twice in the past 30 days 2= Sometimes (Three to ten times in the past 30 days 3= Often (more than 10 times in the past 30 days	----
6.2.3	Did you or any household member eat just a few kinds of food day after day due to lack of resources?	0= Never 1= Rarely (once or twice in the past 30 days 2= Sometimes (Three to ten times in the past 30 days 3= Often (more than 10 times in the past 30 days	----
6.2.4	Did you or any household member eat food that you preferred not to eat because of lack of resources to obtain other types of food?	0= Never 1= Rarely (once or twice in the past 30 days 2= Sometimes (Three to ten times in the past 30 days 3= Often (more than 10 times in the past 30 days	----
6.2.5	Did you or any household member	0= Never	

© University of Venda

	eat a smaller meal that you felt you needed because there was not enough food?	1= Rarely (once or twice in the past 30 days 2= Sometimes (Three to ten times in the past 30 days 3= Often (more than 10 times in the past 30 days	-----
6.2.6	Did you or any other household member eat fewer meals in a day because there was not enough food?	0= Never 1= Rarely (once or twice in the past 30 days 2= Sometimes (Three to ten times in the past 30 days 3= Often (more than 10 times in the past 30 days	-----
6.2.7	Was there ever no food at all in your household because there were no resources to get more?	0= Never 1= Rarely (once or twice in the past 30 days 2= Sometimes (Three to ten times in the past 30 days 3= Often (more than 10 times in the past 30 days	-----
6.2.8	Did you or any household member go to sleep at night hungry because there was not enough food?	0= Never 1= Rarely (once or twice in the past 30 days 2= Sometimes (Three to ten times in the past 30 days 3= Often (more than 10 times in the past 30 days	----
6.2.9	Did you or any household member go a whole day without eating anything because there was not enough food?	0= Never 1= Rarely (once or twice in the past 30 days 2= Sometimes (Three to ten times in the past 30 days 3= Often (more than 10 times in the past 30 days	----

© University of Venda

SECTION 7: LOCAL INSTITUTIONAL FACTORS

7.1 Social Networks

7.1.1	Where (Relationship) do you usually get assistance?	[1]= Lineages [2]= Associates [3]=Neighbours [4]= Other (specify)…….
7.1.2	Are most of these households of related/greater/inferior pecuniary status?	[1]=Similar [2]=Higher [3]=Lower
7.1.3	If you encounter a prolonged food deficit emergence, how many households and institutions beyond your close household could assist you?	[1]=No one [2]=One or two people [3]=Three or four people [4]=Five or more people
7.1.4	How several intervals have they assisted you?	[1]=Few times [2]=Reasonable [3]=Many times
7.1.5	What type of help do people frequently give to those facing chronic food deficits?	[1]=Financial help [2]=Food help
7.1.6	In the past three months, how many households with food challenges have asked for your support?	[1]=No one [2]=One or two people [3]=Three or four people [4]=Five or more people
7.1.7	What and how much did you offer to others in the last month?	[1]=Cash [2]=Food [3]=Labour (hours per day) [4]=Unknown
7.1.8	If nothing, what are the reasons which made you unable to help others?	[1]=Have nothing to help [2]=No one came for help [3]=Other (specify)……
7.1.9	What is your major aim for assisting other households?	[1]=Others can support in future [2]= moral obligation [3]= Belong to the same church/tribe/group [4]=Others (specify)……

© University of Venda

7.2 Social Groups Organisation

7.2.1	Are you cognisant of any cooperative, association or group which offer assistance?	[1]=Not aware [2]=Aware	
7.2.2	If yes, do you engage with these institutions?	[1]=Yes [3]=No	
7.2.3	If no, why are you not engaged with these institutions?	[1]= No information [3] No cooperatives in the village [2]= No interest [4] Other specify _____	
7.2.4	Do institutions assist you in accessing the following amenities?	[1]=Farming inputs or expertise [ ] [2]=Markets [ ] [3]=Savings or Credit [ ] [4]=Access to food [ ] [5]=Health services [ ] [6]=Job and business opportunities [ ] [7]=Education or training [ ]	
7.2.5	Are you pleased with the assistance obtained from these institutions?	[1]=Yes [2]=No	
7.2.5.1	If the answer is no, give reasons?		
7.2.6	What prevent you or any member of your family from participating in these groups?	[1]=No time to participate in group activities [2]=Conditions are difficult to fulfil [3]=Refused by husband/wife [4]=No/few groups of my interest	

7.3 Social leadership participation

7.3.1 Did you participate in social leadership in the previous year?

[1]=Yes

[2]=No

7.3.2 If the answer is yes, state among the following

[1]=Traditional group

[2]=Political group

[3]=Religious group

[4]=Other {Specify]

© University of Venda

7.3.3 If yes, what assistance did you get from participating?

[1]= Salaried [2] = Social prestige [3] = access to assets [4] = Access to information [5] =Other (Specify)……..

© University of Venda

SECTION 8: ACCESS TO EXTENSION, TRAINING, MARKET AND CREDIT INFORMATION

8.1 Access to information

	Crops and livestock production information	a. Crop information 1a.Information on crop production	2a. who receives the information (Member ID)	b. Livestock information 1b. information of livestock production	2b. Who receive the information (member ID)
8.1.1	Do you receive advice from extension agent *If yes, answer*	[1]=Yes [2]=No		[1]=Yes [2]=No	
8.1.2	What type of information is provided? Key				
8.1.3	How do you receive the information? Key				
8.1.4	Which is the most nearby source? Key				
8.1.5	How frequently did you obtain this information in the last year?				
8.1.6	Does the information you receive meet your needs for crop and livestock production? [1]=Certainly [2]=Not at all [3]=Occasionally [4]=Don't discern				
8.1.7	If not, what type of information would you like to obtain? Specify				

Codes for 8.1.2a above : information on crop production,	**Codes for 8.1.3 above: How do you receive the information? And which is the most accessible source?**
Information about crop protection, soil and water conservation, agro-forest	Extension officers
Information about new crop varieties, information about crop utilisation	Television
Information about crop conservation tillage, crop livestock integration	Radio
Other (specify)…….	Newsletter

© University of Venda

Codes for 8.1.2b above: livestock information production	Neighbour/ friends
Information about destocking, information on new breeds	Traders
Information on livestock crop integration	Field days, agricultural shows, others (specify)
Other (Specify)……..	

© University of Venda

Extension 8.2

Extension		a. Crops 1a. information on crop production	2a. to whom do the extension agents give the information /advice (Member ID)	b. Livestock 1b. information on livestock production	2b. to whom do the extension agents give this information/advice
8.2.1	Do you receive information/advice from extension agent If yes, answer	[1]=Yes [2]=No		[1]=Yes [2]=No	
8.2.2	What type of extension approach was used? Code				
8.2.3	How frequent did extension agents contact you last year? Code				
8.2.4	The extension agents' visit/ Code				
8.2.5	Does the information you receive from extension agents meet your requirements? [1]=Certainly [2]=Not at all [3]=Sometimes [4]=Don't know				
8.2.6	How can extension facilities be enhanced? Specify				

NB: Please see the codes below for items 8.2.2 and 8.2.3

© University of Venda

Codes for 8.2.2 what type of extension agent is used	Codes for 8.2.3 from which organisation
[1]=farmer research groups	Religious groups
[2]=farmer field schools	Government departments
[3]=farmer to farmer exchange visits	Community based organisations
[4]=farm visits	Agriculture research station
[5]=common interest groups	NGOs
[6]=Other (Specify)……..	Civic society groups
	Private companies
	Other (Specify)……

8.3 Training

Training		Crop training 1a. training on crop production	2a. Who attended the training?	b. livestock training 1.b information on livestock activities	2b. Who attended the training?
8.3.1	Has someone in your household attended training for farmers in the last three years?	[1]=Yes [2]=No		[1]=Yes [2]=No	
8.3.2	Specify type of training				
8.3.3	Which organization provided the training?				
8.3.4	How often do you receive training?(no. of times per year)				
8.3.5	Does the information you receive meet your needs for crop and livestock production? [1]=Certainly [2]=Not at all [3]=Occasionally [4]=Don't discern				
8.3.6	If not, what type of training would you like to receive? Specify				

Codes foe item 8.3.2a above	**Codes for 8.3.3 Who provide the training?**
Training on crop protection, new crop varieties	Private institutions
Training on crop conservation tillage	Civic society
Training on crop utilisation and agro-forest	Religious groups
Training on water and soil conservation	CBOs
Others (Specify)…….	Agriculture research station
Codes for training 8.3.2b on livestock production	Government institutions
Training on livestock-crop integration	
Training on stock management	

© University of Venda

Training on new breeds
Training on feed storage
Training on feeding regimes
Training on livestock health and vet interventions

8.4 Markets

8.4.1 Where do you auction your produce? (Numerous responses are conceivable)

[1]=On farm

[2]=local market

[3]= Through cooperatives

[4]= Others (specify)

8.4.2 Who determines the prices?

[1]=Farmers

[3]=Middlemen [2] =Government

[4] =Other (Specify)

8.4.3 Is there a nearby market place?

[1]=Yes [2]=No

8.4.4 If yes, how far is it to the nearest market from your residence? (a) In distance……..km or in time……..hrs

8.4.5 What method of transportation do you utilise to get to the market?

[1]= Trucks

[2] = Animal power

[3]= Human portage

[4] = Others (specify) _____

8.4.8 Who determines the prices of these cash crops?

[1]=Farmers

[3] =Middlemen [2] =Government

[4] =Other (Specify)

8.5 CREDIT AND CASH LOANS

8.5.1 Have any member of you household borrowed money in the past year?

8.5.1.1 Credit Sources	8.5.1.2 Source [1]=Yes [2]=No	8.5.1.3 Purpose of the loan (note the codes below)	8.5.1.4 Number of loans
Money lender			

© University of Venda

NGOs			
Friends/Relatives			
Bank			
Cooperatives			
CBOs			
Others (specify)			

Codes for items 8.5.1.3 Purpose of the credit

[1]	To purchase farm machinery;	[10]	To pay for health expense
[2]	To purchase building material	[11]	To buy a business vehicle
[3]	To purchase farm inputs (seeds, fertilizers	[12]	To buy a car
[4]	Funeral	[13]	To pay for education
[5]	To purchase food/household goods	[14]	To buy land
[6]	To pay rent or taxes	[15]	To start non-farm activities
[7]	To repay other debts	[16]	To buy livestock
[8]	To pay hired labour	[17]	To pay for wedding
[9]	To pay for travel costs	[18]	Other (Specify)

8.5.2 If your household did not obtain a loan during the year 2016/2017, what was the reason for not getting…… (Code)

Code for item 8.5.2 Constraints on credit

[1]	Don't require it	[7]	Don't belong to institutions which give loans
[2]	Already have one	[8]	My request was denied
[3]	No required collateral security	[9]	Relying on a friend/relative who accessed a loan
[4]	Social stigma	[10]	Prohibited by experience on credit issues
[5]	Not aware of the sources of credit		
[6]	Charging exorbitant interest rates		

© University of Venda

SECTION 9: COPING STRATEGIES

Has your family encountered an unexpected and austere reduction in regular earnings in the previous 6 months?

YES	1	Not at all	0

If yes, what are the strategies used?

9.1	Coping strategies	Response
9.1.1	Does you have adequate diet to feed all the household members? 1= Yes, 2= No	----------
9.1.2	In the past seven days were there occasions when you did not have sufficient diet or cash to purchase food 1= Yes, 2= No	
	If yes, how many days in the past 7 days has your household had to?	Number of days 0-7
9.1.3	Rely on less favoured and less affluent diets	
9.1.4	Borrow food from or depend on assistance from relatives and friends	
9.1.5	Obtain food on loan	
9.1.6	Eat seed stored for next planting season	
9.1.7	Have family members consume somewhere else	
9.1.8	Reduce portion sizes at meal time	
9.1.9	Reduce intake by adults in order for kids to eat	
9.1.10	Decrease total number of meals consumed per day	
9.1.11	Avoid eating for the entire day and night	
9.1.12	In the previous month days were there a period when you did not have sufficient diet and cash to purchase food.	
	If yes, have your family done any of the following? 1= Yes, 2= No	
9.1.13	Did you sell any household assets	
9.1.14	Used savings	
9.1.15	Borrow money from friends or relatives	
	If yes do you have to pay including interests	
9.1.16	Reduce expenditure on health and education	

© University of Venda

SECTION 10: CHALLENGES AFFECTING ADOPTION OF SUSTAINABLE COPING OPTIONS

10.1	According to your understanding, what are the factors affecting sustainable coping strategies in the area? (Tick appropriately in the box provided)	**Response**
10.1.1	Pests and diseases	
10.1.2	Unreliable rainfall	
10.1.3	Dependence on rain fed agriculture	
10.1.4	Low use of improved farm inputs	
10.1.5	Wild life-cropping conflict	
10.1.6	Poor soil fertility	
10.1.7	Low provision of extension services	
10.1.8	Persistent droughts	
10.1.9	Unchecked veld fires	
10.1.10	Other (s) Specify	

10.2 What impacts of drought did you experience? (Tick appropriately)

	Impact
10.2.1	Crop failure due to low moisture content
10,2.2	Water sources desiccating, resulting in livestock and human water supply challenges
10.2.3	Lack of rudimentary products on the market
10.2.4	Hiking of foodstuff prices
10.2.5	Malnutrition
10.2.6	Unemployment
10.2.7	Migration
10.2.8	Other (s) Specify

© University of Venda

Appendix 9: Checklist for FDG on Strategies for Coping with Household food insecurity in Chipinge district of Zimbabwe

1. What do you understand on food insecurity?

1. Have you experienced food insecurity problem in your village?

2. What are the factors that determine household coping measures?

3. What are the coping options employed during food deficit condition?

4. In your own opinion, what are the factors inhibiting the adoption of viable coping measures?

5. In your own opinion what can be done to address household food deficit in the district

Thank you for your cooperation

© University of Venda